Time Out!

I Didn't Hear You

by

Catherine V. Palmer, Ph.D., CCC-A

Stacy L. Butts, MA

George A. Lindley IV, MS

Susan E. Snyder, MA, CCC-A

Sports Support Syndicate, Inc.
Pittsburgh, Pa. USA

Catherine Palmer, Ph.D., is available for speaking engagements. Universities, professional meetings, school-district educators, community groups, health-care providers, athletic associations, coaching seminars and even businesses and church groups have enjoyed Catherine's presentations.

For details on bringing Catherine or any other author from the Sports Support Syndicate to your group for a lecture/speaking engagement, contact the publisher. To receive a resume, reference list, topic ideas and scheduling dates, please make a written request for a speakers' kit.

Sports Support Syndicate,
108 S. 12th Street
Pittsburgh, PA USA 15203-1226

Office: 412-481-2497
Fax: 412-481-2540
Internet e-mail: MRauterkus@sportsurf.Net
http://www.SportsReader.Com/

Printed on Recycled Paper

Made in the U.S.A.

First Edition – First Printing

O.K. for Export, Trade Sales, and Library Markets

Translation and Movie Rights Available

Read! Exercise Your Mind!
Promote Literacy

Please support your local bookstores, especially if they stock works from independent, small-press, publishers.

First Edition & First Printing

Published by Sports Support Syndicate, Inc.
108 South 12th Street
Pittsburgh, PA 15203-1226 USA

Office: 412-481-2497
Fax: 412-481-2540
Internet e-mail: mrauterkus@sportsurf.net

ISBN: 1-878602-92-6
Softcover price: $25.00 - USA

This text is available in large print and on the internet by request to the publisher.

The Authors

Catherine V. Palmer received her doctorate from Northwestern University, and is currently an Assistant Professor of Communication Science and Disorders at the University of Pittsburgh. She has published scientiÞc articles in professional journals and is highly regarded as a dynamic teacher and researcher.

Stacy L. Butts, MA, was a research and project assistant to Dr. Palmer while she obtained her Masters Degree in Audiology at the University of Pittsburgh.

George A. Lindley IV, MS, made his network TV debut by winning on The Wheel of Fortune during his tenure in the Masters program at the University of Pittsburgh. George completed his CFY in Maryland and is now a doctoral student at Pitt.

Susan E. Snyder, MA, CCC-A, was a basketball player on Canadaîs National Team as well as a scholarship player in college at Rutgers and Michigan State. She has coordinated the Assistive Device Center at the University of Pittsburgh since 1992. Susan now resides in Arizona with her husband and son.

Catherine has written a large collection of articles and the following books:

Games for Active Learning Ñ For Any Classroom

Games for Active Learning Ñ Focus on Audiology

Acknowledgments

The authors of this project would like to thank the following people and organizations without whom the publication of this book would not have been possible.

This publication was supported in part through a contract between the University of Pittsburgh and Pennsylvania's Initiative on Assistive Technology (PIAT). PIAT is funded by the National Institute on Disability and Rehabilitation Research, US Department of Education, under Public Law 103-218, the Technology-related Assistance for Individuals with Disabilities Act Amendments of 1994 (#H224A2006-94A). We would like to extend a special thank you to Amy Goldman who was our liason at PIAT for her encouragement, patience, and editing.

The contributors included:

Heather Whitestone, Miss America 1995

Mary McGinnis, Miss America Organization

Jim Ryun, Olympic Athlete, Track and Field and his wife Anne Ryun

John Pride, father of Curtis Pride, baseball player with the 1995 Montreal Expos

Neil Gwinn, assistant coach/player, United States Deaf Soccer Organization

American Academy of Audiology, Greg Chavez

Sprint Relay Service

Pennsylvania Interscholastic Athletic Association, Robert Lombardi

National Federation of State High School Associations, Robert Kanaby

Elaine Mormer, M.A., University of Pittsburgh Speech and Hearing Clinic

USA Gymnastics, Julie Bejin

United States Women's Lacrosse, Susanna McVaugh

USA Baseball, Richard E. Case

United States Fencing Association, Kristi Roberts

Women's International Bowling Congress, Stacy Fox

American Bowling Congress, Jeff Henry

National Archery Association of the United States, Colleen Walker Mar

National Rißе Association, Sheila Pasquini

United States Weightlifting Federation, Inc.

USA Table Tennis

United States Badminton Association

United States of America Rugby Football Union

United States Golf Association

United States Curling Association

United States Canoe and Kayak Team, Tiffany West

United States Rowing Association

United States Judo, Inc.

United States Ski Association

Athletic Director and Coaches of Plum High School, Pittsburgh, PA, Robert Terlinski

- Dave Anderson
- Julie McCormick
- Cindy Mitchell
- William Rometo
- Ron Deslauriers
- Anthony Krasowki
- Tim Sandstrom
- Joseph Ionta
- Kelli McIntyre
- Ed Nitrowski

Cumberland Valley School District, Pennsylvania, Robin Turo

Central Dauphin East Senior High School, Pennsylvania, Glenn Coates, Donna Roth

Mt. Lebanon High School, Pennsylvania, Elizabeth A. Bowers, Susan Wright

Parent Education Network, Louise Thieme, Ginny Duncan

The Pennsylvania Coalition of Citizens with Disabilities, Linda Anthony

Michele Chirdon Mundock, Johns Hopkins Listening Center, Baltimore, MD

Three Rivers Center for Independent Living, W. D. Chrisner III

Education Law Center, Inc., Nancy A. Hubley

Young Men's Christian Association of Pittsburgh, Nancy L. Kramer, Thomas Deen

MaryLou Dunmeyer, Pittsburgh Parents of Children with Hearing Loss

Contents

Chapter 1 Ñ **How to Use This Book** 6
Chapter 2 Ñ **The Ear, Hearing and Communication** 7
Chapter 3 Ñ **Assistive Devices and Communication Strategies** 13
Chapter 4 Ñ **The Law** 27
Chapter 5 Ñ **Communication Needs Assessment** 38
Chapter 6 Ñ **The Sports (Archery - Wrestling)** 50
Chapter 7 Ñ **Offcials** 82
Chapter 8 Ñ **Hearing loss didnÛt stop these athletes from participating** 83
Chapter 9 Ñ **Resources** 88

Figures

Figure 1. Schematic of the ear.
Figure 2. Graph of the frequency and intensity level of everyday sounds.
Figure 3. Graph of normal hearing.
Figure 4. Graph of moderate hearing loss.
Figure 5. Schematic of a hearing aid.
Figure 6. In-the-ear hearing aid.
Figure 7. Behind-the-ear hearing aid.
Figure 8. Portable telephone ampliÞer.
Figure 9. Assistive listening device to overcome noise and distance problems.
Figure 10. Audiometric data for example athlete.

Tables

Table 1. Tech Act projects by state.
Table 2. Hearing aid trouble shooting.
Table 3. Statewide telephone relay numbers.
Table 4. Features as a function of transmission type.
Table 5. Assistive device transmission and coupling options.
Table 6. Everyday communication strategies.
Table 7. Protection and advocacy organizations.
Table 8. Hearing, device, activity, and environmental data.
Table 9. Identifying communication within an activity.
Table 10. Solutions to previously identiÞed difÞcult communication situations.
Table 11. Hearing, device, activity, and environmental data for example athlete.
Table 12. Identifying communication within an activity for example athlete.
Table 13. Solutions to previously identiÞed difÞcult communication situations for example athlete.

Chapter 1

How to Use This Book

Extracurricular activities and sporting events may be very important for the overall educational and social experience of a child. For most children, the school day does not end at the sound of the bell of the last academic class. Many lessons about team work, responsibility, winning, and losing happen in Òafter schoolÓ activities that are sponsored by the school. All children have the right under the law to access these after school activities in the least restrictive way just as they have a right to access the academic offerings of a school.

There is such a tremendous focus on making academics accessible to children with hearing-impairment that extracurricular activities are often ignored. Further, students, parents, and coaches may mistakenly assume that team activities are not appropriate for individuals with hearing loss.

Time Out! I Didn't Hear You provides the student, parent, coach, athletic director, principal, school-board member and educational audiologist with all the information needed to make athletics accessible in the most cost-effective, comfortable way. We recommend that you approach making athletics accessible in the following manner. Review Chapter 2 ÒThe Ear, Hearing, and CommunicationÓ in order to understand the impact of hearing loss on communication.

Chapter 3 ÒAssistive Devices and Communication StrategiesÓ should be read carefully before tackling a sports speciÞc chapter. The sports speciÞc chapters were written assuming that the user has read Chapter 3. The devices are described in detail in Chapter 3 and are not re-detailed in the sports specific chapter. Chapter 3 also describes general solutions regarding hearing aids and communication strategies that are important in any athletic activity.

Chapter 4 speciÞcally explains the student's rights to participate in athletic activities and the process that the parent and school may go through to obtain appropriate accommodations. Use this chapter as a reference if questions or concerns come up. Anyone involved in writing the student's individual education plan will want to use this chapter.

Chapter 5 takes you through a complete communication needs assessment for the individual student and sport. Use the sport speciÞc section in Chapter 6 to complete the needs assessment. Students and parents may want to review a variety of sports in Chapter 6 in order to understand the communication demands of different sports.

Chapter 8 provides biographies and interviews of athletes, parents, and coaches who have experienced hearing loss and successfully participated in athletics. Their stories are interesting and motivating Ñ read Chapter 8 for added encouragement.

Time Out! I Didn't Hear You is meant to be a complete guide to creating solutions to communication challenges that hearing-impaired students may face in athletic activities. Participating in athletics is good for the student with hearing impairment and the potential talents of the hearing-impaired student are good for the team!

Chapter 2

The Ear, Hearing and Communication

Hearing loss of various degrees and causes affects approximately 17 million people in the United States including nearly 26,000 teenagers between the ages of 12-17 years. The impact hearing impairment can have on the education of these individuals is signiÞcant. While some individuals with hearing impairment are educated in schools for the Deaf, others are in self-contained classrooms or mainstreamed in regular public high schools. Communicatively speaking, students with hearing impairment are at a distinct disadvantage without the use of advanced technology when placed in classrooms of individuals with normal hearing. One of the primary systems of communication can not be utilized. For a better understanding of hearing loss, this chapter explains the basic anatomy of the ear and the various types and degrees of hearing loss. Most importantly, the impact of a hearing loss on day-to-day communication is discussed.

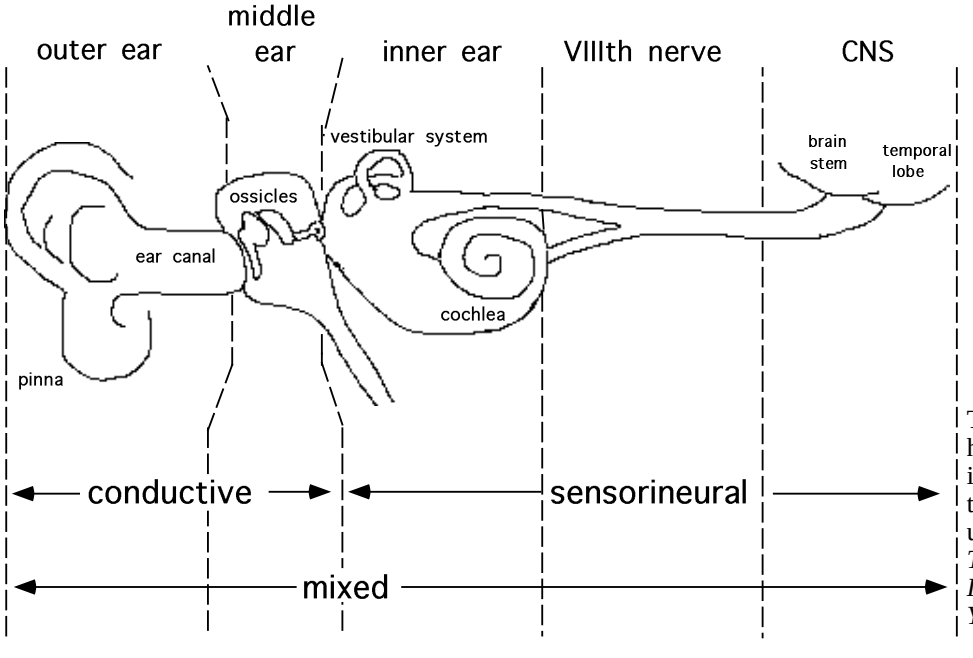
Hearing Anatomy

In the simplest terms, the ear consists of four major divisions: the outer ear, the middle ear, the inner ear, and the auditory nervous system. Each division has a speciÞc purpose in the reception, transmission, and processing of sound. Many of these concepts are too detailed and would require many more pages than provided in this book. The information in this chapter will provide the reader with the basic knowledge needed to understand hearing loss and how it affects communication.

Outer Ear

The structures of the outer ear are commonly referred to as Ôthe earÓ because of their visibility on the outside of the body. The outer ear protects the inner structures of the ear and assists in localizing the direction of sound. The anatomy of the outer ear includes the pinna (ear lobe), the external auditory meatus (ear canal), and the tympanic membrane (eardrum). Figure 1 shows a schematic of the ear. As sound travels through the air it is directed into the ear canal by the pinna. When the incoming sound reaches the end of the ear canal, it sets the eardrum into motion. The movement of the eardrum causes the three tiny bones in the middle ear, known as the ossicular chain, to move as well.

Figure 1 **Schematic of the ear.**



Schematic of the auditory system

Type of hearing impairment terminology used in *Time Out! I Didn't Hear You.*

Middle Ear

The ossicular chain, or ossicles, is made up of the malleus, the incus, and the stapes. To some, these bones are better known as the hammer, the anvil and the stirrup. These tiny bones along with the associated ligaments and muscles and the surrounding space create the middle ear. The eardrum is connected to the ossicles on the malleus. Movement of the eardrum causes push-pull movement of the ossicles. Since the three middle ear bones are connected, moving action of the malleus causes motion of the incus which makes the stapes move. This push-pull action of the ossicles causes movement of the cochlear ßuid in the inner ear because the stapes is connected to the membrane that separates the middle ear space from the inner ear space.

Inner Ear

Structures contained in the inner ear include the vestibular system, the cochlea, and the auditory nerve. The vestibular system is the balance organ and does not have any signiÞcant role in the transmission and processing of sound. The snail-shaped cochlea is the true hearing organ. As soundwaves travel through the ear, movement of the eardrum and the ossicles causes the ßuid in the cochlea to move. As this ßuid moves, energy is transferred through the cochlea in a pattern that imitates the intensity and frequency of the sound. The sound stimulus, after it is mapped in the cochlea, travels along the auditory nervous system to the brain as electrical impulses.

Auditory Nervous System

The cochlea is innervated by the auditory portion of the VIII cranial nerve. As it leaves the cochlea, the auditory nerve joins the vestibular portion of the VIII nerve. The VIII nerve travels up through the brainstem and to the auditory areas within the brain. It is within these areas of the brain that the processing and the identiÞcation of sound occurs.

As you can see, Òthe earÓ does not exclusively consist of the outlying structures that are visible to the eye. It is a complex system of structures and nerve pathways, each with its own purpose and function. Parts of any of these areas can be damaged causing different types and degrees of hearing loss.

Types of Hearing Loss

Conductive

Conductive hearing loss is typically a non-permanent impairment that affects the outer or middle ear. The effects of conductive impairment can be compared with those of an ear plug. It is, in a sense, a blockage in the transmission of sound by reducing its intensity. Some causes of conductive hearing loss include impacted ear wax, foreign objects in the ear canal, ear infections (otitis media), or a break in the ossicular chain in the middle ear. Most conductive hearing losses can be treated by a medical doctor.

Sensorineural

A lesion can occur in the inner ear (sensory) or on the VIII nerve (neural) resulting in a sensorineural hearing loss. This type of hearing loss is permanent and irreversible. In a true sensorineural impairment, the outer and middle ears are not affected, therefore, sound is transferred through these areas normally. It is when sound reaches the inner ear that the hearing loss begins. Damage to the structures involved in a sensorineural hearing loss can occur by exposure to very loud sounds, congenital abnormalities, tumors, and infectious diseases. People with sensorineural losses work with audiologists who provide hearing aids and assistive devices/strategies that help individuals function with the permanent hearing loss. Eighty percent of individuals who have hearing loss, have this type of medically non-treatable hearing loss.

Mixed

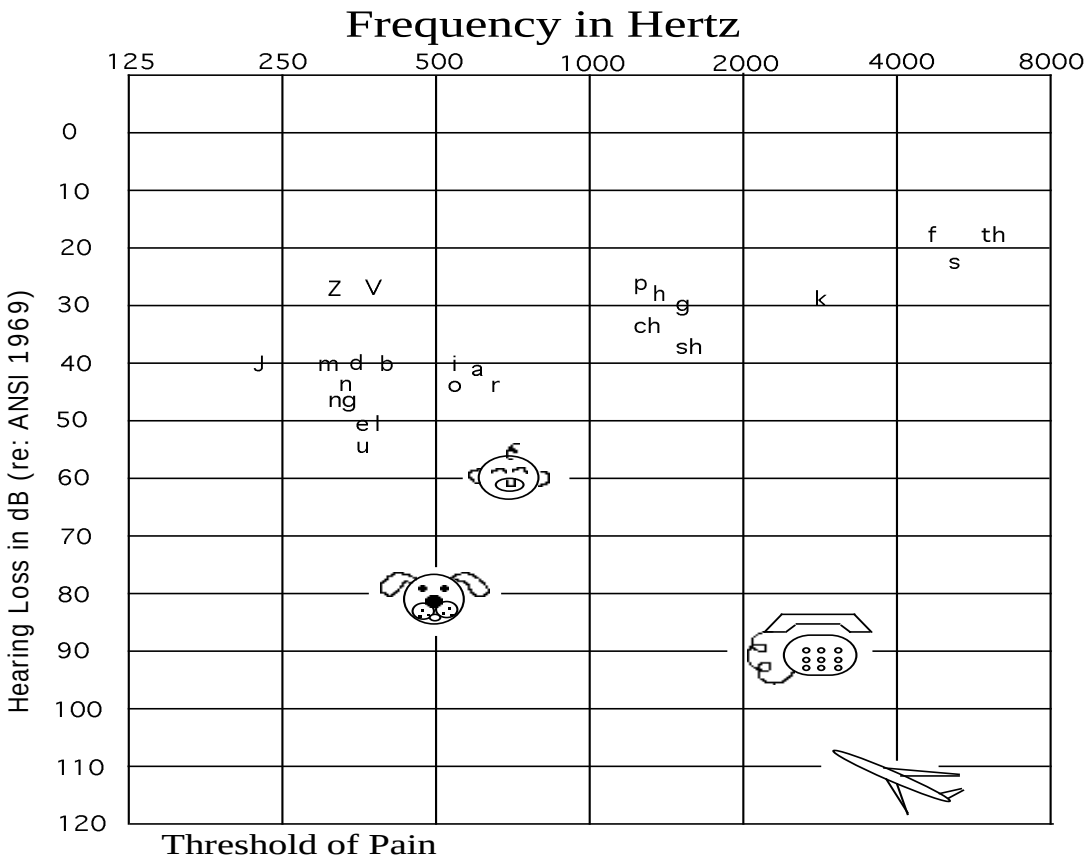
A hearing loss can occur that has both a conductive component and a sensorineural component. A permanent hearing impairment in the inner ear is present in conjunction with some blockage in the transmission of sound in the outer or middle ear. A good example of a mixed hearing loss is a child who has a congenital sensorineural hearing loss and also has an infection in the middle ear. In this case the middle ear infection can be treated but the congenital component is permanent.

Degrees of Hearing Loss

Hearing loss can be present in a variety of degrees and conÞgurations. It is very rare to Þnd someone who doesnÕt hear at all. The degree of hearing loss refers to how loud sound has to be at a particular frequency for a person to hear it. The conÞguration refers to the shape on the audiogram. Very few people have the same amount of hearing loss at every frequency. It is much more common to have a sloping hearing loss where you may hear better in the low frequencies and worse in the high frequencies. Although we often hear news reporters refer to a percentage of hearing loss (ÒHe has been 75% deaf since birth), this information is actually meaningless if you are trying to Þgure out the impact on communication. You need to see a graph of hearing ability to start to determine the degree of hearing loss. Anyone can use a graph of hearing ability to understand the impact of a hearing loss if they just know a little bit about the measurement of hearing.

We have used the term Òhearing-impairedÓ to describe people in this book. The description Òhearing-impairedÓ includes all individuals who have a loss of hearing sensitivity no matter how mild or severe and regardless of the functional impact on the person. You also will notice that phrases such as Òthe student with hearing impairmentÓ are used. This is Òperson ÞrstÓ language and as a parent, coach, teacher, and therapist you should use this language, too. You are working with a young person who happens to have a hearing impairment. The hearing impairment does not deÞne the person.

Figure 2 **Graph of the frequency and intensity level of everyday sounds.**



Audiogram with frequency and intensity specific sounds.
Adapted from: The American Academy of Audiology with permission.

Measuring Basic Hearing Ability

Audiologists are the professionals who measure hearing. The audiologist plots hearing ability on a graph called an audiogram. The horizontal axis (going across) shows the different frequencies that we need to hear in order to understand speech. The vertical axis (going up and down) shows the different intensity levels that a human can hear. Figure 2 is a picture of an audiogram. Zero decibels (dB) represents very quiet sound. A person with completely normal hearing can just barely hear a sound at 0 dB. A very loud sound is represented by 120 dB. A person with normal hearing would not enjoy listening to sound this loud.

In Figure 2, all of the speech sounds in the English language have been placed on the graph to show what frequency they are at and how loud they are in normal conversational speech. If you shouted a sound it would still be near the same frequency but it would be at a larger decibel number on the graph. Just to make sure you understand the graph, Þnd the sound ÒfÓ. You can tell by the graph that ÒfÓ has a frequency of approximately 4000 Hz and it is 20 dB loud when spoken in normal conversational speech.

When an audiologist measures hearing, he/she marks the audiogram at each frequency where the person can just barely hear the sound (threshold). So you get a mark for each ear at each frequency (Xs for the left ear, 0s for the right ear). If you look at Figure 4, youÕll see an audiogram with a personÕs thresholds. Find the threshold at 4000 Hz (it is 50 dB). Since you know from Figure 2 that the ÒfÓ sound is only 20 dB loud, you know that this person canÕt hear Òf.Ó If you have the audiogram results of a student athlete, you can transfer them on to Figure 2 to get a better sense of what can and canÕt be heard. Draw the XÕs and 0Õs and connect all of the symbols with a line. Anything above (toward the top of the page) your line cannot be heard, anything below (toward the bottom of the page) can be heard under quiet conditions. If the student athlete wears hearing aids, youÕll want to know what he/she can and canÕt hear with the hearing aids on, so mark Figure 2 with the audiogram that was measured with the student using the hearing aids. These audiometric results can be obtained with permission (from parents and student) from the audiologist.

Normal Hearing

Normal hearing falls within the -10 to 15 dB HL range on the audiogram for children. Figure 3 shows an audiogram revealing normal hearing. All the XÕs and 0Õs are better than 15 dB.

Mild Hearing Loss

On the audiogram, a mild hearing loss is between 26 to 40 dB HL. Soft sounds such as whispers are typically not heard with this degree of hearing loss and normal conversational speech (typically 50-55 dB HL) may sound soft. Children with mild hearing losses will beneÞt from the use of hearing aids in order to learn about the world around them through sound.

Moderate Hearing Loss

A moderate hearing loss, 41–70 dB HL on the audiogram, falls in the range where most of the sounds in the English language are. With this degree of hearing loss, conversational speech is virtually, if not completely, inaudible unless the individual uses a hearing aid. In addition, many environmental sounds, such as trafÞc noises, telephones, and sirens, sound quieter with a moderate hearing loss. Figure 4 shows a moderate hearing loss that is worse in the higher frequencies.

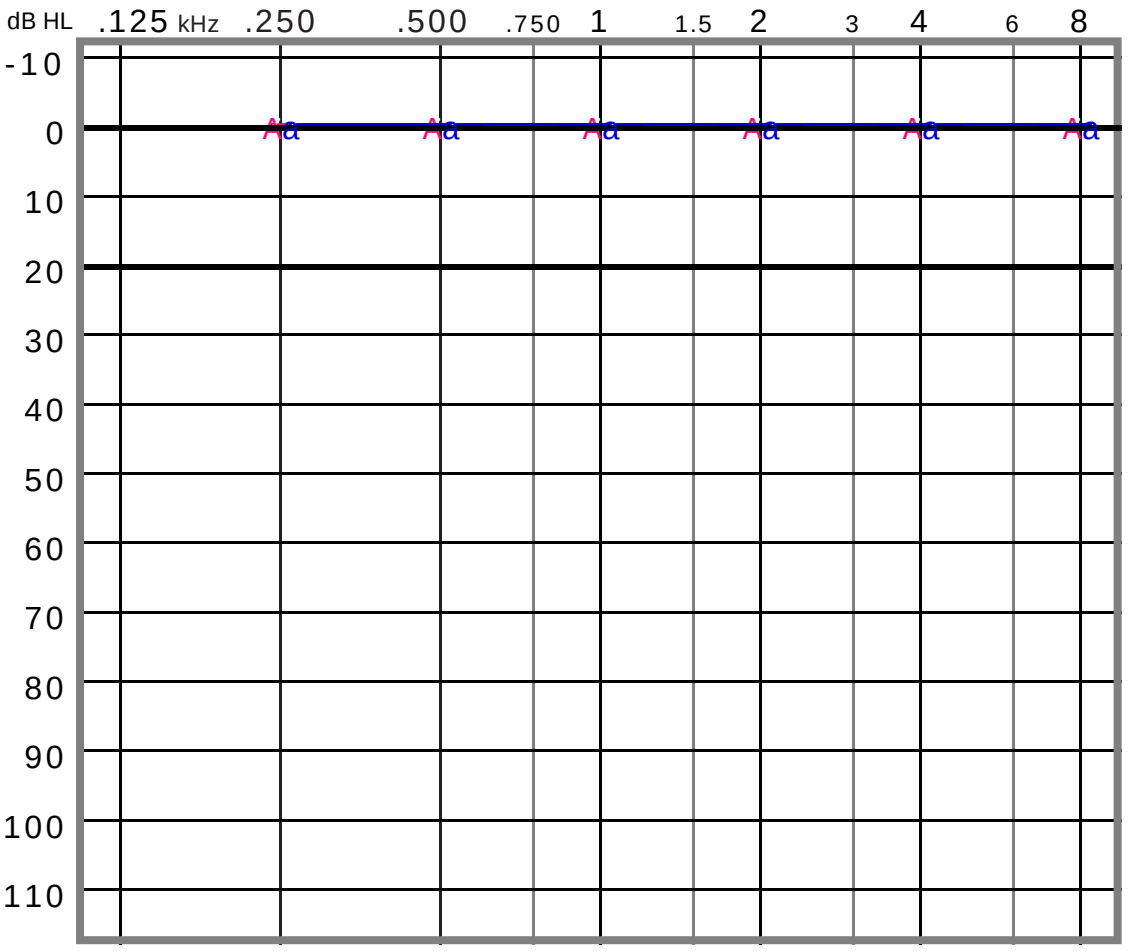
Severe Hearing Loss

Severe hearing losses provide the person with little hearing. Ranging from 71 to 90 dB HL, severe impairments eliminate hearing of conversational speech and many environmental sounds. People with severe hearing losses often beneÞt from the use of hearing aids.

Profound Hearing Loss

An individual with a profound hearing loss is typically described as Òdeaf Ó. On the audiogram, a profound loss is 91 dB and higher. Many individuals with profound hearing loss will not beneÞt from hearing aid use for the purpose of hearing conversational

Figure 3 **Graph of normal hearing.**



speech. Some individuals may use hearing aids to hear loud, environmental sounds. Some individuals with profound hearing loss may have received cochlear implants. This is a device that is implanted into the head. A signal processor is worn on the body and transmits electrical pulses to the internal device. The internal device stimulates the nerve of hearing. The individual no longer hears sound like a person with normal hearing or a person with a hearing aid, but instead hears a coded signal. Many individuals become very good at understanding speech using cochlear implants. Cochlear implants can be coupled to assistive listening devices just as hearing aids can be. Some individuals with profound hearing impairment will use sign language as their primary mode of communication and will not rely on sound at all.

Impact on Communication

The impact that hearing loss has on an individual is variable and can not be predicted easily. Other variables such as the cause of the hearing impairment and developmental, psychological, and psychosocial issues inßuence how the individual will function communicatively. As you may have discovered from the previous section, the degree of hearing loss has a tremendous impact on how speech is perceived by these individuals. If someone has a moderate to severe hearing impairment, a large portion of speech is mufßed or inaudible without the use of a hearing aid.

Coaching strategies can be built around the student̊s available hearing. For instance, if you draw the

Figure 4 **Graph of moderate hearing loss.**

student0s audiogram and Þnd that he/she can hear at 30 dB at 250 Hz and 500 Hz and cannot hear until 50-70 dB from 1000 Hz to 8000 Hz, you may be able to use words with the sounds Òm, d, b, n, lÓ (see Figure 2) during a game. For instance, if players use the word Òmine Ó to indicate that they will get the ball, this athlete should be able to hear that signal.

Coaches and parents often feel like a student with hearing impairment hears them when he/she Òwants Ó to. What seems like selective hearing can be explained by the different degrees of hearing loss at different frequencies and the impact of noise. As you use different words (with different frequencies in them) the student may hear one statement and not another. Sometimes a student may hear some sound but not the whole word and therefore may not know that the question was directed to him/her. It is essential to get the attention of a person with hearing impairment before starting to speak. Think about a person with the hearing loss depicted in Figure 4 and use Figure 2 to help you understand what he/she can and canÛt hear. If the studentÛs name is ÒBob,Ó he will hear his name when the coach says it. If during practice the coach says ÒBob, fake.Ó Bob will most likely turn around because he heard his name, but it is unlikely that he will have understood the instruction to ÒfakeÓ Understanding what can and canÛt be heard can save everyone a lot of frustration.

Although it takes a lot of noise to interfere with the hearing of individuals with normal hearing, a little noise may cover up what little hearing a person with hearing impairment had available to him/her. Always try to coach and teach away from noise. You can't get away from noise in a game atmosphere so you have to use other strategies. Useful strategies are discussed in Chapter 3 and in individual sport chapters.

The effects of hearing impairment on a person are highly individualistic, taking many factors into consideration. As a parent or coach of an individual with a hearing impairment, you must consider the needs of that child separately from all others who have hearing losses and find the appropriate measures to ensure that they are understanding and communicating effectively.

Chapter 3

Assistive Devices and Communication Strategies

This chapter serves as a general overview of all of the technology that will be mentioned in the sports specific chapters. Read these sections so you will be familiar with the various solutions. By becoming familiar with these options, you may find that you can apply a solution in your sport that we didn't even think of and that may not be included in the specific sport chapter. Also, don't be limited by these solutions, technology is changing all the time. If you have a communication problem and none of these solutions seem to fit the bill, sit down and write down exactly what you would like to be able to do (not being limited by the solutions you know are available) and indicate what is interfering with your goal. Take this ideal scenario and limitations to an audiologist and chances are he/she can come up with a solution using a combination of modified technology and communication strategies. Creating solutions is the exciting part of being an audiologist, make sure you give him/her the chance to assist you.

In addition, your state's project under the Technology-Related Assistance for Individuals with Disabilities Act Amendments of 1994 (the Tech Act) will have comprehensive listings of assistive devices, what they do, and how to obtain them. See Table 1 for a complete listing of Tech Act projects by state.

Hearing Aids

Most people with mild-to-severe hearing loss will benefit from a hearing aid. Although there are many types of hearing aids and special types of processing circuitry available, most hearing aids provide the same general types of circuitry. Figure 5 is a schematic of the parts of a basic hearing aid. Sound goes into the hearing aid through the microphone, the user can make sound louder or quieter using the volume control, the amplifier amplifies different frequencies depending on how the hearing aid has been fit to

Table 1
Tech Act Projects by States.

ALABAMA	205-281-2276 (TDD) 205-288-0248 (V)
AM SAMOA	684-633-1805 (V) 684-233-7874 (TDD)
ARIZONA	602-324-3170 (V) 602-324-3177 (TDD)
ARKANSAS	800-828-2799 (V) 501-666-8868 (V/TDD)
CALIFORNIA	916-324-3062 (V) 916-324-7386 (TDD)
COLORADO	303-420-2942 (V/TDD)
CONNECTICUT	203-298-2018 (TDD) 203-298-2042 (V)
DELAWARE	302-651-6794 (TDD) 302-651-6790 (V)
D.C.	202-726-3996 (TDD) 202-877-1932 (V)
FLORIDA	904-487-3278 (V/TDD)
GEORGIA	404-657-3085 (TDD) 404-657-3084 (V)
GUAM	671-734-9309
HAWAII	808-532-7110 (V/TDD)
IDAHO	800-432-8324 (TDD) 208-885-3559 (V)
ILLONOIS	800-852-5110 (V/TDD) 217-522-7985 (V/TDD)
INDIANA	800-545-7763 (V/TDD)
IOWA	800-348-7193 319-353-6386 (V)
KANSAS	316-421-8367 (V) 316-421-0954 (TDD)
KENTUCKY	800-648-6056 (TDD) 800-648-6057 (V)
LOUSIANA	502-573-4665 (V/TDD)
MAINE	207-621-3195 (V/TDD)
MARYLAND	410-333-4975 (V/TDD)
MASSACHUSETTS	617-735-7820 (V) 617-735-7301 (TDD)
MICHIGAN	517-373-9233 (V) 517-373-4035 (TDD)
MINNESOTA	612-297-1554 (V) 612-296-9962 (TDD)
MISSISSIPPI	601-987-4872 (V/TDD)
MISSOURI	800-647-8558 (TDD) 816-373-5193 (V)
MONTANA	406-243-5676 (V/TDD)
NEBRASKA	402-471-0734 (V/TDD)
NEVADA	702-687-3388 (TDD) 702-687-4452 (V)
NEW HAMPSHIRE	603-224-0630 (V/TDD)
NEW JERSEY	609-292-7498 (V) 800-382-7765 (TDD)
NEW MEXICO	505-827-3532 (V/TDD)
NEW YORK	518-473-4231 (TDD) 518-474-2825 (V)
NORTH CAROLINA	919-850-2787 (V/TDD)
NORTH DAKOTA	701-265-4807 (V/TDD)
OHIO	614-292-2426 (V/TDD) 800-784-3425
OKLAHOMA	800-316-4119 405-427-3312(TDD)
OREGON	503-399-4950 (V/TDD)
PENNSYLVANA	215-204-1356 (V/TDD)
PUERTO RICO	800-496-6035 (mainland) 800-981-6033 (PR)
RHODE ISLAND	401-421-7005 800-752-8038 x 2608 401-421-7016 (TDD)
SOUTH CAROLINA	803-822-5404 (V/TDD)
SOUTH DAKOTA	605-394-1876 (V/TDD) 800-645-0673 (V/TDD)
TENNESSEE	615-532-6612 (TDD) 615-532-6530 (V)
TEXAS	512-471-1844 (TDD) 512-471-7621 (V)
UTAH	801-797-1982
VIRGINIA	804-662-9990 (V/TDD)
WASHINGTON	206-438-8051 (V) 206-438-8644 (TDD)
WEST VIRGINIA	304-293-4692 (TDD) 304-766-4698 (V)
WISCONSIN	608-267-6720 (V) 608-266-9599 (TDD)
WYOMING	307-777-7485 (V/TDD) 307-777-6947 (V)

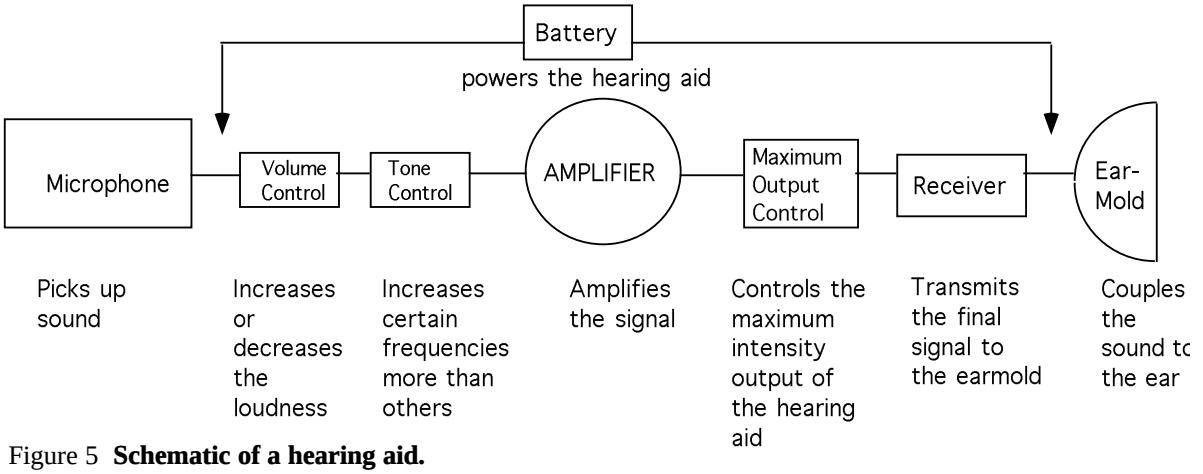


Figure 5 **Schematic of a hearing aid.**

the individual, and the receiver turns the signal back into sound and puts it into the earmold in order for the sound to go into the ear. The tone control and maximum output control are dials that the audiologist may change in order to Þne-tune the Þt of the hearing aid. These types of controls may be changed manually using a tiny screwdriver or by using a computer to program the changes. All hearing aids are made to limit the intensity of sound after a certain point in order to make sure that sound could never damage the individual's remaining hearing. All hearing aids and assistive devices need some sort of battery.

The general goal of any hearing aid is to make sound audible to the person with hearing impairment. Therefore, hearing aids are Þt individually in order to only amplify the right amount at each frequency based on the individual's hearing loss. Because the hearing aids are Þt for the individual, it is always best for the student to wear his/her personal hearing aids. As we will see in later sections, other assistive devices can be used to assist in hearing. It is always best to connect these other devices to the personal hearing aids to ensure that sound is being ampliÞed properly.

Hearing Aid Styles

Hearing aids come in three basic styles: in-the-canal, in-the-ear, and behind-the-ear. The in-the-canal hearing aid is inserted deeply into the ear and may not even be seen when looking at the person straight on. These hearing aids are best for mild to moderate hearing losses that are fairly ßat on the audiogram. In-the-ear hearing aids Þt all within the ear (see Figure 6). The edge of the hearing aid can be seen at the edge of the outer ear. These hearing aids can be used with mild-to-severe hearing losses of any conÞguration. Behind-the-ear hearing aids actually sit behind the ear (see Figure 7). They are connected to a plastic earmold that sits all in the ear. These hearing aids can be used with mild-to-profound hearing losses of any conÞguration.

Figure 6 **This shows an Òin-the-ear hearing aid.Ó**

Figure 7 **This show a BTE (behind-the-ear) hearing aid. The earmold is shown on the left of the illustration.**

Students will usually be Þt with behind-the-ear hearing aids because their ears are still growing. If one were to use an in-the-ear hearing aid with a growing student, a new hearing aid casing might be needed every six months because the hearing aid wouldn't Þt in the ear any more. This becomes a fairly expensive proposition. With a behind-the-ear hearing aid, the only part that has to be changed when the child grows is the earmold that will only cost about $25.00. Behind-the-ear hearing aids also are made to be compatible with many different assistive devices that can be very important to the student scholar and athlete.

Humans are meant to hear with two ears. If a student has hearing impairment in both ears, then he/she should have hearing aids for both ears if possible. Hearing with both ears helps enormously in hearing in noise and localizing (identifying where sound is coming from). Both of these abilities are essential in many athletic activities.

Ideally, the audiologist who evaluates the student's hearing and dispenses hearing aids will ask the student about all aspects of his/her life (school, sports, other activities, home, hobbies, etc.) before selecting a hearing aid. Answers to the various questions will help the audiologist know what type of hearing aid and what extra accessories should be ordered. An assistive device needs evaluation is included in this book so you will know what kinds of questions need to be asked in order to select the right hearing aids. Again, ideally assistive devices and hearing aids should be selected at the same time to make sure all of the student's communication difÞculties are addressed.

Table 2

Trouble Shooting Simple Problems with Hearing Aids

Hearing aid is not making any sound.
¥ Insert a new battery.
¥ Check if the battery is inserted correctly (the + on the battery should match the + on the battery compartment).
¥ Check that any wrapping is removed from the battery.
¥ Check that the hearing aid is on M (microphone).
¥ Check that the volume control wheel is turned up.

Hearing aid sound is weak.
¥ Check if the sound channel of the earmold or ITE shell is blocked. Carefully remove any debris.

Acoustic feedback (whistling)
¥ Any cracks in the shell of the hearing aid or the earmold will cause whistling.
¥ Make sure clothing is not touching the hearing aid.
¥ Poor Þt of the earmold or ITE shell in the ear will cause whistling.
¥ Excessive wax in the ear canal can cause feedback. Wax should be removed by a qualiÞed professional.

Intermittent functioning
¥ Corroded battery contacts. Clean the contacts with alcohol.
¥ Defective battery. Replace the battery.
¥ Dirty volume control. Rotate the volume control wheel 50 times to clean away dirt.

Hearing aid sounds "noisy"
¥ Dirt in battery contacts. Clean the contacts with alcohol.

If these simple solutions do not work, the hearing aid should be returned for repair.

Hearing aids are actually pretty sturdy and can take some bouncing around. There are a few things that should be avoided: don't put hearing aids directly under water and don't drop hearing aids onto hard surfaces.

Batteries. Students should always carry extra batteries for their hearing aids and any other assistive devices. For young students, the coach or teacher may want to assume this responsibility. The most common cause of a hearing aid not working is the battery being dead.

Whistling. Another common problem is feedback; the whistling that you sometimes hear coming from a hearing aid. Feedback is caused when sound that has gone into the microphone and been ampliÞed, leaks out of the ear due to a crack in the earmold or hearing aid or a loose Þtting earmold and goes back into the microphone and is re-ampliÞed. If the earmold or hearing aid is cracked, it needs to be repaired by a professional. If the earmold no longer Þts in the ear properly (the child has grown) a new earmold needs to be made by a professional. Many times, however, feedback is caused because the earmold has been knocked loose and it simply needs to be re-inserted.

If clothing, helmets, or any other hard surface come too close to the hearing aid you also will hear feedback. Since no earmold completely seals the ear, when you bring the hearing aid too close to a solid object, the sound that does leak around the earmold is in a sense pushed back to the microphone and re-ampliÞed. The hearing aid microphone needs some open space around it. The hearing aid is not helping the student when it is squealing. This is a problem whenever students try to wear helmets or hoods with their personal hearing aids in their ears. A variety of solutions for this problem will be described in the chapters for sports requiring helmets.

Moisture. Hearing aids also are adversly impacted by lots of moisture (humidity in closed swimming pools, sweat, etc.). If a student will be wearing his/her hearing aid poolside or during athletic activities, he/she should obtain a "Dry-Aid" kit from the audiologist. The hearing aids are placed in this kit each night (while the student is sleeping) and the kit in essence de-humidiÞes the hearing aid circuitry. These kits are inexpensive and may add years on to the life of a hearing aid.

There are a few hearing aids on the market that claim to be waterproof. These will be more resistant to condensation but cannot actually be submerged in water. Any BTE wearer can use SuperSeals “ to keep occasional moisture out of the hearing aid. These are tight plastic covers that slip over the whole BTE. The user can no longer manipulate the volume control wheel when the SuperSeals™ are in place.

Bouncing. Athletes wearing BTEs may Þnd that the aids bounce around during practice and game time. Currently, two solutions are available. HuggieAids “ consist of a clear plastic loop that goes all the way around the outer ear. There are two bands attached to this loop that slip over the BTE case, holding it in place. If the student would rather not have something going over his/her ear, double backed adhesive pads can be used to stick the back of the BTE to the skin directly behind the ear. These peel right off when the student is Þnished with the activity. An audiologist can provide either of these products through specialty catalogs.

Hearing Aid Circuitry

New circuitry is coming on the market every few months. This includes self-adjusting volume controls, multiple-memory hearing aids, digital signal processing, improved output limitng for loud sounds, etc. Some of this circuitry may relate directly to special challenges faced by student athletes. For instance, many sports are loud because of the actual action and crowd noise. Students need hearing aids that limit the output of their hearing aids without causing unpleasant distortion. Currently, this would mean getting a hearing aid or assistive device with compression output limiting rather than peak clipping.

A multiple-memory hearing aid allows the user to push a button on a remote control or on the hearing aid to select different hearing aid responses for different listening conditions. If a baseball player will be wearing a custom helmet that has only one ear ßap, he/she will want to turn off the hearing aid under the ßap to avoid feedback. Rather than doing this manually, he/she could push a small remote control and have this happen automatically. When he/she is done wearing the helmet, the remote control is pushed again and the hearing aid comes back on at the predetermined volume control setting. Of course, the student has to keep track of the remote control.

Hearing aids can come with a remote control that allows the student to switch from a microphone that picks up sound all around them (omnidirectional) to a microphone that picks up only the sound in front of them (directional). This can be very valuable when going from listening to the coach in a timeout vs. hearing all of the court action during the game without needing to use extra equipment or wires.

We have not attempted to describe all of the special hearing aid circuitry that could be used in each sport because it is highly dependent on the student, Þnancial resources, and it is changing all of the time. If the needs assessment is conducted properly by a qualiÞed audiologist, special circuitry options should be obvious. As a parent, ask the audiologist to recommend possible advanced circuitry that might meet your child's communication needs so it can be included when it's time to replace his/her current hearing aids.

Cochlear Implants

A cochlear implant is a device designed to provide sound information for people who have a profound sensorineural hearing loss in both ears and show no signiÞcant beneÞt from hearing aids. The device is surgically implanted in the person's skull and has up to twenty-two electrodes that stimulate the nerve of hearing when coded electrical signals are received. A microphone worn like a behind-the-ear hearing aid picks up sound and sends it to the sound processor (a small pack worn on the belt or in a pocket). After amplifying, Þltering, and digitizing the sound into a coded signal, the sound processor sends the signal to the transmitting coil, which send the codes across the skin to the receiver/stimulator. Part of the implanted device is magnetic, which creates the link between the transmitting coil and the implanted device.

More and more children are receiving cochlear implants if they receive no beneÞt from hearing aids. All of the assistive devices described in this chapter and/or recommended in the sports speciÞc chapters can be coupled to cochlear implants. The only requirement is having the right cord to plug into the processor. The cords that couple assistive devices to cochlear implants are obtained from the cochlear implant manufacturer. The manufacturer will have to know exactly what assistive device is being used in order to provide the right cord.

The cochlear implant user always has a cord running from ear level to the processor. If a contact sport would make it dangerous to have wires or the processor pack, the student will be unable to hear when the device is unattached. Make sure other strategies are in place. If this individual uses sign language, the use of an interpreter during these circumstances would be appropriate. Unlike individuals with less hearing loss, the cochlear implant user can't couple assistive devices to his/her ears with earphones for quick communication with the coach.

Assistive Devices

According to the Technology-related Assistance for Individuals with Disabilities Act of 1988 (Tech Act), an assistive technology device is "any item, piece of equipment, or product system, whether acquired commerically off the shelf, modiÞed, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities." Assistive technology services are deÞned in the Act as "any services that directly assist an individual with a disability in the selection, acquisition, or use of an assistive technology device" (P.L. 100-407, Sec. 3, 1988).

The most basic deÞnition of an assistive device for individuals with hearing loss would be any device, with the exception of a hearing aid, that is used for the purposes of alerting, improving the environment for communication, and/or amplifying sound. An example of an "alerting" device would be a smoke detector with a visible (i.e., strobe light) and/or audible signal for those individuals who are unable to hear traditional smoke detectors. An example of an "improving the communication environment" device would include any device that serves to enhance the speech signal while reducing unwanted background noise and/or carries the signal over a long distance. Finally, an example of a device that serves to "amplify" a speech signal would include an ampliÞer specially made for use on the telephone.

Assistive devices can be further deÞned by the communication situations they are meant for, the type of signal used, how the signal is transmitted, and how the individual with hearing impairment is coupled, or "hooked up" to the device. The most commonly referred to communication situations include telephone use, media (television, radio, etc.), one-to-one communication, group situations, and large room (or

þeld) environments. Traditional hearing aids do not always provide enough beneþt when a sound is far away or when there is a lot of background noise. Therefore, assistive devices are sometimes used to supplement, or take the place of, a hearing aid.

The assistive device can reproduce the signal, whether it be speech, music, a þre alarm, etc., in several different ways. These include an audible signal, a visible signal, or a tactile signal (touch). The way the signal is transmitted to the individual also varies and can include an FM (radio) signal, infrared (light) signal, electrical (through a wire), and an electromagnetic signal (an induction loop). These methods of transmission will be discussed in detail later.

Finally, there are several methods of coupling a device to an individual with hearing impairment. These include earphones and a telecoil direct audio input, or built-in FM receiver using a hearing aid. Again, don't worry if some of these options sound unfamiliar; each will be discussed in detail.

Alerting Devices

As mentioned earlier, this type of device serves to alert the individual to sounds in the environment. Alerting devices are used to alert an individual to emergency situations (i.e., smoke detector, burglar alarm) or other, non-emergency situations including a telephone ring, doorbell, baby cry, dependent, alarm clock, starting whistle, etc.

An example of how an alerting device can be incorporated into an athletic event is in the chapter on track and þeld. The starting device can provide an audible and/or visual signal. With this method of signaling, the individual does not need to wear a special receiver. If an athlete with hearing impairment won't be wearing hearing aids during an event, it should be determined prior to the event that he/she can hear any audible signal without hearing aids.

A third method for receiving the signal would be through the use of tactile stimulation provided by a special wristband that vibrates. See the section on archery for a practical use of this method. Individual preference and degree of hearing loss play the major roles in deciding which method is best. Almost every type of signaling device available can provide the desired choice of stimulation.

How the alerting signal is transmitted also varies. For auditory and visual signals, the sound or light is simply transmitted through the air for all to see and/or hear. For a tactile signal, a transmitter must be placed near the signal of interest (e.g., a starting gun). The sound causes the transmitter to send a radio frequency signal to the vibrator receiver (e.g., the wristband worn by the athlete) and the instrument vibrates. There are advantages and disadvantage to each method and, as mentioned before, individual preference plays a big role. The combinations of possible sounds to monitor, transmission method, and coupling strategies are endless. Solutions for alerting situations are discussed individually for each sport.

Telephone

Hearing over the telephone can be difþcult for an individual with a hearing loss. The amount of difþculty will depend on the degree and conþguration of the hearing loss, the clarity of the signal, the amount of background noise, and the voice quality of the other party. It is impossible to listen on the telephone while wearing some hearing aids due to feedback. Feedback is a high pitched whistling sound emitted by the hearing aid when an object, such as a hand or telephone receiver, is placed too close to the hearing aid's microphone. When a hearing aid is feeding back, it is useless to the user and the feedback is often annoying and even uncomfortably loud.

Some hearing aids have special "circuitry" that allows individuals to listen on the telephone without feedback. This option is called a telecoil, and is available on most BTE and ITE hearing aids. The individual uses a switch on the hearing aid to turn on the telecoil and turn off the regular microphone. When the telecoil is on, the individual will only hear the signal from the telephone; no background environmental sounds will be picked up. The telecoil picks up an electromagnetic signal from the telephone and will not feedback. How this happens is not important. The important thing to remember is that a telecoil is an option available on many hearing aids and helps some individuals communicate effectively on the telephone. The telecoil also can be used to pick up signals from devices described in the one-to-one, small group, and large group communication section.

Figure 8 **Portable telephone ampliÞer**

Other options are available to be used by individuals whose hearing aids do not have a telecoil or who do not receive enough beneÞt from a telecoil alone. Some are small, portable ampliÞers that are strapped onto the handset (Figure 8). Other devices are permanent and built into the telephone. These include telephones with a volume control (most public telephones are of this nature), special handsets with a volume control, and ampliÞers that are located on the telephone cord. All of these devices can be used alone or in conjunction with a hearing aid.

Even with the use of a telecoil and/or special telephone device, some individuals with severe hearing losses will be unable to effectively hear on the telephone. For these instances, a third option, a text telephone (TT or TDD), is available that provides the signal visually. This device looks like a small, electric typewriter on which the telephone handset is placed.

When both parties are using a TT, communication occurs by typing messages back and forth. Whatever message is typed on one machine travels through the telephone wires and is visually displayed on the other party's screen. In many instances, however, the individual with hearing loss will wish to communicate with an individual with normal hearing and vice versa. Often, only the individual with hearing impairment will have a TT. In these cases, a relay service is used. When using this service, a relay operator reads the text message sent by the individual with hearing loss to the other party. The operator then types any verbal message from the other party for the TT user. The operator serves to verbally present the text message to the hearing party and visually present the verbal message to the party with hearing impairment.

A relatively new service available, voice carry over (VCO) is similar. Instead of typing his or her messages, the TT user verbally delivers his/her message which is heard by the other party. The message from the hearing party, however, is still typed and sent to the TT user. This option facilitates a more rapid exchange of information. In addition, a relay communication protocol exists that is easily learned and also helps to speed up the process without confusion. If a coach or teammate wants to communicate with the athlete with hearing impairment using the relay service, he or she should become familiar with this protocol. This can be accomplished by having the individual with hearing impairment give a quick "lesson" on the protocol or by asking the relay operator to give you instructions before placing the call. Table 3 provides the relay telephone numbers for each state in the U.S.

Table 3

Statewide Relay Phone Numbers

ALABAMA	AT&T (must be billed) 800-548-2546 (TDD) an Alabama exchange 800-548-2547 (V)
ALASKA	GCI & Relay Alaska 800-770-8255 (V) 800-770-8973 (TDD)
ARIZONA	MCI/VCD 800-842-4681(V) 800-367-8939 (TDD)
ARKANSAS	MCI 800-285-1121 (V) 800-285-1131 (TDD)
CALIFORNIA*	SPRINT 800-735-2922 (V) 800-735-2929 (TDD)
COLORADO*	SPRINT 800-659-3656 (V) 800-659-2626 (TDD) 800-659-4656 (COMP)
CONNECTICUT*	SPRINT 800-842-9710 (TDD) 800-833-8134 (V)
DELAWARE	AT&T 800-232-5460 (TDD) 800-232-5470 (V)

D.C.	AT&T 202-855-1234 (TDD) 202-855-1000 (V)
FLORIDA	MCI 800-955-8771 (TDD) 800-955-8770 (V)
GEORGIA	AT&T 800-255-0056 (TDD) 800-255-0135 (V)
HAWAII	GTE Hawaiian Telephone 808-643-8833 (TDD) 711 (TDD) 511 (VOICE) 808-546-2565 (V)
IDAHO	HAMILTON TELEPHONE 800-377-3529 (TDD) 800-377-1363 (V)
ILLONOIS	AT&T 800-526-0844 (TDD) 800-526-0857 (V)
INDIANA*	SPRINT 800-743-3333 (V/TDD)
IOWA*	SPRINT 800-735-2942 (TDD) 800-735-2943 (V)
KANSAS	SOUTHWESTERN BELL 800-766-3777 (V/TDD)
KENTUCKY	AT&T 800-648-6056 (TDD) 800-648-6057 (V)
LOUSIANA	MCI 800-846-5277 (TDD) 800-947-5277 (V)
MAINE	AT&T 800-437-7220 (TDD) 800-457-1220 (V) 1-955-DEAF (TDD) 1-955-DPRS (V)
MARYLAND*	SPRINT 800-735-2258 (V/TDD)
MASSACHUSETTS	N.ENG. TELEPHONE. 800-439-2370 (V/TDD)
MICHIGAN	MICHIGAN BELL 800-649-3777 (V/TDD)
MINNESOTA	D.E.A.F., INC. 800-627-3529 (V/TDD) Minneapolis/St.Paul 612-297-5353
MISSISSIPPI	SOUTH CENTRAL BELL 800-582-2233 (V/TDD)
MISSOURI*	SPRINT 800-735-2966 (TDD) 800-735-2466 (V)
MONTANA	AT&T 800-253-4091 (TDD) 800-253-4093 (V)
NEBRASKA	HAMILTON TELEPHONE 800-833-7352 (TDD) 800-253-0920 (V)
NEVADA*	SPRINT 800-326-6868 (TDD) 800-326-6888 (V)
NEW HAMPSHIRE*	SPRINT 800-735-2964 (V/TDD)
NEW JERSEY	AT&T 800-852-7899 (TDD) 800-852-7897 (V)
NEW MEXICO*	SPRINT/NM Relay Network 800-659-8331 (TDD) 800-659-1779 (V) Albuquerque 505-275-7333 (TDD) 505-275-2444 (V)
NEW YORK	AT&T 800-662-1220 (TDD) 800-421-1220 (V)
NORTH CAROLINA*	SPRINT 800-735-2962 (TDD) 800-735-8262 (V)
NORTH DAKOTA*	SPRINT 800-366-6888 (TDD) 800-366-6889 (V)
OHIO	OHIO BELL 800-750-0750 (V/TDD)
OKLAHOMA*	SPRINT 800-522-8506 (V/T) So 800-722-0353 (V/T) No
OREGON*	SPRINT 800-735-2900 (V/TDD)
PENNSYLVANA	AT&T 800-654-5984 9TDD) 800-654-5988 (V)
PUERTO RICO	800-240-2050 (TDD) 800-260-2050 (V)
RHODE ISLAND*	SPRINT 800-745-5555 (V/TDD)
SOUTH CAROLINA*	SPRINT 800-735-2905 (V/TDD)
SOUTH DAKOTA*	SPRINT

	800-877-1113 (V/TDD) Sioux Falls 605-339-6464
TENNESSEE	AT&T 800-848-6298 (TDD) 800-848-0299 (V)
TEXAS*	SPRINT 800-735-2989 (TDD) 800-735-2988 (V) 800-735-2991 (COMP)
UTAH	UTAH ASSN. FOR THE DEAF 800-346-4128 (V/TDD) Salt Lake 801-298-9484 (TDD) Ogden 801-546-2982 (TDD) Logan 801-752-9596 (TDD) Provo-Orem 801-374-2504 (TDD)
VERMONT	AT&T (must be billed 800-253-0191 (TDD) to a Vermont exchange) 800-253-0195 (V)
VIRGIN ISLANDS	800-440-8477 (TDD) 800-809-8477 (V)
VIRGINIA	AT&T (must be billed 800-828-1120 (TDD) to a Virginia exchange) 800-828-1140 (V)
WASHINGTON	DEPT OF SOCIAL & 800-833-6388 (V/TDD) HEALTH SERVICES 800-833-6384 (V) Seattle 800-833-6385 (B) 206-587-5500 (V/TDD)
WEST VIRGINIA	AT&T (must be billed 800-982-8771 (TDD) a West Virginia exchange) 800-982-8772 (V)
WISCONSIN	MCI 800-947-3529 9V/TDD)
WYOMING	SPRINT 800-877-9965 (TDD) 800-877-9975 (V)

NATIONWIDE LONG DISTANCE RELAY SERVICES

SPRINT*	800-877-9873 (V/TDD)
FEDERAL INFORMATION RELAY SERVICE*	800-877-8839 (V/TDD) 202-708-9800 (V/TDD)

Telephone use may be important to notify student athletes of changes in practice or game schedules. If the coach is speaking directly with the students with normal hearing on the telephone, every effort should be made to communicate directly with the athlete with hearing impairment as opposed to having Mom or Dad relay the message. The student athlete also may need to use the telephone at practice or at a game in order to notify his/her parents of some sort of change in schedule or transportation.

One-to-one, small group, and large group communication

The one-to-one, small group, and large group communication solutions are discussed together because the same assistive devices can be used in each situation. In all of these situations, three problems interfere with communication: noise, reverberation, and distance. Noise is any sound that you don't want to hear that is blocking out the sound you do want to hear (i.e., the coach). This could be crowds cheering, other people talking, air conditioning noise, etc. Reverberation is what we often call the echo in a room. Rooms with hard surfaces (like gyms) have a lot of reverberation. The sound keeps bouncing off the walls and interferes with what we are trying to hear. The farther away a sound is, the harder it is to hear. This is because the sound gets softer as it travels, but the noise is all around us so it stays just as loud. Although noise, reverberation, and distance can make listening difþcult for everybody, they can make listening impossible for an individual with hearing impairment.

Assistive listening devices are meant to overcome all three of these problems. They do this by placing a microphone right near the sound you want to hear (e.g., the coach's mouth) and then transmitting the sound to a receiver on the person with hearing impairment. Finally, the signal goes from the receiver into the person's ear. This listening situation is similar to having the speaker talk into the individual's ear from a distance of several inches; a situation that is ideal from a listening perspective, but is certainly not very convenient.

When choosing an assistive device, you have to understand the environment it will be used in, any speciþc rules to the sport that might not allow such a device during play, and the individual characteristics

of the athlete's hearing aid. You then choose the transmission type (how the signal gets from the transmitter to the receiver) and the coupling method (how the signal gets from the receiver into the individual's ear). Any transmission choice can be paired with any coupling choice, one does not dictate the other. These choices are based on the environment and the individual's hearing aid. In each sport speciÞc chapter we have recommended particular technologies based on the sport. Below we brießy describe all of the choices so you will be acquainted with the various options.

Transmission Type

There are four primary transmission types that are currently available. FM transmission is just like a radio. It is an invisible signal that can travel over 100 yards to the receiver. It goes right through things and people. Unfortunately, in very busy areas, the FM receiver may pick up other, unwanted FM transmissions. Many FM systems come with a channel tuner so if you experience interference you can select a different channel to transmit and receive from (you should get this feature if possible). Infrared transmission is just like radio transmission except that it travels on light waves. The signal is stopped by objects and people getting between the transmitter and the receiver. The infrared transmitter won't work outside in the sunlight. A room loop is a loop of special wire that is put all the way around the listening area (room) and attached to the microphone. The wire produces an electromagnetic signal (this can't be heard through a human ear). A hearing-impaired individual's hearing aid can pick up this electromagnetic signal if the hearing aid has a telecoil switch. Loops only work in medium sized rooms and are not easily portable. Hardwired transmission is just what it sounds like. The microphone is attached by wire to the personÕs receiver. Although this is an inexpensive option, the speaker and listener are physically connected so mobility is a problem.

Table 4 describes general features of interest (i.e., portability, interference, etc.) as a function of transmission type. This chart should help you eliminate some of the choices. For instance if you know that you want to use the device outside, you can immediately eliminate infrared transmission.

Once a transmission type is selected, you have to decide how to get the transmitted signal to the ear. Table 5 describes the transmission options and coupling options. As you can see, any coupling option can be used with any transmission option. The lines indicate where the components of the system are actually attached by wire. In many athletic activities, you would like to have as few attachments as possible. In training situations and classroom teaching, mobility may not be as important. There are four basic coupling strategies. Earphones can be attached to the receiver box and placed over the ears. To use this option, the individual must take out his/her hearing aid and use the volume control on the receiver box. This is not the best solution for a hearing aid wearing individual. If the behind-the-ear hearing aid has a direct audio input attachment, a wire can run from the receiver and plug into the bottom of the hearing aid. Now the signal goes through the hearing aid circuitry and the volume control on the hearing aid can be used. If the in-the-ear or behind-the-ear

Table 4 Features as a function of tranmission type
X means that the statement applies to that transmission method

	Hard Wired	F M	Infrared	Room Loop
Covers large distances		X	X	
User is not restricted in terms of movement		X	X	X
Obstacles do not interfere with transmission	X	X		X
Relatively Inexpensive	X		X	
Good Sound Quality	X	X	X	X
Signal Cannot be picked up by other listeners in the same room	X			
Signal Cannot be picked up by other listeners in other rooms	X		X	X
Requires Batteries	X	X	X	X
Requires an electrical outlet			X	X
Easily portable/no set-up required	X	X		
Can be used in sunlight (outdoors)	X	X		X
Receiver may pick up unwanted sounds from surrounding area		X		X

Table 5 Assistive device transmission and coupling options

Assistive device transmission and coupling options. The <--> lines indicate that there is a wire connecting components.

Pick up	Transmission	Receiver	Coupling	Hearing Aid
microphone <-->	box <--> FM signal	box <-->	wire to earphones	none
microphone <-->	box <--> FM signal	box <-->	wire to BTE <---------->	plug into BTE
microphone <-->	box <--> FM signal	box <-->	neckloop wire	BTE or ITE set to telecoil
microphone <-->	box <--> FM signal	none	none	BTE set to FM
microphone <-->	box <--> infrared	box <-->	wire to earphones	none
microphone <-->	box <--> infrared	box <-->	wire to BTE <---------->	plug into BTE
microphone <-->	box <--> infrared	box <-->	neckloop wire	BTE or ITE set to telecoil
microphone <-->	wire <-->loop around room	none	none	BTE or ITE set to telecoil
microphone <-->	wire <-->hard wired <-->	box <-->	wire to earphones	none
microphone <-->	wire <-->hard wired <-->	box <-->	wire to BTE <---------->	plug into BTE
microphone <-->	wire <-->hard wired <--->	box <-->	neckloop wire	BTE or ITE set to telecoil

hearing aid has a telecoil switch, a loop of wire can be attached to the receiver (same plug that was used for the direct audio input) and worn around the neck. The lever on the hearing aid is switched to telecoil and the hearing aid picks up the electromagnetic signal that is coming from the neck loop wire. Thus, he/she is hearing only what is picked up by the receiver. Although the hearing aid is not physically connected to the neckloop, the telecoil setting is picking up the electromagnetic leak generated by the neckloop.

Some of the more recent behind-the-ear hearing aids have an FM receiver built right in. This means that the microphone and transmitter are placed by the sound source and the student simply switches a lever on the hearing aid to hear what is being transmitted by the transmitter. With these models, one often can see the small antenna that picks up the transmitted FM signal. The beauty of this arrangement is that the student doesn't have to wear anything extra (i.e., the receiver box or cords). This frees up the user to engage in physical activity while wearing nothing more than his/her hearing aids. The behind-the-ear system offers safety and mobility advantages that should be considered for any athlete with hearing loss. Students may want to think about purchasing this type of hearing aid when they need new ones. Hearing aids are usually replaced every 3-5 years or if hearing changes.

The coupling technique employed will be dependent on the amount of hearing loss, individual preference, and options available on the individual's hearing aid.

Figure 9 **Assistive listening device to overcome noise and distance problems**

Figure 9 shows a picture of an assistive listening device. Just to make sure you understand the various parts, let's run through how this device could be used. The microphone of the device is placed approximately six inches from the coach's mouth. This is easy to do using a lapel clip. The microphone is connected to the transmitter which can be placed in the coach's pocket or clipped onto a belt. The voice is transmitted over radio waves (FM transmission) to the receiver box which is worn by the listener. In Figure 9, an earbud is connected to the receiver. The listener would put the earbud in his/her ear to listen to the coach. The receiver has a volume control that the listener can use to turn up or down the sound. In this way, the hearing-impaired student can hear the coach no matter where he/she is sitting, the noise of the other students won't interfere with his/her listening, and the coach can speak at a comfortable level for all of the normally-hearing individuals.

The assistive listening devices are most beneÞcial when only one person (i.e., the coach) needs to

be heard. This may be the case during training and some practices. By placing the microphone near the wanted sound source, you are in essence eliminating any other sound sources. So if the coach is talking into the microphone and then another player asks a question, the individual using an assistive listening device will not hear the question. In this situation, the easiest solution may be for the coach to repeat the question which is a good technique to use in large classrooms anyway. If there is going to be discussion, the best solution may be to pass the microphone around. This means that only one person can talk at a time; again a good rule to follow anyway.

Some behind-the-ear hearing aids have settings that allow the telecoil, direct audio input, or FM pick up to receive sound directly from the assistive device microphone while still letting sound into the regular hearing aid microphone. The goal is to be hearing those around you and the coach at the same time. The problem is that if it is noisy, the hearing aid will pick up the noise and you will lose the advantage of the assistive device. These dual settings have not worked well for individuals we have worked with to date. Another option which you can try is having the hearing-impaired listener use one hearing aid for the assistive device input (i.e., the coach) and set the other hearing aid on the regular microphone setting to pick up the sound from the rest of the room (i.e., other student comments).

Television

Throughout the course of training and practice, videos are used for two purposes. Game/meet videos often are reviewed to see what went well and perhaps what went wrong. Generally, these videos do not have sound, they are simply visual displays of the event. The coach provides a running commentary pointing out the important parts of the video. In these circumstances, the athlete with hearing loss should use whatever communication method that allows him/her to understand the coach. This could be hearing aids alone, hearing aids coupled to an assistive device, or sign language interpreting. Any of the devices described in the previous section can be used for T.V. viewing. Simply place the microphone near the T.V. speaker. By using a device, the T.V. volume can be left at a comfortable volume setting for the normally-hearing athletes while the athlete with hearing loss can turn up the volume on his/her own device.

Sport speciÞc techniques and skills training tapes also are used. These may contain an audio signal that describes what the person is doing. Whenever possible, video tapes with open captioning (the words appear right on the screen) should be used. Using open captioning does not require the use of any special devices as the written text is part of the videotape itself. This differs from the more familiar closed captioning which requires the use of a decoder that is either built into the television or that is purchased separately. If captioning is not available, the student athlete with hearing loss should use whatever method works best to understand the tape (hearing aids alone, hearing aids coupled to an assistive device, sign language interpreting). If the student with hearing loss does not feel he/she was able to get all of the information from the video tape, two solutions should be considered. The coach may want to review the tape with the student or the student may want to borrow the tape and watch/listen to it when he/she can control the presentation pace.

Computer Assisted Note-Taking

A lecture or meeting also can be made accessible to an individual who cannot use an auditory signal by using computer assisted note-taking. A trained transcriber types the spoken message in real time. The typed message is projected onto the wall for viewing. This system requires a competent transcriber, a computer, and appropriate connections to the overhead projection.

Sign Language

If the student with hearing loss uses sign language to send and receive communication, a sign language interpreter should be provided to interpret at tryouts, practice, and games. How much interpreting is necessary should be determined by the student and coach. Remember, the student with hearing loss should receive all of the communication that the normally-hearing students receive.

Students who use sign language for communication will still need some assistive devices when it comes to alerting signals (for start and stop of a

game, fouls, etc.). Generally, visual or tactile signals will be most appropriate.

Communication Strategies

Communication strategies can be as simple as getting someone's attention before talking to them to plotting out an audiogram to determine what sounds are audible and can be used for auditory signals. Table 6 provides a list of simple communication strategies that can be used by the coach, teammates, ofÞcials, and the student with hearing loss.

The strategies in Table 6 should be used consistently regardless of the student's sport or degree of hearing loss. Sport speciÞc communication strategies are detailed in the individual sport chapters.

Summary

The use of assistive devices is an important part of making high school athletics more accessible to athletes with hearing loss. There are a multitude of relatively inexpensive devices that can be used for almost any difÞcult communication situation that can occur during practice and training. In some sports, assistive listening devices can be integrated, within the boundaries of the rules, into the game itself. The purpose of this chapter was to familiarize the reader with the various types of assistive listening devices, not to make an expert out of the reader. An audiologist will need to be consulted to determine which devices may be most appropriate and to demonstrate proper hook-up and use. In addition, the athlete with hearing loss may already be using an assistive device in the classroom. There is a good possibility this assistive device could be used in the athletic activity as well.

It is the responsibility of the coach, the athlete with hearing loss, and the other team members to work together to identify where communication breakdowns are occurring and to identify solutions. The devices themselves are simply tools that are used to try to come as close as possible to the ideal situation.

Table 6

Everyday communication strategies.

1. Encourage the listener to tell you what strategies work best for him or her.
2. Speak at a normal rate and loudness.
3. Avoid chewing, eating, or covering our mouth while speaking.
4. Use facial expressions and gestures.
5. Make sure your face is visible to the listener before talking. Face the listener directly and at the same level.
6. Move away from background noise.
7. Whenever possible, use visual cues to introduce new topics into the conversation. Avoid sudden changes in topic.
8. Give the listener enough time to comprehend your message and respond.
9. If a person has difÞculty understanding a particular phrase or word, try to Þnd a different way of saying the same thing rather than repeating the original words over and over.
10. If you are giving speciÞc information (e.g., time for a practice), ask the listener to repeat the information to verify correct reception and/or write down the speciÞc information.
11. Do not let the intensity of your voice drop at the end of your sentence.
12. During a group presentation, provide a brief outline of the presentation with any new vocabulary. Make use of visual aids. Be careful not to talk while you are looking at visual aids (e.g., blackboard) and away from the audience.
13. Restate any questions from the group.
14. The listener should concentrate on key words and overall meaning.
15. Become familiar with the sport you are playing and the terminology used.

Chapter 4

The Law and the Legal Process

The purpose of this chapter is to help parents* and students know their rights and the steps they should take to help their children participate in sporting events and extracurricular activities as players and/or spectators.

This chapter was written in consultation with Nancy A. Hubley, Esq. of the Education Law Center-PA, a non-proÞt public interest law Þrm with ofÞces in Pittsburgh and Philadelphia, Pennsylvania. Parents in Pennsylvania who are having difÞculty obtaining appropriate services for their child may want to contact the Center. The Center provides free written materials on the rights of students with disabilities to participate in public educational programs.

1901 Law and Finance Building
429 Fourth Avenue
Pittsburgh, PA 15219
412-391-5225 - 412-391-4496 (FAX)

801 Arch Street Suite 610
Philadelphia, PA 19107
215-238-6970 - 215-625-9589 (FAX)

If you are not a resident of Pennsylvania, we suggest you contact the Protection and Advocacy organization for your state (Table 7) to be referred to an agency knowledgable about special education rights and procedures in your state.

In addition, the projects funded by the Tech Act are committed to advocating for appropriate assistive technology devices and services for all individuals. Consult Table 1 to Þnd the Tech Act project in your state.

Table 7
Protection and advocacy organizations

Alabama

Div. of Rehabilitation & Crippled Children Services
2129 E. South Blvd. P.O. Box 11586
Montgomery, AL 36111
205-281-8780

Alabama Disabilities Advocacy Program
The University of Alabama
P.O. Drawer 870395
Tuscaloosa, AL 35487-0395

Alaska

ASIST
2900 Boniface Parkway, #100
Anchorage, AK 99504-3195
907-333-2211

Advocacy Service of Alaska
615 E. 82nd Avenue, Suite 101
Anchorage, AK 99518
907-344-1002 - 800-478-1234

American Samoa

Client Assistance Program &Protection & Advocacy
P.O. Box 3937
Pago Pago, American Samoa 96799
Minareta Thompson, Director
102288-011-684-633-2418

Arizona

Arizona Center for Law in the Public Interest
3724 N. 3rd Street, Suite 300
Phoenix, AZ 85012
602-274-6287

Arkansas

Advocacy Service, Inc.
1100 N. University, Suite 201, Evergreen Place
Little Rock, AR 72207
501-324-9215 - 800-482-1174

California

Client Assistance Program
830 K Street Mall, Room 220
Sacramento, CA 95814
916-322-5066

Protection & Advocacy, Inc.
100 Howe Ave., Ste. 185N
Sacramento, CA 95825
916-488-9950 - 800-952-5746

Colorado

The Legal Center
455 Sherman Street, Suite 130
Denver, CO 80203
303-722-0300

Connecticut

OfÞce of P&A for Handicapped and Developmentally Disabled Persons
60 Weston Street
Hartford, Ct 06120-1551
203-297-4300 - 203-566-2102 MI
800-842-7303 - (statewide)

Delaware

Client Assistance Program
United Cerebral Palsy, Inc.
254 Camden-Wyoming Avenue
Camden, DE 19934
302-698-9336 - 800-640-9336

Disabilities Law Program
144 e. Market Street
Georgetown, DE 19947
302-856-0038

District of Columbia

Client Assistance Program Rehab. Service
605 G Street, NW
Washington, DC 20001
202-727-0977

Information Protection & Advocacy
Center for Handicapped Individuals
4455 Connecticut Ave., NW Suite B-100
Washington, DC 20008
202-966-8081

Florida

Advocacy Center for Persons with Disabilities
2671 Executive Center, Circle West
Webster Building, Suite 100
Tallahassee, FL 323301-5024
904-488-9071
800-342-0823 - 800-346-4127 (TDD only)

Georgia

Division of Rehabilitation Service
2 Peachtree Street, NW, 23rd Floor
Atlanta, GA 30303
404-657-3009

Georgia Advocacy OfÞce, Inc.
1708 Peachtree Street, NW, Suite 505
Atlanta, GA 30309
404-885-1234 - 800-282-4538

Guam

Parent Agencies Network
P.O. Box 23474
GMF, Guam 96921
10288-011-671-649-1948

The Advocacy OfÞce
Micronesia Mall, OfÞce A
West Marine Drive
Dededo, Guam 96912
10288-011-671-632-7233 or 671-632-7264

Hawaii

Protection & Advocacy Agency
1580 Makaloa Street, Suite 1060
Honolulu, HI 96814
808-949-2922

Idaho

Co-Ad, Inc.
4477 Emerald, Suite B100
Boise, ID 83706
208-336-5353

Illinois

Illinois Client Assistance Program
100 N. First Street, 1st Floor W
SpringÞeld, IL 62702
217-782-5374

Protection & Advocacy, Inc.
11 E. Adams, Suite 1200
Chicago, IL 60603
312-314-0022

Indiana

Indiana Advocacy Services
850 North Meridian, Suite 2-C
Indianapolis, IN 46204
317-232-1150 - 800-622-4845

Iowa

Client Assistance Program
Lucas State Oþce Bldg.
Des Moines, IA 50310
515-281-3957

Iowa P&A Service, Inc.
3015 Merle Hay Road, Suite 6
Des Moines, IA 50310
Mervin L. Roth, Director
515-278-2502

Kansas

Client Assistance Program
Biddle Building, 2nd Floor
2700 West 6th Street
Topeka, KS 66606
913-296-1491

Kansas Advocacy & Protection Service
513 Anderson Avenue
Manhattan, KS 66502
913-776-1541 - 800-432-8276

Kentucky

Client Assistance Program
Capitol Plaza Tower
Frankfort, KY 40601
502-564-8035 - 800-633-6283

Oþce for Public Advocacy
Division for Protection & Advocacy
100 Fair Oaks Lane, 3rd Floor
Frankford, KY 40601
502-564-2967 - 800-372-2988

Louisiana

Advocacy Center for the Elderly and Disabled
210 O'Keefe, Suite 700
New Orleans, LA 70112
504-522-2337 - 800-662-7705

Maine

CARES, Inc.
4-C Winter Street
Augusta, ME 04330
207-622-7055

Maine Advocacy Services
32 Winthrop Street
P.O. Box 2007
Augusta, ME 04338
207-626-2774 - 800-452-1948

Maryland

Client Assistance Program
Maryland State Dept. of Education
300 W. Preston Street, Suite 205
Baltimore, MD 21202
410-333-7248

Maryland Disability Law Center
2510 St. Paul Street
Baltimore, MD 21218
410-235-4700 - 800-233-7201

Massachusetts

MA Oþce on Disability
Client Assistance Program
One Ashburton Place, Room 303
Boston, MA 02108
617-727-7440

Disability Law Center, Inc.
11 Beacon Street, Suite 925
Boston, MA 02108
617-723-8455

Center for Public Representation
22 Green Street
Northampton, MA 01060
413-584-1644

Michigan

Client assistance Program
Department of Rehabilitation Service
P.O. Box 30008
Lansing, MI 48909
517-373-8193

Commission for the Blind
201 North Washington Square
Box 30015
Lansing, MI 48909
517-373-6425

Michigan P&A Service
106 W. Allegan, Suite 210
Lansing, MI 48933
517-487-1755

Minnesota

Minnesota Disability Law Center
430 First Avenue N. Suite 300
Minneapolis, MN 55401-1780
612-332-1441

Mississippi

Client Assistance Program
Easter Seal Society
3226 N. State Street
Jackson, MS 39216
601-982-7051

Mississippi P&A system for DD, Inc.
5330 Executive Place, Suite A
Jackson, MS 39206
601-981-8207

Missouri

Missouri P&A Services
925 S. Country Club Drive, Unit B-1
Jefferson City, MO 65109
314-893-3333

Montana

Montana Advocacy Program
316 N. Park, Room 211
P.O. Box 1680
Helena, MT 59623
406-44-3889 - 800-245-4743

Native American

DNA PeopleÕs Legal Services, Inc.
P.O. Box 306
Window Rock, AZ 86515
602-871-4151

Nebraska

Client Assistance Program
Div. of Rehabilitation Services
Nebraska Dept. of Education
301 Centennial Mall South
Lincoln, NE 68508
402-471-3656

Nebraska Advocacy Services, Inc.
522 Lincoln Center Building
215 Centennial Mall South
Lincoln, NE 68508
402-474-3183

Nevada

Client Assistant Program
1755 East Plumb Lane, #128
Reno, NV 89502
702-688-1440 - 800-633-9879

OfÞce of Protection & Advocacy , Inc.
Financial Plaza
1135 Terminal Way, Suite 105
Reno, NV 89502
702-688-1233 - 800-922-5715

New Hampshire

Client Assistance Program
GovernorÕs Commission for the Hndcp.
57 Regional Drive
Concord, NH 03301-9686
603-271-2773

Disabilities Rights Center
P.O. box 19
18 Low Avenue
Concord, NH 03302-0019
603-228-0432

New Jersey

Client assistance Program
NJ Department of the Public Advocate
Div. of Advocacy for the Developmentally Disabled
Hughes Justice Complex, CN 850
Trenton, NJ 08625
609-292-9742
800-792-8600

NJ Dept. of Public Advocate
Division of Mental Health Advocacy
Hughes Justice Complex, CN 850
Trenton, NJ 08625
609-292-1750

New Mexico

Protection & Advocacy System, Inc.
1720 Louisiana Blvd., NE, Suite 204
Albuquerque, NM 87110
505-256-3100 - 800-432-4682

New York

Com. on Quality Care for the Mentally Disabled
99 Washington Avenue, Suite 1002
Albany, NY 12210
518-473-7378 - 518-473-4057

North Carolina

Client Assistance Program
North Carolina Div. of Vocational Rehab Services
P.O. Box 26053
Raleigh, NC 27611
919-733-3364

Governorûs Advocacy for Persons with Disabilities
1318 Dale Street, Suite 100
Raleigh, NC 27605
919-733-9250 - 800-821-6922

North Dakota
Client Assistance Program
400 E. Broadway, Suite 303
Bismarck, ND 58501-4038
701-224-3970

Protection & Advocacy Project
400 E. Broadway, Suite 515
Bismarck, ND 58501
701-224-2972 - 800-472-2670
800-642-6694

N. Mariana Islands
Karidat
P.O. Box 745
Saipan, CM 96950
670-234-6981

Ohio
Client Assistance Program
Governorûs OfÞce of Advocacy for People with Disabilities
30 E. Broad Street, Suite 1201
Columbus, OH 43215
614-466-9956

Ohio Legal Rights Service
8 East Long Street, 6th Floor
Columbus, OH 43215
Carolyn Knight, Director
614-466-7264 - 800-282-9181

Oklahoma
Client Assistance Program
Oklahoma OfÞce of Hndcp. Concerns
4300 N. Lincoln Blvd., Suite 200
Oklahoma City, OK 73105
405-521-3756

Oklahoma Disability Law Center, Inc.
4150 S. 100 east avenue
210 Cherokee Bldg.,
Tulsa, OK 74146-3661
918-664-5883

Oregon
Oregon Disabilities commission
1257 Ferry Street S.E.
Salem, OR 97310
503-378-3142

Oregon Advocacy Center
625 Board of Trade Building
310 Southwest 4th Avenue, Suite 625
Portland, OR 97204-2309
503-243-2081

Pennsylvania
Client Assistance Program (SEPLS)
1650 Arch Street, Suite 2310
Philadelphia, PA 19103
215-557-7112

Client Assistance program
211 N. WhitÞeld Street, Suite 215
Pittsburgh, PA 15206
412-363-7223

Pennsylvania P&A, Inc.
116 Pine Street
Harrisburg, PA 17101
Kevin Casey, Exec. Dir.
717-236-8110 - 800-692-7443

Puerto Rico
Planning Research and Special Proj. Ombudsman for the Disabled
P.O. Box 5163
Hato Rey, PR 00918-5163
809-766-2388 - 809-766-2333

Rhode Island
Rhode Island P&A System, Inc. (RIPAS)
151 Broadway, 3rd Floor
Providence, RI 02903
401-831-3150

South Carolina
OfÞce of the Governor Division of Ombudsman & Citizen Services
P.O. Box 11369
Columbia, SC 29211

South Carolina P&A System for the Handicapped
3710 Landmark Drive, Suite 208
Columbia, SC 29204
803-782-0639 - 800-742-8108

South Dakota

South Dakota Advocacy Services
221 South Central Avenue
Pierre, SD 57501
605-224-8294 - 800-742-8108

Tennessee

Tennessee Protection & Advocacy, Inc.
P.O. Box 121257
Nashville, TN 37212
615-298-1080 - 800-342-1660

Texas

Advocacy, Inc.
7800 Shoal Creek Blvd., Suite 171-E
Austin, TX 78757
512-454-4816 - 800-252-9108

Utah

Legal Center for People with Disabilities
455 East 400 South, Suite 201
Salt Lake City, UT 84111
801-363-1347 - 800-662-9080

Vermont

Client Assistance Program
Ladd Hall
103 South Main Street
Waterbury, VT 05676
802-241-2641
800-622-4555

Vermont DD Law Project
12 North Street
Burlington, VT 05401
802-863-2881

Citizen Advocacy, Inc.
Chase Mill
1 Mill Street
Burlington, VT 05401
802-655-0329

Vermont Advocacy Network, Inc.
65 South Main Street
Waterbury, Vt 05676
802-244-7868

Virginia

Department for Rights of Virginians with Disabilities
James Monroe Building
101 North 14th Street, 17th Floor
Richmond, VA 23219
804-225-2042 - 800-552-3962

Virgin Islands

Virgin Islands Advocacy Agency
7A Whim Street, Suite 2
Frederiksted, VI 00840
809-772-1200 - 809-776-4303
809-772-4641 TDD

Washington

Client Assistance Program
P.O. Box 22510
Seattle, WA 98122
206-721-4049 - 206-721-4575

Washington Protection & Advocacy System
1401 E. Jefferson street, Suite 506
Seattle, WA 98122
206-324-1521

West Virginia

West Virginia Advocates, Inc.
1524 Kanawha Blvd., East
Charleston, WV 25311
304-346-0847 - 800-950-5250

Wisconsin

Governor's Commission for People with Disabilities
1 W. Wilson Street, Room 558
P.O. Box 7852
Madison, WI 53707-7852

Wisconsin Coalition for Advocacy
16 N. Carroll Street, Suite 400
Madison, WI 53703
608-267-0214

Wyoming

Wyoming Protection & Advocacy System
2624 Pioneer Avenue, Suite 101
Cheyenne, WY 82001
307-638-7668 - 307-632-3496
800-821-3091 - 800-624-7648

NAPAS

National Association of Protection & Advocacy
900 2nd Street, N.E., Suite 211
Washington, DC 20002
202-408-9514 - 202-408-9521 (TDD)
202-408-9520 (FAX)

Legal Background

Three federal laws guarantee access to students with hearing challenges, their parents, and individuals who work with them. Each law will be addressed in the following section as it pertains to athletic and extracurricular activities. In essence, each of the laws say that students with hearing impairment should have access to whatever all of the other students have access to - nothing more, nothing less. For instance, if there is a soccer team for students at the school, the student with hearing impairment should have the right to try out for that team. If needing to receive instructions during tryouts is essential for a successful tryout, then the student with hearing impairment is entitled to whatever is needed for him/her to receive the instructions. The use of assistive devices and communication strategies are meant to create a Òlevel playing Þeld Ó for these students.

Children with disabilities are entitled to all of the substantive and procedural rights and protections of a federal law known as the Individuals with Disabilities Education Act (IDEA). The IDEA entitles all children with disabilities to a Òfree appropriate public education.Ó This law and its implementing regulations set forth procedures for the identiÞcation, evaluation, and development of programs for children with disabilities and the process by which their parents may challenge educational recommendations. The right to a free appropriate public education includes the right to an equal opportunity to participate in non-academic and extracurricular activities. Non-academic and extracurricular activities include, among other things, athletics, recreational activities, special interest groups, clubs, and transportation.

Another federal law known as Section 504 of the Rehabilitation Act of 1973 further protects students with disabilities from discrimination on the basis of their disability. Pursuant to this law, a school cannot exclude a student or deny a student participation in any non-academic or extracurricular activity on the basis of his/her disability. This law and its regulations speciÞcally state that schools must provide aids, services, and reasonable accommodations to ensure that students with disabilities participate with students without disabilities in non-academic and extracurricular activities Òto the maximum extent appropriate to the needs of the student with the disability.Ó

A relatively new federal law called the Americans with Disabilities Act (ADA) provides further protection to students with disabilities and their parents. Although the IDEA is the principal law that dictates the special educational services that a child will receive from a school system, the ADA provides additional protection, especially in the context of architectural accessibility, extracurricular activities, and services for parents, personnel, and other adults.

Title II of the ADA speciÞcally addresses the obligations of a school board or other public entity to remove communication barriers for individuals with hearing impairment:

a) a public entity shall take appropriate steps to ensure that communications with applicants, participants, and members of the public with disabilities are as effective as communication with others, and

b) a public entity shall furnish appropriate auxiliary aids and services where necessary to afford an individual with a disability an equal opportunity to participate in, and enjoy the beneÞts of, a service, program, or activity conducted by a public entity (28 C.F.R. 35.160).

An auxiliary aid or service is deÞned as qualiÞed interpreters, note takers, transcription services, written materials, telephone handset ampliÞers, assistive listening devices, assistive listening systems, telephones compatible with hearing aids, closed caption decoders, open and closed captioning, telecommunication devices for the deaf (TT), video text displays, or other effective methods of making aurally delivered materials available to individuals with hearing impairments, and other similar services and actions (28 C.F.R. 35.104). A school agency may not assess any additional charge for the provision of an auxiliary aid or service as required by the ADA (28 C.F.R. 35.130(F)).

ÒEffective communicationÓ is an important aspect of compliance since every child is unique. An appropriate auxiliary aid depends on the communication situation and the needs of the individual with a hearing loss. When there is a disagreement over what is the appropriate auxiliary aid, the ADA requires that the school give Òprimary consideration to the requests of the individual with disabilitiesÓ (28 C.F.R. 35.160(b)(2)). The public entity must conform with the individualÕs request unless it can prove that an alternative form of auxiliary aid will ensure effective communication or that the accommodation would cause an undue Þnancial burden (28 C.F.R. 35-164). Considering the relative inexpense of assistive

devices for individuals with hearing impairment and the cost-effectiveness of using the same devices in multiple academic/extracurricular environments, it is unlikely that an assistive device purchase would cause an undue burden.

It is important to note that in certain circumstances other state and federal laws effect children with disabilities. Also, the laws are continually changing. It is important to obtain accurate and up-to-date information whenever making recommendations or decisions regarding a particular child.

How students receive special services

The corner stone of any services that the student requires whether in the classroom or on the playing Þeld is the Individual Education Plan (IEP). This plan is created by a team of professionals from the studentÕs school after a student is either identiÞed by the school as having special needs (they must have the parentÕs permission for evaluation) or after this evaluation is requested by the parents (in writing to the principal). This team of individuals tries to identify all of the modiÞcations and accommodations that might be necessary for the student to fully participate in school. Generally, a school is prohibited from treating a student with a disability differently from a student without a disability, unless such treatment is expressly outlined in the studentÕs individual education plan.

If a parent and/or student knows that the student will be trying out for or participating in extracurricular activities, the parent should indicate this in writing to the evaluation team and encourage them to include recommendations for communication access and transportation (to home after school and/or to events) in the plan. The plan should include accessibility for tryouts, practice, competition, and spectating. These are activities that the evaluation team may not consider unless the parent notiÞes them.

When the plan is ready to review, a meeting is held with school personnel and the parents. The parents receive a copy of the plan at least 10 days before the meeting. Parents are allowed to discuss anything related to the childÕs needs in the school program during the meeting. It is best to create a list of items that should be discussed before attending the meeting. These conferences must be held at least once per year for each child with special challenges but must be held any time the parent or district believes one is necessary. If the parent is satisÞed with the entire plan at the end of the conference, he/she should approve the plan in writing.

What to include in the IEP relative to extracurricular activities

Identifying Devices and Strategies

Use the chapters on Assistive Devices and Comunication Strategies, Communication Needs Assessment, and the chapter describing the speciÞc sport the student is interested in to outline recommendations for the IEP. The evaluation should include an individual knowledgeable about assistive technology and communication strategies (usually an educational audiologist), the student, the parent, and the coach. All types of technological and nontechnological solutions should be considered.

The Òpersonal Ó hearing aid is often the corner stone to the communication solution. Assistive devices may be coupled to it and communication strategies are used to enhance it. On November 19, 1993, the OfÞce of Special Education Programs (OSEP) issued a new policy letter that clariÞed the right to a wider range of assistive technology devices when included in the childÕs individualized education plan (IEP). Historically, hearing aids have been considered Òpersonal Ó and were not covered under the IEP. The new policy letter recognizes the expanded deÞnition of assistive technology that was added as an amendment to the Individual with Disabilities Education Act in 1990 (P.L. 101-476). The new deÞnition is identical to the deÞnition of assistive technology Þrst enacted into federal law with the Technology Related Assistance Act in 1988. The deÞnition includes Òany item, piece of equipment, or product system that is used to increase, maintain, or improve the functional capabilities of children with disabilities.Ó The new policy makes it clear that a hearing aid could be a covered device under this deÞnition. The letter reafÞrms a childÕs right to assistive technology services and devices when it is determined through the IEP process to be needed for:

a) special education,

b) a related service, or,
c) to enable a child to be educated in the least restrictive environment.

Transportation Needs

Many children with hearing impairments are transported out of their home districts to districts that have an existing program for the student with hearing loss. This causes a problem pertaining to a childÕs involvement in extracurricular activities.

All students may be eligible but not necessarily Òentitled Ó to transportation to and from extracurricular activities and sports. Children with disabilities will only be entitled to such transportation when it also is provided to non-disabled students or when it is needed to access the program or because of the studentÕs disability. The responsibility and cost of providing this transportation falls upon the home district. Transportation requests for any extracurricular activities must be clearly stated in the IEP. The IEP should provide recommendations for the type of transportation required (school bus, van, car, tokens for public transportation), any aids or special equipment in order to get to the transportation or to use the transportation, and the speciÞc extracurricular activities. Remember to deÞne needs for daily transportation to and from practice as well as any transportation related to travel because of the extracurricular activities.

DeÞning Athletic Eligibility

Athletic eligibility (ability to play for a particular school) is obvious for the student with hearing impairment who is educated within his/her home district. This student would play for the school he/she attends each day.

For the student with hearing impairment who is transported to an existing program in another school district (different from what would be considered the Òhome Ó school district), athletic eligibility has to be deÞned. Not only is this essential in terms of where the student will participate, but it also is essential in describing what transportation will be necessary.

The actual school district has to petition the governing athletic district for the studentÕs eligibility. The parent/student can start this process by contacting the principal or superintendent in the school district where the student would like to participate (either the home school district or the school district where he/she actually goes to school). Generally, the student can participate in either (but not both) depending on where he/she feels most comfortable.

A couple of scenarios might provide some special circumstances. General guidelines are provided below. Keep in mind, the Þnal decision will be made by the governing athletic district.

Scenario #1

The student wishes to participate in soccer and volleyball. Both sports are offered in the home district. Only soccer is offered in the district where the student actually goes to school. In this instance, the student will most likely be granted eligibility in the district where he/she can do both sports.

Scenario #2

The student wishes to participate in soccer and volleyball. Volleyball but not soccer is offered in one school district, and soccer not volleyball is offered in the other. The student might or might not be granted eligibility in each district for each sport depending on the view of the governing athletic district. This type of dual eligibility is really providing the student with more opportunity than any other student would have in either district.

It is worth deÞning eligibility as quickly as possible so there will be no delay in the studentÕs participation. It would be unfortunate to miss a season waiting for paperwork to make it through proper channels.

Obtaining Devices

Each state has different methods of obtaining devices through the schools for use by students. The following is a description of the process in Pennsylvania as of September 1995. The special education director in any school should be able to provide this information to interested parents. Keep in mind that these systems change all of the time so you need to keep updated. Also, parents are not responsible for either obtaining or paying for the devices. The parentÕs most important role is being an advocate for his/her child in the IEP process. Once the IEP is Þnalized it is the responsibility of the school to obtain the recommended devices and/or services included in the plan. Assistive technology is simply another service that must be free and appropriate and incorporated into the studentÕs individual education plan. It is the schoolÕs responsibility to provide the devices in a timely manner. Parents should not accept excuses

about delays in service based on the complexity of obtaining and/or paying for the devices within any particular state.

As of July 1, 1993, the Department of Education, Bureau of Special Education reorganized the Pennsylvania statewide programs responsible for direct service of students in local programs. This reorganization provided a programmatic emphasis on combining all assistive technology services to students under one program called the Pennsylvania Technology Program or Penn Tech. Penn Tech consolidated services provided by PA Assistive Technology Center (PATC), Technical Assistance for Sensory Impaired Programs (TASIP), the Deaf-Blind Project, and the Speech Retraining Initiative.

For students with hearing challenges, the goal of Penn Tech is to provide assistive devices that improve the students' ability to comprehend and participate in activities. The application process has changed since January 1994. Penn Tech provides services on an as needed basis. Therefore, Penn Tech will provide technical assistance, training and equipment for trial periods to assess student's needs for assistive technology. Although Penn Tech provides free assistance, it is the school district or the Intermediate Unit, in the case of preschool students that has the legal responsibility to provide the appropriate devices and services.

The trial loan period is used to determine if the appropriate device or service is being provided at that point in the child's academic career. When the appropriate device is determined, Penn Tech provides the device through a long term loan program. The district is required to permit the student to take the device home and into the community if it is needed to assist the student in beneÞtting from his/her educational program (e.g., homework, Þeld trips, casual learning needed to enhance learning in school, etc.). The device must be returned if the child moves out of the state of Pennsylvania. It must be returned at the time of the child's graduation from high school.

The Department of Education also allows Penn Tech to participate with the ACCESS MA (medical assistance) program. Through ACCESS, Penn Tech is able to bill for an assistive device under medical assistance for each medical-assistance eligible student. Therefore, the equipment purchased for a student becomes the property of the student and can be used for educational, home, community, and work situations. A device covered in this manner goes with the student once he/she leaves the district and/or graduates. During the student's school career, all repairs and adjustments are covered by Penn Tech (1-800-360-7282).

Due Process: Rights and Procedures

Hopefully, the material described above will aid in creating complete, successful IEP's. If the parent is not satisÞed with the individual education plan that is developed (does not feel that it meets the student's needs in the least restrictive way), the following course of action may help the parents pursue solutions for their child.

You may consider observing your child's class and talking with the teacher. Based on this information, create a list of speciÞc changes that you would like to see in the IEP. Request (in writing) that the school system do a re-evaluation of your child's needs. If no change is forthcoming, you may wish to pursue an independent evaluation. An independent evaluation should be conducted by a qualiÞed individual. For instance, if your concern is your child's ability to communicate during athletic activities, you want to work with an audiologist who specializes in assistive technology and functional communication assessment. It is best to have speciÞc questions for the independent evaluator to answer (e.g., what accommodations are necessary for my child to play soccer?). The Independent Evaluator should be able to consult with the school district, coaches, activity directors, etc.

After the independent evaluation is completed, request a meeting with school personnel to Þnd out if they are willing to make changes based on the independent evaluation. The IEP team members are required to consider the results of the independent evaluation in making any Þnal decisions.

The parent can request an independent evaluation at public expense by writing to the school district and expressing why he/she feels the evaluation is necessary. Assuming the district believes that their plan is adequate, they most likely will not pay for this independent evaluation. If this process ultimately results in a Due Process Hearing, a hearing ofÞcer will determine if the school district must reimburse the parent for the independent evaluation.

If you continue to be dissatisÞed, there are four formal actions that you can take (you can do any or all of them).

Mediation

A mediation session is a meeting with a trained Òmediator.Ó By deÞnition, the mediator is impartial to either side. Both sides must voluntarily agree to participate in mediation. The mediator will work to help the parents and the school district come to an agreement concerning changes in the childÕs program or extracurricular activities. There is no charge for mediation services and a parent will not have to agree to any recommendation. Agreements reached at the mediation session should be incorporated into the IEP. If the mediation session works out well for the parent and the school is in agreement, the parent may want to stop here.

Prehearing Conference

If the parent is not satisÞed with the mediation session or does not want to pursue a mediation session, the parent may want to request a Òprehearing conference.Ó The parent must send the principal a letter requesting the prehearing conference. There is no mediator or hearing ofÞcer present at a prehearing conference, but parents are permitted (and should be encouraged) to bring independent evaluators, support personnel, and private therapists who may help the IEP team understand the studentÕs needs. This meeting is to review the parentÕs concerns and to attempt to come to an agreement prior to the parent requesting a Òdue process hearing.Ó Any agreements reached at the prehearing conference should be included into the IEP.

Due Process Hearing

If no agreement regarding the childÕs services is reached in the prehearing conference, the parent may want to request a Òdue process hearing.Ó This is a legal procedure that can take some time. Although the process is not immediate, there are mandated time frames within which hearings must be held and decisions made, as well as appeals taken. The due process hearing is conducted by a hearing ofÞcer who will decide whether your childÕs program and recommendations should be changed, and if so, how.

Administrative Complaint

Parents can Þle what are called Òadministrative.Ó complaints with the Division of Compliance within the Department of Education within the state. Complaints also can be forwarded to the federal OfÞce of Civil Rights. These may be important legal avenues if the parent is not satisÞed with the outcome of the IEP. These are especially appropriate avenues if districts fail to comply with time lines and other procedural issues involved in providing services or if the district is not properly implementing the agreed upon IEP.

Private Schools

Children placed in private schools by their parents also have rights to special education services and due process rights, but the extent of these rights is not entirely clear. This area of law is changing rapidly with new Court decisions and the implementation of the ADA. The studentÕs legal rights vary depending on the nature of the private school (religious or other).

Parents and Guardians

The Americans with Disabilities Act also addresses the issue of parental rights. The Department of JusticeÕs analysis of the ADA addressed the obligation of school systems to provide accessibility to parents with disabilities, regardless of whether the children of these parents have disabilities. Section 504 of the Rehabilitation Act (applies to public schools) and the ADA (different titles for different types of private schools) cover programs open to the public such as graduation ceremonies, parent-teacher organization meetings, plays, sporting events, adult education classes, etc. Public schools must provide appropriate auxiliary aids and services to parents and guardians with disabilities to these programs, activities, and services whenever necessary to ensure effective communication (as long as the provision of the auxiliary aids does not result in an undue burden or a fundamental alteration of the program).

It is important to note that the ADA is based on self-identiÞcation. In other words, the parent who is in need of special services or auxiliary aids must make it known to the school, well in advance of the activity, exactly what is needed. The school cannot be

expected to have a variety of assistive technology available at any given time. The ADA does require that any written information distributed about upcoming events by the school include a section that indicates who to contact to request special services and/or auxiliary aids.

Summary

The best time to include appropriate devices and accommodations as well as requirements for transportation for athletic activities is before the IEP is Þnalized. If an IEP is already being followed for your child and you want to add recommendations that will allow your child to access extracurricular activities, work with the school to change the IEP. You can work with the educational audiologist, using this book as a guideline to come up with appropriate solutions for your child. If you are not able to motivate the school to make needed changes in the IEP, follow the procedure above to pursue your childÕs needs.

The parent and child may not know which sport the child will want to try out for at the time of the IEP. One possible solution is to include a more generic description of accommodations or to provide speciÞc solutions for several activities to be implemented only if the student ultimately decides to participate. If accommodations for extracurricular activities were not included in the initial IEP, the parent can work to have them added before the next meeting by contacting the principal. It is not acceptable for the school to indicate that accommodations will be considered only if a student makes it on to a team. The student very well may need accommodations in order to try out properly and be able to compete with the other students trying to get spots on the team.

*For purposes of this chapter, the term Òparent Ó refers to a childÕs parent, legal guardian, surrogate parent, or any person acting as the childÕs parent, such as a grandparent.

Chapter 5

Communication Needs Assessment

Without the proper devices and communication strategies it may be impossible for students to participate in and enjoy extracurricular activites. An assistive device/strategy needs assessment should be performed to assess all aspects of the studentÕs communication needs (academics, extracurricular activities, social activities, etc.). This type of evaluation is performed by an educational audiologist with expertise in functional communication assessment and assistive technology solutions. Ideally, this evaluation is part of choosing hearing aids, assistive devices, and recommending communication strategies and is done as part of the preparation for the individual education plan (IEP) that will dictate services, devices, and transportation available to the student. If the student already has hearing aids, some assistive device choices may have to be made with the contraints of the hearing aid features in mind.

Effective Communication

Simply stated, the Americans with Disabilities Act (ADA) deÞnes effective communication as the form of communication that best suits the individual in question. Therefore, many factors have to be considered before assistive technology is selected. These factors include degree of hearing loss, educational setting, speech and language ability, and communication environment. One solution does not Þt all in the case of hearing impairment. One child may beneÞt from a sign language interpreter, while another would gain no beneÞt from this form of communication.

Identifying Communication Needs and Matching Communication Solutions to Communication Challenges

We have included three forms (Table 8, 9, and 10) that combine to create a complete communication

needs assessment and solution identiÞcation for extracurricular activities. The following is a description of how to use the materials. Ideally, this evaluation should be conducted by an audiologist and should involve the student, parent, and coach or activity director.

Fill in the hearing, device, activity, and environmental data in Table 8. These data are used to put descriptors in the boxes in Table 9 and to identify solutions in Table 10.

Use Table 9 as a guide to interview the coach and the student (if he/she has participated in the particular activity previously) about the type of communication that may take place. In addition, be sure to use the chapter in this book that speciÞcally provides information about communication demands and possible solutions for individual sports.

Across the top of the sheet you will Þnd every component of a sport (from try outs to away competitions). Going down the sheet you will Þnd each type of communication situation (talking with the coach, alerting to a signal, etc.). Examine each activity as a function of communication situation. Use a highlighter to mark each box that applies to the particular activity. Some boxes will not apply. Go back to all of the highlighted boxes and consider what will impact effective communication based on the nature of the activity and the individual student (data from Table 8).

Choose one or more of the following descriptions to write in each highlighted box.

no problem: no communication problem

hearing loss: the degree of corrected or uncorrected (if a device cannot be worn in this particular activity) hearing loss will be a problem

distance: the distance from the signal will make communication difÞcult (more so than for players with normal hearing)

visibility: the loss of visual cues imposed by the activity will make communication difÞcult

mobility: the need to move around quickly will make communication difÞcult

noise: the noise will mask a signal that could have been heard in quiet

Number each highlighted box that contains a descriptor other than Ònno problemÓ. In Table 10, Þnd the corresponding numbers from Table 9 along the top of the page and enter the situation descriptor (e.g., coach-to-player tryouts) on the bold line. Now identify a solution (categories down the page) for each communication difÞculty by checking off the appropriate box (you may want to put comments in these boxes). The solutions are produced by knowing what caused the communication problem (labels from Table 9), the hearing data, current device data, activity data, and the environmental data. The results of Table 10 are what should be included in the studentÕs individual education program (IEP).

Table 8 Hearing, device, activity and enviironmental data

Attach audiogram with aided and unaided results, if possible.

Device Data

Right Hearing Aid

Manufacturer:					
Circle the style:	BTE	ITE	Canal	Body Aid	CROS
Date of Purchase:					
Circle all working optio	Telecoil	M/T switch	Direct Audio Input	Built-in FM receiver	

Left Hearing Aid

Manufacturer:					
Circle the style:	BTE	ITE	Canal	Body Aid	CROS
Date of Purchase:					
Circle all working optio	Telecoil	M/T switch	Direct Audio Input	Built-in FM receiver	

Assistive Devices Currently Used by the Student in School or at Home

Situation	Device Name	How is the sound delivered to ear?	At School	At Home
One-to-One:				
Television:				
Large Group:				
Telephone:				
Alerting Telephone:				
Alerting Doorbell/Knock:				
Alerting Smoke Detector:				
Other				

Activity and Environmental Data

Circle all that apply.

Contact:	contact sport	non-contact sport			
Numbers:	individual sport	team/group activity			
Environment:	gym	classroom	stage	pool	field
Size of Environment:	small 100 square feet	medium 500 sqaure feet	large > 500 square feet		
Barriers:	beams	trees	water	other	
Power Outlet:	available	not available			
Current PA System:	available/compatible	available/not compatible	not available		

Table 9 **Identifying communication within an activity**

Student's Name: _____ What type of Communication Takes Place?

Coach's Name: _____

Activity: _____

Communication Situation	tryouts indoor	tryouts outdoor	practice indoor	practice outdoor	pre-game indoor	pre-game outdoor	activity indoor	activity outdoor	telephone	during transportation	award ceremonies	related events	overnight stays
coach-to-player													
member-to-member													
team/group instruction													
referee/official-to-player													
TV/Video viewing													
Guest Speaker													
Alerting to Signals													

Table 10 Solutions to previously identified difficult communication situations

Student's Name: _____
Coach's Name: _____
Activity: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Current Hearing Aids																				
Different Hearing Aids																				
ALD (type of coupling)*																				
HA & ALD (type of coupling)*																				
Captioning																				
Writing																				
Hand Signal																				
Sign Language																				
Audiotory Alerting																				
Visual Alerting																				
Tactile Alerting																				
Communication Strategies																				

* Indicate type of coupling: T = telecoil; DAI = direct audio input; FM = built-in FM receiver
Note if this type of system is being used in the student's academic activities.

Examples of how the individual data can impact solution selection

Hearing Data

The severity of the hearing impairment may rule out certain transmission forms, signal types, and coupling options. It also may point toward nontechnological solutions such as written communication, sign language, etc. In the case of alerting signals, a severe hearing loss may rule out the use of an auditory signal. Sometimes solutions for a student with hearing impairment prove to be good for everyone. For instance, swim races now start with a light ßash instead of a starter pistol. This may be better for everyone if there is any noise present and it protects the hearing of anyone who used to be right next to the starter pistol.

Device Data

Understanding what the student already uses will help in creating solutions. If the studentÕs hearing aid will be used with assistive devices, one must know what features are available on the hearing aid in order to couple it to an assistive device. If the student is comfortable and successful with certain assistive devices currently, these may be the best solutions for the new communication challenges.

Activity and Environmental Data

The type of contact in a given sport may dictate the best solution. For instance, if you know the student will sustain impact to the upper body area as in the sport of wrestling, you will not want to Þt an assistive device that requires a body pack receiver. The environment in which the sport is played also will effect transmission choices. For instance, if this is an outdoor sport, an infrared system wonÕt work. The size of the environment and the barriers also will impact the needed strength of any transmission system. Finally power outlet availability will dictate whether you need to pursue only battery operated devices.

Particular sports have rules that disallow communication from the coach during competitions. The coach and student should be instructed about turning off or removing devices in these circumstances. The chapters on individual sports specify when rules would make it impossible to use certain devices.

Summary

Using the information provided in the Assistive Device section and the individual sport section along with interviews from the coach, student, and parent should allow appropriate selection of communication solutions as guided by Tables 8, 9, and 10. Once the assistive technology is obtained and/or communication strategies are identiÞed, the coach and student need to receive training in using these solutions. As much as possible, the student should be responsible for troubleshooting personal devices. For instance, the student should indicate if a battery has gone dead or if a connection is not working. The coach needs to be comfortable with any part of the device that he/she will use directly (e.g., the microphone and transmitter). Training is probably the most important predictor of success with assistive technology. A plan for orientation and periodic training should be included in the IEP.

It is important to try solutions and be prepared to adjust them as needed. The student and coach will know if they are communicating successfully and they will be the guides on how to modify the solutions.

Example of the Communication Needs Assessment Process

Use the following example to guide you through the communication needs assessment.

Joe Student is in 9th grade and would like to try out for the volleyball team. After learning of this, JoeÕs parents contacted the principal of JoeÕs school to see if any special accommodations would be necessary and/or forthcoming. The principal put Joe and his parents directly in contact with the volleyball coach. JoeÕs parents were concerned that JoeÕs hearing loss might get in his way during tryouts (when he was likely to be unsure of all the aspects of the game), during practice (when he would be learning

the skills and strategies of the game), and perhaps during fast paced competition.

Although the coach had never had a student with hearing impairment on the team (to the best of his knowledge), he was sure that they could work through any problems. First, he indicated that 9th graders didnÕt have a formal tryout. They simply had to commit to show-up to all practices and games for the season. In essence, the Þrst day was really the beginning of practice. So the questions really related to practices and games. The coach recommended that Joe and his parents borrow his copy of the U.S. Volleyball High School rule book to get a sense of the rules of the game and where hearing might be important. In the meantime, the coach indicated that he would contact the educational audiologist in order to review volleyball communication demands and possible solutions. Joe and his parents already knew the educational audiologist because she was the person that worked on his IEP (individual education plan) at the beginning of the school year. They left it that the educational audiologist would be in touch with Joe and his family by the end of the week (one full week before practice starts).

The educational audiologist was pleased that the volleyball coach contacted her directly and started to piece together the demands of volleyball, JoeÕs existing devices and strategies, and other needed solutions. She used his current records to Þll out the hearing data and device data worksheets (Table 11). She had a copy of his recent aided and unaided audiogram (Figure 10). She completed the activity and environmental data section and ÒWhat type of Communication Takes PlaceÓ worksheet (Tables 11 and 12) by referring to the chapter on volleyball in *Time Out! I DidnÕt Hear You* and by clarifying points with the volleyball coach.

Table 13 provides the recommended solutions based on the hearing, device, and activity information. It has been recommended that the student use his binaural BTE hearing aids during active practice and competitions. Binaural hearing helps with localizing sound and with hearing in noise. Noise may interfere with some communication in these situations so some hand signs (for speciÞc play strategies) should be used when communicating during game action.

Visual signs will not work for all play communication because volleyball players have to be looking at the ball (and setting up to hit it) rather than looking at each other. The coach described three communication situations that he felt couldnÕt be visual because of visibility problems: 1) teammates telling you the ball is heading out of bounds - donÕt hit it, 2) teammates telling you to return a serve - the ball is heading in bounds, and 3) my ball- IÕm going to hit it, donÕt run into me. Because Joe is going to wear his hearing aids during play and the aided audiogram indicates that he can hear a variety of sounds with his hearing aids on, the educational audiologist worked with the coach to come up with three distinct words to represent the three situations. ÒOutÓ will represent situation #1, ÒballÓ will represent situation #2, and ÒmineÓ will represent situation #3. The success of this strategy will depend on the teamÕs ability to use these single words appropriately and consistently and JoeÕs ability to actually hear them when moving around in a noisy gym.

Organized instruction during practice, pre-game, and during time-outs will be facilitated by an FM system coupled to his BTE hearing aid by a wire that plugs into the casing (DAI). This is the same system Joe is currently using in class. He can quickly plug in and out of the system during a game. The coach simply talks into the microphone. The system is operated with rechargeable batteries so Joe needs to work with the educational audiologist to make sure that the batteries are always charged adequately to get through the school day and after school activity.

The coach indicated that videos of certain games are used to review techniques and strategies. These do not contain any particular spoken message and therefore are not captioned. The coach talks about what is happening while the video plays. The coach will use the FM system microphone while Joe wears the receiver coupled to his hearing aid (just like in group instruction).

The true test of all of these solutions will be during practice and competition. Joe and his parents were presented with these solutions and everyone felt comfortable to try them. JoeÕs parents sent a copy to the principal in order to have JoeÕs IEP updated. Since the solution did not involve the purchase of any new equipment, the IEP was readily updated (indicating use of the classroom FM system after school) and agreed upon by all parties.

The Þrst day of practice went well for Joe. He used the FM system for the introductory meeting. He

found the actual practices easy to follow because the coach and/or assistant demonstrated all of the drills Þrst. The coach introduced the key words (mine, ball, out) as a fast, consistent way to communicate during play action without associating them with Joe. Everyone is expected to use them all the time regardless of who is on the court. Joe did Þnd that his BTE hearing aids bounced around a little when he dove for the ball.

After a week of practice and one game, the educational audiologist, coach, and Joe got together to see how things were going. The only problem appeared to be the bouncing of the hearing aids. The educational audiologist recommended ÒHuggie AidsÓ which consist of a clear loop of plastic that goes around the ear. Two bands coming from the loop slide over the BTE case securing it to the head. This should solve the bouncing problem. Joe has not participated in an ÒawayÓ game, yet. He and the coach will use the FM system on the bus if the coach addresses the whole team in transit.

Now Joe just wishes he could jump high enough to spike! That will come with time.

Table 11 Hearing, device, activity, and environmental data for example athlete

Hearing Loss: Attach audiogram with aided and unaided results, if possible.

Device Data

Right Hearing Aid

Manufacturer:	Acme Hearing Aid				
Circle the style:	BTE	ITE	Canal	Body Aid	CROS
Date of Purchase:	May-94				
Circle all working options	Telecoil	M/T switch	Direct Audio Input	Built-in FM receiver	

Left Hearing Aid

Manufacturer:	Acme Hearing Aid				
Circle the style:	BTE	ITE	Canal	Body Aid	CROS
Date of Purchase:	May-94				
Circle all working options	Telecoil	M/T switch	Direct Audio Input	Built-in FM receiver	

Assistive Devices Currently Used by the Student in School or at Home

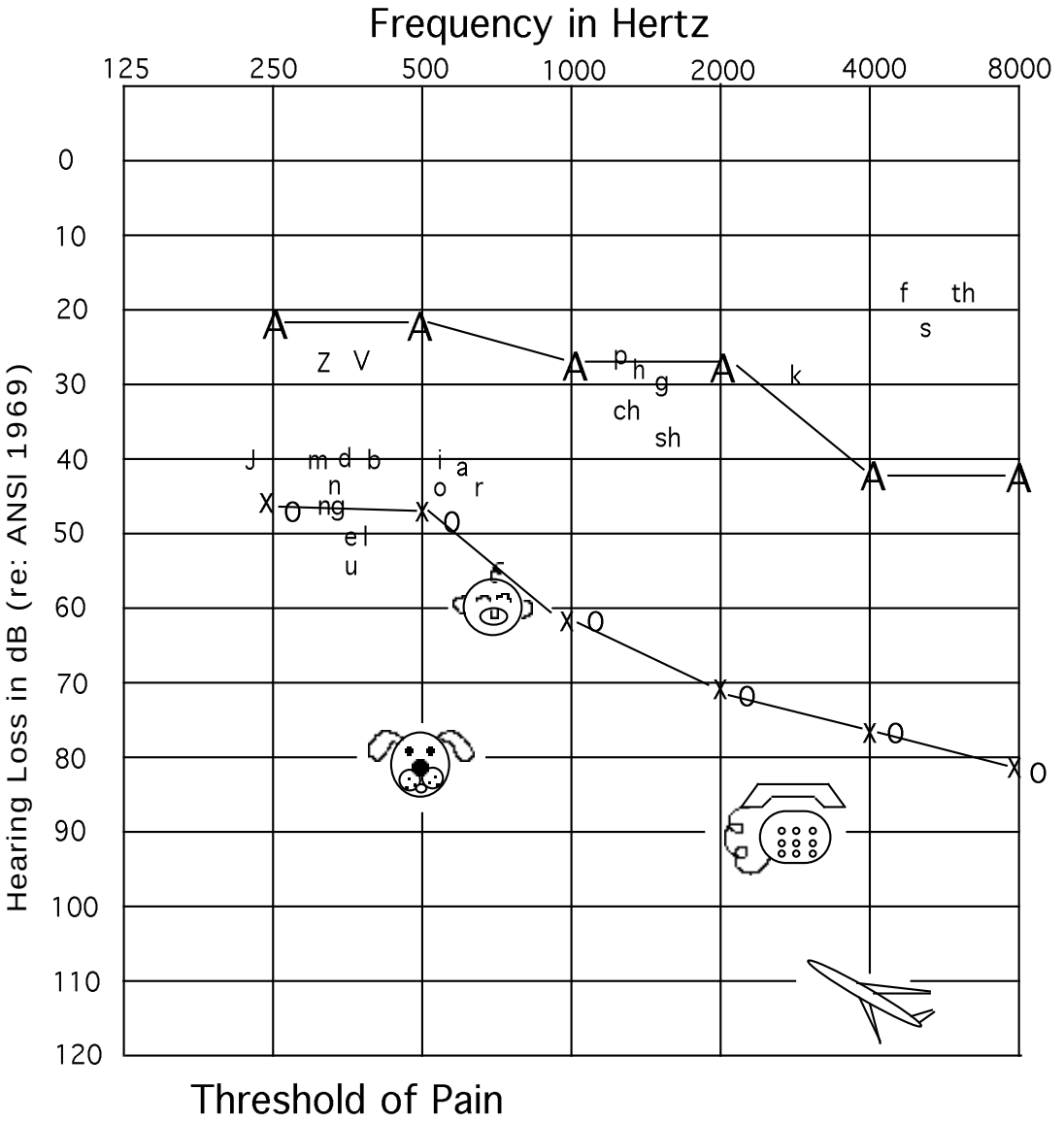
Situation	Device Name	How is the sound delivered to the ear?	At School	At Home
One-to-One:	Hearing Aid	earmold	^	^
Television:	ALD-FM	DAI		^
Large Group:	ALD-FM	DAI	^	
Telephone:	none	telecoil	^	^
Alerting Telephone:	none			
Alerting Doorbell/Knock:	none			
Alerting Smoke Detector:	flashing smoke detector	N/A		^
Other	wake-up flash alarm	N/A		^

Activity and Environmental Data

Circle all that apply.

Contact:	**contact sport**	**non-contact sport**	**can colide in action**		
Numbers:	**individual sport**	**team/group activity**			
Environment:	**gym**	**classroom**	**stage**	**pool**	**field**
Size of Environment:	**small (100 square feet)**	**medium (500 sqaure feet)**	**large (> 500 square feet)**		
Barriers:	**beams**	**trees**	**water**	**other**	**none**
Power Outlet:	**available**	**not available**			
Current PA System:	**available/compatible**	**available/not compatible**	**not available**		

Figure 10 **Audiometric data for example athlete**



Audiogram with frequency and intensity speciÞc sounds.
Adapted from: Northern, J., & Downs, M. (1978). Hearing in Children, 2nd edition, Williams & Wilkins.

Table 12 **Identifying communication within an activity for example athlete**

Student's Name: Joe Student

Coach's Name: Joe Coach

Activity: Volleyball

What type of Communication Takes Place?

Communication Situation	tryouts indoor	tryouts outdoor	practice indoor	practice outdoor	pre-game indoor	pre-game outdoor	activity indoor	activity outdoor	telephone	during transportation	award ceremonies	related events	overnight stays
coach-to-player			1. noise		5. noise		8. noise		12. visibility	14. noise, distance, vis.	no problem		
member-to-member			2. noise mobility		6. noise		9. noise mobility		13. visibility	15. noise	no problem		
team/group instruction			3. distance noise				10. noise distance						
referee/official-to-player					7. noise		11. noise distance				16. distance		
TV/Video viewing			4. distance										
Guest Speaker													
Alerting to Signals													

Table 13 Solutions to previously identified difficult communication situations for example athlete

Student's Name: _____
Coach's Name: _____
Activity: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Current Hearing Aids																				
Different Hearing Aids																				
ALD (type of coupling)*												T	T							
HA & ALD (type of coupling)*			DAI	DAI			DAI			DAI				DAI		DAI				
Captioning																				
Writing																				
Hand Signal																				
Sign Language																				
Audiotory Alerting																				
Visual Alerting																				
Tactile Alerting																				
Communication Strategies		words						subs	words											

* Indicate type of coupling: T = telecoil; DAI = direct audio input; FM = built-in FM receiver
Note if this type of system is being used in the student's academic activities.

Chapter 6

Sports Specific Communication Solutions

Review Chapters 2, 3 and 5 before using this sport speciÞc chapter. Chapter 3 (Assistive Devices and Communication Strategies) provides general information regarding hearing aids and communication strategies (e.g., how to handle moisture in the hearing aid, stopping the hearing aid from ßopping around, video tape presentation, telephone use, etc.) that should be used in every sport. These are not repeated in each sport chapter. The reader will want to have Chapter 3 handy in order to understand technology solutions recommended in the sports chapters.

Communication during transportation and overnight stays also need to be addressed regardless of the sport. These items are included in the needs assessment (Chapter 5). If the coach addresses the team while in transit to a game, the same communication system that is used for instruction in practice should be used to eliminate the problem of noise and distance. Buses are very noisy places to communicate.

If the student is playing at a level that will require overnight stays (e.g., State championships), hotel accommodations and any related activities need to be accessible. When making hotel reservations, make sure the hotel has a Òcommunication packageÓ that can be placed in the studentÕs room. This generally includes a ßashing door knocker, ßashing alarm clock, ßashing telephone ring indicator, ßashing smoke detector, and a telephone ampliÞer and/or text telephone. There is no additional charge for use of these items (by law).

Make sure any extra activities that are planned are accessible to the student with hearing impairment. For instance, use the studentÕs preferred communication system for any guest speakers. If the team if going to a movie, leave enough time for the student to get a special listening system from the theatre. There is no extra cost for these devices and movie theatres are required (by law) to provide them.

The use of sign language is not addressed in each sports chapter. If the student uses sign language to give and/or receive communication, an interpreter will be required during tryouts, practice, travel, and comptetitions. How much interpreting is necessary should be determined by the student, coach, and the rules of the sport. Students who use sign language for communication purposes will still need assistive devices for alerting signals (for the start and stop of a game, fouls, etc.). Generally, visual or tactile signals will be appropriate.

All of the communication in tryouts and practices can be interpreted, some game communication may be off limits. If players with normal hearing are not able to hear the coach and therefore rely on hand signals, the player with hearing impairment should not receive input from an interpreter during play action. He/she must rely on the hand signals as well. The interpreter will work during direct communication ont he bench when the players are talking/listening. When the player with hearing impairment is on the Þeld, the interpreter can translate coaching instructions when the player is in relativelly close proximity to the interpreter. Otherwise, the player will not be able to see the signs. In any case, it is the responsibility of the teammates to get the playerÕs attention and alert him/her to look to the sideline for instruction. The interpreter should be allowed to move up and down the entire sideline and be given access to the other side of the Þeld, if necessary.

Remember, the student with hearing impairment should be able to access whatever communication the students with normal hearing are accessing (no more, no less).

Archery

The ability to communicate effectively with ofÞcials and competitors during Archery events is an important safety issue. The following suggested strategies are designed to allow an individual with hearing impairment to effectively and safely compete in archery competitions as outlined in the Constitution and Rules book of the International Archery Federation. All strategies suggested, however, easily can be modiÞed to Þt most competition protocols and various types of archery events (i.e., indoors, outdoors, target, Þeld, 3D, etc.).

Competition

The Director of Shooting is in charge of the ofÞcial practice Þeld. One of his or her duties is to deliver an acoustic signal to indicate when shooting must stop and when it can be resumed. The time control equipment also can consist of an acoustic signal and is under the control of the Director of Shooting. The player with hearing impairment may have difÞculty hearing a whistle or other acoustic signal used, even with a hearing aid. If the signal is not audible to the player, but the player does make use of auditory signals generally, an FM system may provide a solution. The microphone of the transmitter would be placed close to the directorÔs mouth (i.e., clipped on to the collar) so that it will pick up a whistle blow or any verbal commands. A microphone also could be placed near the speaker of the electronic time equipment. The player wears an FM receiver (size of a pack of cards) in a pocket with a coupling connection to his/her personal hearing aid. Several manufacturers produce BTE hearing aids with built-in FM receivers that could be used. Since the player may want to continue to hear other communication in the environment he/she may want to set one hearing aid to pick up the FM signal while the other picks up sound through the normal hearing aid microphone.

If the player cannot make use of an audible signal, a visual or tactice signal can be used. Time control can be visually displayed through the use of digital clocks, lights, plates, ßags, etc. that are placed downrange from the competitors. A device consisting of a series of red, yellow, and green lights is described in the International Archery Federation handbook. When the light is green, shooting can begin. Yellow means there is only a small amount of time left, while red would coincide with the audible signal to stop. A digital clock also could be employed that would display a continuous countdown. Simple, manual devices (ßags) should be on hand in the event of equipment malfunction.

Another solution consists of a small, tactile stimulator that could be placed on the shooterÔs wrist (or around the ankle if wrist placement affects shooting). Using an FM signal, the Director of Shooting simply activates the transmitter any time the whistle is blown to stop shooting. This provides an immediate signal to the shooter with hearing impairment.

During 3D shoots and other similar events, where traveling through a Òcourse Ó is required to shoot at targets, the player with hearing impairment should be paired with a partner with normal hearing (a buddy system). In the event that a safety issue (i.e., someone looking for an arrow behind a target and therefore out of sight) comes up, the competitor with hearing impairment depends on the ears of his hearing ÒbuddyÓ who will stop the competitor from shooting. The team consisting of the competitor with hearing impairment and his partner(s) should be allowed to go Þrst to minimize the chances of running into someone ahead of them in an unsafe position.

Tryouts and Practice

The use of assistive listening devices is appropriate during tryouts and practice not only for the safety issues outlined above, but for any verbal instruction given as well. The FM communication system described earlier will assist in hearing any instructions so long as the instructor has the microphone near his/her mouth.

Badminton

Badminton, like tennis, consists of both doubles and singles matches. The game is played using a shuttle and a racket. The object is to hit the shuttle over the net to the opposing team who will try to return it. Play continues until a fault occurs (i.e., the shuttle hits the ßoor, the shuttle goes out of bounds). During singles competition, communication with a teammate is not required. However, communication difÞculties can arise during doubles competition when one or both teammates have hearing impairment.

Competition

According to the OfÞcial Rules of Play of the United States Badminton Association, coaching is not allowed during competition except during the Þve minute break between the second and third games of a match. The game cannot be halted to allow a player to receive instruction or advice. Therefore, communication with the coach during actual competition is not an issue. During the time when communication is allowed, the player(s) and coach will be in close proximity. A player who normally uses hearing aids for communication purposes should use them at this time. The player and coach may want to move to the quietest possible communication spot.

In doubles competition, communication between teammates is important and usually concerns who is going to hit the shuttle. Both players should always call out prior to hitting the shuttle, even when it is obvious which side the shuttle is coming to. This is a common practice in many sports. Hearing aids can be worn during competition. This may allow the player with hearing impairment to hear the call. If the player cannot hear the call routinely with the hearing aids or without them (if they prefer not to use them), then the following strategy may be useful. When both players call for the shuttle, the player with normal hearing should back off since the player with hearing impairment may not have heard the teammate call out. Alternatively, a large hand gesture may be used to call for the ball. This should be experimented with in practice to see if it works consistently.

During both singles and doubles competition, the ability to understand the ofÞcials is important. The service judge calls service faults while the line judges are primarily concerned with whether the shuttle fell in or out of bounds. Both the service judge and the line judges have appropriate hand signals to go with their calls.

The umpire is in charge of calling a Òlet Ó and faults not associated with serving. He or she also is responsible for calling out the score at the beginning of each service and maintaining a rapid pace to the game. The umpireÕs calls are made verbally and may not be clearly understood by a player with hearing impairment. In doubles play, the teammate, through the use of predetermined signs, can relay what the call was. In singles play, the coach should be allowed to perform this duty. Simply relaying the umpireÕs call to the player should not be construed as coaching or giving advice. An alternative method would employ an FM system with the umpire speaking into the microphone of the transmitter and the player either wearing an FM reciever coupled to the ear or a built-in BTE FM receiver. Patience on the part of all ofÞcials is required and calls should be repeated as necessary for the beneÞt of the player with hearing impairment.

Tryouts and Practice

During tryouts and practice, the use of assistive listening devices is appropriate. An FM System with either a traditional receiver or a built-in BTE FM receiver would allow the player with hearing impairment to hear the coachÕs instructions while practicing. Once the coach and player have determined that the hearing impairment is interfering with communication, they can determine which strategies work best.

Baseball

Baseball, with its heavy reliance on signs and signals, can easily accommodate athletes with hearing impairment. With a small amount of cooperation from the ofÞcials, coaches, and teammates, the player with hearing impairment will not be at a disadvantage during game time. The pace of a baseball game lends itself well to accommodation as there is no set time limit and communication ßows freely among players between plays.

Competition

Defense

The outÞelder with hearing impairment is often the furthest player from the Òaction Ó. The home plate umpireÕs calls will be difÞcult to hear and see from this position. In this case, some help from an inÞelder is indicated. For example, after each pitch, the third baseman could help the left-Þelder by slapping his right leg for a Òstrike Ó and his left leg for a Òball Ó. The outÞelder with hearing impairment would then be able to keep track of the pitch count.

Communication from the coach to the outÞelder usually relates to Þeld position. Once the coach gets the playerÕs attention (with some help from an inÞelder, if necessary), he/she uses body gestures to direct the player to the desired position. (NOTE: According to the high school baseball rulebook, ampliÞers/bullhorns may not be used for coaching purposes.) The player with hearing impairment also could be instructed to glance toward the dugout between each batter.

Play calls by the Þeld umpires are accompanied by the often exaggerated Òsafe Ó or Òout Ó signals followed by the runner exiting the Þeld or remaining on base. Therefore, the outÞelder should have no trouble with this aspect of the game. It is also customary for teammates to periodically remind each other of the number of outs in the current inning.

The inÞelder with hearing impairment is at a slight advantage by being closer to home plate. As long as the plate umpire consistently accompanies each pitch call with the appropriate hand signal, the inÞelder will be able to keep track of the pitch count.

Again, communication from the dugout usually relates to position and can be accomplished via gestures.

Communication between a pitcher and catcher is heavily dependent on signs, usually relating to what type of pitch should be thrown. Verbal communication is not useful since the batter would know what pitch was coming.

With the proper gestures on the part of the umpire, the pitcher with hearing impairment should not have difÞculty with the pitch count. A catcher with severe hearing impairment, however, may have difÞculty seeing as well as hearing the call due to his position facing away from the umpire. One strategy to circumvent this problem would be a simple signal system, between the pitcher and catcher, indicating whether the pitch was called a ball or strike. In the event of the catcher dropping the ball on a possible third strike, the catcher may want to throw to Þrst immediately instead of waiting for the pitcher to signal the call.

According to the rulebook, each team, while on defense, is allowed three charged conferences within seven innings (the length of a high school game) and one in each extra inning. If the pitcher is removed as a result, the conference is not charged. When one-on-one communication is necessary, any player or coach may call Òtime.Ó for a conference. However, by using some common sense communication strategies, charged conferences as a result of not being able to hear should be a rarity. Any time Òtime outÓ is called, it is the responsibility of the teammates to notify the player with hearing impairment if he/she has not noticed.

Offense

Helmets are a challenge for every hearing aid wearer. In junior and senior high school baseball, the team often owns four batters' helmets (one for each of the three potential basemen and one for the hitter) that have plastic shields over both ears as opposed to a shield only over the ear facing the pitcher. Some players own their own helmets in order to get a better Þt. Rules generally dictate that the players wear the hard helmets around the bases. The problem is the likelihood that the hearing aid will feedback because the helmet is so close to the microphone. There are several solutions a hearing aid wearer may want to try if he/she wants to wear the hearing aid(s) during offense. Ideally, a custom helmet should be used that only has one ear ßap (facing the pitcher). The batter would then use the opposite hearing aid. If he/she normally uses the hearing aid that would now be under the ßap, the aid should either be removed or turned to off to avoid feedback. If the student is an ITE user, it might be possible to have a ßap (and helmet) made with the hole in the ßap positioned right over the microphone. If the hole is wide enough and some extra sponge padding in inserted around this area you may not get feedback. You can try this with a BTE as well (the hole would be up above the top of the ear) but the extra bulk of the BTE case may be uncomfortable.

There are two coaches' boxes on the Þeld, one at Þrst base and the other at third. The batter generally receives instructions (i.e., bunt, take a pitch, etc.) in the form of signs. This form of communication is ideal not only from a secrecy standpoint, but for the player with hearing impairment as well.

In the case of a more severe hearing impairment, the batter may not be able to hear the umpire's call. If the batter does not turn in time to see the call, he may ask the umpire to repeat it. As a courtesy, the umpire should be forewarned of this possibility prior to the game. The same applies for calls made by the Þeld umpires. The player may not hear or see if he was called safe or out. In addition, the base coaches could help the batter/runner with pitch calls and base calls.

While on base, communication also is accomplished via signs (i.e. steal, hit and run, etc.). Whenever Òtime outÓ is called, it is the responsibility of the base coaches to inform the runner with hearing impairment. One charged conference is allowed per inning while on offense.

Assistive listening devices (beyond a hearing aid) would not be appropriate during game time. For example, by using a built-in BTE FM system, the coach would be able to talk to the player with hearing impairment in secrecy. In an actual game, if a coach wants to speak directly to a player without having a conference charged, it is at the expense of having everyone else hear. Clearly, a built-in BTE FM system would give the team an unfair advantage.

Tryouts and Practice

During tryouts and practice the use of assistive listening devices is appropriate. An FM system would allow the player with hearing impairment to hear the coach's instructions/suggestions during team meetings, when the player is in a remote location from the

coach, and in noisy situations. A built-in BTE FM system for the player would be ideal as the conventional Òwalkman Ó type receiver might get in the way during physical activity.

Basketball

Basketball is a team sport that is heavily dependent on communication between the players, coaching staff, and ofÞcials. Unfortunately, the environment in which basketball is played is less than ideal acoustically. Even players with normal hearing will have difÞculty hearing in a large, reverberant gymnasium Þlled with people. Many of the strategies that will be described are already used by teams with no players with hearing impairment because of these difÞcult acoustical conditions.

Competition

A hearing aid may be of little use during a typical basketball game due to the noisy environment. There are several visual signals that are employed to help all players keep track of the time and score. According to the 1994-95 high school rulebook, a visible game clock and scoreboard are necessary. There should be a red light behind each backboard to supplement the audible timerÕs whistle which sounds at the end of a quarter or extra period. These devices help all players, especially those with a hearing impairment.

The coach cannot use relay equipment, a megaphone, or any type of electronic equipment for voice communication with the players. A built-in BTE FM system may be considered but only if players with normal hearing are able to hear the coach. If the players with normal hearing are having difÞculty hearing the coach, then providing one player with a one-on-one communication device (FM system) may be construed as an unfair advantage for that player.

The coach must remain seated on the bench at all times except when giving instructions to players. During this time he/she may be in front of his or her seat, within the conÞnes of the coaching area. In addition, the coach may stand up to signal a player(s) to request a time out. This lack of mobility on the part of the coach makes communication even more difÞcult when the player is on the other end of the court.

For communication with players with hearing impairment on the bench, a portable loop system may prove useful. By looping the area around the bench, and giving the coach the microphone, the player with hearing impairment will better hear courtside instruction by simply switching the hearing aid to Òtelecoil Ó. As soon as the player leaves the looped area, this advantage no longer applies. This system requires a power outlet near the listening area. If this is not readily available, the player may want to seat himself near the coach during any communication and/or use an FM or hardwired system when on the bench.

Fortunately, in basketball, substitution occurs often and freely. This is a popular method used by the coach to get a message to a player(s). The substitution procedure is relatively simple with the player reporting to the scorerÕs table, giving both his/her number and the number of the player being replaced. The individual(s) at the scorerÕs table should be told if any of the players are hearing impaired to avoid possible confusion later in the game. The Ònew Ó player can then relay the coachÕs message to his/her teammates. This is an effective method of communicating important messages and does not come at the cost of a time out.

Teammates are responsible for alerting the player with hearing impairment in the event the coach is trying to get his/her attention. Fortunately, much of the communication among players on the court consists of hand signals and pre-determined plays. Special hand signals and arm movements can be devised by the team to be used for communicating not only with the player with hearing impairment, but with other players as well. These should be practiced and learned by everyone, not just the Þrst string players.

The ofÞcials should be notiÞed and given the numbers of any players with hearing impairment. The ofÞcials start and stop play through the use of a whistle that may not be audible to the player with hearing impairment. Consistent use of the appropriate hand signals for the various penalties is required as well as patience on the part of the ofÞcials if requested to repeat a call. The player with hearing impairment should be given some leeway if he or she continues to play after a whistle has been blown.

Tryouts and Practice

During tryouts and practice, the use of assistive devices/strategies is indicated. A built-in BTE FM system is ideal during drills, practice games, and any

time the coach is giving instructions. The conventional Òwalkman Ó type receiver might get in the way during physical activity.

Bowling

Bowling can easily accommodate individuals with a hearing loss. Although communication during actual competition is not imperative, it makes for a more enjoyable and social atmosphere.

Competition

The only time an acoustic signal is routinely used is for the foul detection mechanism. This problem can be handled by providing a visual stimulus or having the scorekeeper/teammate notify the bowler if she/he steps over the line.

The bowling alley is an inherently noisy and loud environment. For this reason, hearing aids with compression output limiting are recommended (see chapter on hearing aids) in order to avoid discomfort and poor sound quality.

When bowling, much of the time is spent sitting on the bench waiting for oneÕs turn. Even individuals with a mild hearing impairment will have difÞculty conversing in this environment. There are several assistive listening devices that would prove helpful. A team FM system could be used. The bowler with hearing impairment would have the receiver while the transmitter could be passed among the teammates depending on who is talking. Another, more appropriate strategy, would be to use a small portable loop system with several microphone inputs. By using this strategy while in the looped area, the bowler with hearing impairment will hear anyone talking near a microphone so long as his/her hearing aid is set to Òtelecoil Ó response. The loop system requires a power outlet near the listening area.

Tryouts and Practice

During tryouts and practice, the coach could use an FM system (standard receiver or built-in BTE FM receiver) to instruct/communicate with the bowler with hearing impairment if communication is needed during the act of bowling. The portable loop solution wonÕt work when the bowler is actually bowling because the loop of wire could trip him/her.

Canoeing

The 1995 Canoe and Kayak Competition guide outlines the rules for two disciplines of canoeing: ßatwater sprint racing and whitewater slalom racing. Each discipline presents unique challenges for the individual with hearing impairment wishing to participate in this activity. Therefore, strategies for sprint and slalom will be discussed separately.

Competition

Sprint

Sprint is similar to a track event in that competitors are racing to be the Þrst to cross the Þnish line. The course can be straight or have several turning points. Both singles and tandem events exist and different strategies are necessary for each. According to the competition guide, the competitors need to receive written instructions at least Þve hours prior to the beginning of the regatta. These instructions should include information on the course and its markings, starting time, location of the starting and Þnishing lines, and an area where competition information (times of heats, Þnals, etc.) will be posted. If any of the information in these instructions is incorrect or changes and is announced verbally, a coach or teammate (a Òbuddy Ó system would be helpful) needs to inform the competitor with hearing impairment as she/he may not have heard the announcement. This is important as any competitor who does not report to the starting area within two minutes of the announced time is not allowed to race.

Once a race begins, it is illegal for the competitors to receive outside help or be accompanied by other boats. Therefore, once the race begins, communication with the coach is not permissible. In tandem competitions, the player with hearing impairment should be in the stern (back) of the canoe when possible. The paddler with hearing impairment will then be able to see the back of his/her partner. This is important if communication between the teammates is to take place. With the paddler with hearing impairment in the rear, the teammate could use a system of signals (via speciÞc movements of the head or legs) to deliver messages. Communication with a partner is obviously not an issue during singles competition.

While water-proof hearing aids have recently become available, they are not appropriate for all types of hearing losses and are not completely water-

proof (cannot be completely submerged). Also, an FM system would not only get in the way of the competitors but could easily become wet even if attempts at waterproofing are made.

Another area of the competition that could prove problematic is during the start of a race. The starter obtains the attention of the competitors by calling "Attention Please". When he or she has received everyone's attention, the starting signal is given either through a gunshot or by shouting "Go". When competitors with hearing impairment are present, the gunshot is the preferred method. Most individuals with a hearing loss will still be able to clearly hear a gunshot in a fairly quiet environment. For those who cannot, alternate strategies are available. A visible signal, alone or in conjunction with the gunshot, could be employed. For example, the starter could drop his or her other arm simultaneously with the firing of the gun. The waving of a flag could be used, in lieu of a gunshot, and would not disadvantage any of the competitors.

The use of special signal detection devices may be appropriate (see "alerting devices" in the assistive device chapter). The paddler with hearing impairment can wear a wrist or leg band that vibrates when signaled. This is analogous to a tactile pager. The device can be made waterproof by wrapping plastic around the device and securing it to the skin with waterproof tape. When the detection device "hears" the gunshot, it will simultaneously send out a signal that causes the wrist or leg band to vibrate. The device will need to be set at a very insensitive level so that other loud sounds do not set off the device. The decision on which method to use should be made in conjunction with the competitor with hearing impairment and the race officials well in advance of the event.

In the event of a false start or a paddle breaking within 25 meters from the start, the starter immediately calls back all competitors. In tandem competition, when one of the paddlers has normal hearing, he or she can notify the partner and explain why the race is being restarted. In singles competition, however, the competitor with hearing impairment may not hear the recall. Again, several strategies can be employed including flag waving and/or the use of the tactile alerting device. If the competitor can hear a gunshot or horn, these signals could be used. In addition, if the other competitors are aware of the situation, the nearest canoe could aid in flagging down the competitor with hearing impairment. These strategies also can be employed if the umpire interrupts a race due to any "unforeseen hindrances".

A final issue arises during long distance races. In these events, the competitor is warned by a loud signal (i.e., bell) when the point 1000 meters from the finishing line is reached. During tandem competitions, this in not as big an issue as the partner can notify the paddler with hearing impairment. Strategies for the single paddler can again include the use of a tactile alerting device or some type of visible signal. A simple strategy would be to place a specially colored buoy at the location 1000 meters from the finish.

Slalom

The object of slalom, as outlined in the competition guide, "is to negotiate a rapid-river course, defined by gates, without fault, in the shortest possible time."

Again, single and tandem competitions exist. A meeting should be held prior to the event in which information concerning the starting time, intervals, emergency procedures, starting commands, etc. is delivered. All of the information presented, including any last minute changes, should be provided in written form. An FM system could be employed during these meetings, with the speaker wearing the transmitter. It is important for the speaker to remember to repeat any questions asked by the competitors as they may not have been heard by the athlete with hearing impairment. This is a good strategy in any lecture environment. It often is hard for other audience members to hear questions asked by the audience.

If possible, electronic timing should be used. With electronic timing, the clock may be activated by the paddler him/herself. If not, a countdown method is used and should occur via a visible display for the competitor with hearing impairment. With slalom, only one competitor starts at a time and ideally, there is only one competitor on the course at a time. Alternatively, fixed intervals can be employed between starts so that more than one competitor is on the course, however, the competitors are separated by a given amount of time. Regardless, it is relatively easy to employ alternate starting strategies as only one competitor starts at a time.

If it becomes necessary to clear a course as a result of timing problems, one competitor overtaking another, etc. a whistle is blown at which time the

competitor must pull into shore. A whistle may not be audible to an individual with a hearing impairment and alternative signals can be considered. These can include a low frequency horn or gunshot. In addition, any of the tactile or visual signals described in the sprint section can be used.

Tryouts and Practice

Several strategies can be employed during practice to make canoeing more accessible to the individual with hearing impairment. The coach and competitor should work together to determine which strategies work best. During tandem training in a canoe on open water, the hearing-impaired canoeist should be paired with someone with normal hearing. The individual could relay messages from the coach. If the coach needs to talk to the canoeist during practice, he can wear an FM system transmitter while the canoeist with hearing impairment uses a traditional FM receiver or built-in BTE FM receiver enclosed in a waterproof protector. It must be understood, however, that this strategy comes at the risk of ruining equipment in the event it becomes submerged or excessively wet. The use of a vibrotactile wrist/leg band, with the coach having the transmitter device, is a good method of getting the individualÕs attention but will not aid in actual spoken communication. During periods of instruction on land, the FM system should be used consistently.

Cross Country and Track and Field

Cross Country, Track & Field, Pentathlon, and Decathlon are all described in the same rule book and are included together in this chapter.

Competition

With cross country and track events, little or no communication is required once the race has begun. According to the high school Track and Field and Cross Country rule book, during competition, it is illegal to run along with a teammate or be stationed near the track for purposes of coaching. The main problem with these events lies in the starting of the race and the disadvantage it may impose on the competitor with hearing impairment.

The starting commands for races under 800 meters are as follows. The starter commands ÒOn your marks,Ó at which time the runners take their proper positions behind their starting lines. The next command is ÒSetÓ, at which time the runners assume their Þnal set position. Several seconds later, if the runners are all set, the starter Þres a .32 caliber pistol at which time the race begins. On races of 800 meters or longer, the ÒSetÓ command is not used and the gun is Þred several seconds after the ÒOn your marksÓ command. In the event of an unfair start, the runners are recalled by a second Þring of the pistol. For Cross Country events, the starting procedure is identical to the over 800 meters race. The starter usually gives brief instructions to the competitors prior to the beginning of the race.

Many runners with hearing impairment will be able to hear the gun shot and commands clearly and will not require special assistance. Hearing aids can be worn while running as long as appropriate output limiting is employed in the hearing aid (to avoid discomfort as a result of the gunshot). Depending on the degree of loss or if the runner prefers not to race wearing a hearing aid, however, the runner with hearing impairment may have difÞculty hearing the commands or even the gunshot. There are several strategies that can effectively deal with this problem. The use of appropriate arm signals with vocal or whistle commands is recommended in the rule book as an aid to all runners and the timers. The free hand pointing to the ground can correspond to ÒOn your markÓ and raising the hand above the head can correspond to ÒSetÓ. This strategy should work well for those individuals who are having difÞculty hearing the verbal commands, but are able to hear the gunshot.

For those competitors who are unable to hear the gunshot, a visible signal is needed, either by itself, or in conjunction with the gunshot. Accompanying the gunshot with another hand signal, waving of a ßag, etc. would help but would still place the competitor with hearing impairment at a disadvantage as he or she would be the only competitor who had to face the visible signal. This method also is dependent on a simultaneous Þring of the gun and delivery of the visible signal which is easily vulnerable to human error. The use of a special signal detection device might be more appropriate. The signal detection device can be connected to a visible signal. When the detection device Òhears Ó the gunshot, it will simultaneously light the visible signal. The device will need to be set

at a very insensitive level so that other loud sounds do not set off the signal.

The most appropriate strategy would be to use a visible signal for all competitors. For example, a red light could signify Òon your marksÓ, a yellow light could signify ÒsetÓ, and the green light would mean ÒgoÓ. This removes any advantage/disadvantage imposed by the other methods. More than one visual display may be needed in events with staggered starts, as those in the rear positions may not be able to clearly see the display. The starter should be informed of any special modiÞcations to the starting procedure well in advance of the race.

The throwing events (discus, shot put, javelin) do not require communication during the actual competition. One important rule to consider concerns the requirement that competitors report to the event judge at the designated location. The competitor needs to compete within 1 to 2 minutes (depending on the event) after being called for a trial. The responsibility for making sure the competitor with hearing impairment is in the right place at the right time lies with both the competitor and the teammates. The competitor with hearing impairment should know in what order of events he/she will be competing. The competitor should be paired with one of his/her teammates with normal hearing to ensure that important announcements are not missed and that the competitor with hearing impairment is at the event on time.

Tryouts and Practice

Several strategies can be employed during tryouts and practice to make them more accessible to the individual with hearing impairment. The coach and competitor should work together to determine which strategies work best. When training requires running on roads and around trafÞc, the runner with hearing impairment should be paired with someone with normal hearing for safety reasons. If the coach needs to talk to the runners during practice, he/she can wear an FM system transmitter while the runner with hearing impairment uses a built-in BTE FM receiver or a traditional receiver system. A traditional receiver pack may be placed in a fanny pack to minimize bouncing. The zipper remains part way open in order to allow the coupling wire to connect the ÒearÓ to the receiver (via neckloop or direct audio input). The runnerÔs partner also could wear a transmitter. During periods of instruction, the FM system should be consistently used.

Curling

Curling is a two-team sport played on an ice rink. Each team is comprised of four players on the ice. A circular-shaped stone is manipulated with a handle attached to a stick. Teams score one shot for each stone that is nearer to the tee than any of the opposing teamÔs stones. An athlete with hearing impairment who wishes to participate in curling easily is accomodated and not be put at any real disadvantage.

Competition

According to the rulebook, electronic devices that allow communication between players and coaches are prohibited during games. In this case, an FM system would be inappropriate and illegal. Communication between players may be verbal or visual. If verbal communication is relied upon, it must be ensured that the athlete with hearing impairment is able to understand what is being discussed. A simple signal or sign system can be developed and used by the players for communication purposes. The player with hearing impairment must be aware of the events of the game as much as possible.

Responsibility for conveying any communication to the player with hearing impairment should be that of the entire team. Depending on how much background noise is present during a match, the player with hearing impairment may communicate effectively using his/her personal hearing aids especially if teammates are nearby.

During time-outs or dead time when conferences with the coaches are permissible, the use of an FM or hardwired system is appropriate. This will allow the player with hearing impairment to hear the conversation and properly communicate with the coach or coaches regardless of noise interference.

Tryouts and Practice

During try-outs and practice, the use of assistive devices is necessary. It is the responsibility of the player with hearing impairment and the coach to evaluate which situations are communicationally difÞcult for the player. An FM system (microphone and transmitter on the coach) transmitting to a receiver pack coupled to the playerÔs ear or to a built-in BTE FM receiver is ideal during practice or tryouts when the coach is giving instructions.

Diving

Athletes with hearing impairment can participate in diving with a few accomodations and are not greatly disadvantaged by their hearing loss. Communication between the diver and the coach occurs before and after a dive. The rules of diving prevent coaches from communicating with a diver once he/she steps onto the diving board. Practice is where instruction and communication occur most frequently for diving.

Competition

Communication regularly occurs on the pool deck before or after a dive in a meet. The coach often offers last minute instruction and encouragement to the diver. Assistive listening devices used only on the pool deck are appropriate in this situation. These devices do not give the diver with hearing impairment an advantage over the other competitors. Use of an FM system would allow the diver with hearing impairment to effectively communicate with his/her coach while giving them the ability to remove the device to dive. The diver may even want to use earphones with the system. Earphones are easily taken on and off instead of inserting and removing hearing aids which may be lost on the pool deck. Further, if the communication will always be one-to-one in close proximity, a less expensive hard-wired system could be used instead of an FM system. The device must be removed before the diver approaches the diving board. Failure to remove the FM system or hearing aids may give the diver a þnal opportunity to communicate with his/her coach. In addition, these devices may be destroyed if they are submerged in the water.

Simple communication strategies such as looking at the diver when speaking to him/her and talking slowly will aid the diver in understanding the coach with and without the use of an assistive device. This is especially beneÞcial when the diver has Þnished the dive and is emerging from the pool. Even though he/she may not necessarily be able to hear what the coach is saying, the diver may be able to read the coachÕs lips and facial expression. But very little spoken language will be communicated during this time.

During a meet, the diverÕs name and a description of the dive to be performed are announced before each dive. It is the coachÕs responsibilty to ensure that the diver knows when it is his/her turn to dive and which dive was announced. The coach can keep a list of the dives that the diver with hearing impairment will perform and point to the appropriate dive that was called. This is not to say that the diver with hearing impairment will not hear the announcement but that the coach should take the appropriate precautions in case the diver does not.

At the conclusion of the dive, the scores are announced. Visual signs of the scores should be used. If visual representation of the scores are not available, it is recommended that the coach jot down the scores and relay them to the diver.

Tryouts and Practice

Practice is where the majority of communication occurs in any sport and it is true of diving. With diving, instruction occurs mostly out of the pool. Instruction out of the pool can be over a large distance if the diver is on the diving board and the coach is on the ground. A diver can not use any assistive listening devices including hearing aids in this situation because of the chance that they may forget to remove them before diving into the water. The use of illustrations and demonstrations to help convey the needed information are essential for these reasons. On the pool deck the coach can use a drawing or a demonstration by another diver to inform the diver with hearing impairment of what to perform or modify.

Training procedures and work-outs can be fully described and illustrated in a written form for the diver with hearing impairment to follow. Instruction that takes place outside of the pool (including dryland exercises) can be facilitated with the use of the individualÕs hearing aids or with the FM system described in the competition section. The microphone is worn by the coach and the receiver is worn by the diver with hearing impairment.

Fencing

Fencing is a sport in which participants use ßexible steel blades to engage in offensive actions against their opponent. Some communication occurs during competitions. Auditory cues (either verbal instructions or from a sounding machine) are utilized to signify when to commence or halt fencing activities.

Competition

Communication between coaches and fencers is prohibited during competitions. Coaches, trainers, and technicians are not allowed in the enclosed area near the fencers during competitions. Communication is typically between the fencers and the ofÞcials. At the beginning of the competition, the president says Òon guardÓ and asks if the fencers are ready. With an indication of readiness or no indication of the lack there of, the president will say ÒfenceÓ. The competition will continue until the president says ÒhaltÓ or until an audible signal is sounded. In addition, a verbal warning is announced stating that there is one minute left in regulation time.

If the fencer with hearing impairment does not hear these cues, he/she will be placed at an immediate disadvantage. There are two solutions to the communication difÞculties that may arise during a competition. First, visual signals can be used in addition to the audible signals to alert the fencer with hearing impairment to commence or halt fencing activities. The ofÞcials should be informed of the presence of the fencer with hearing impairment and the need to place himself/herself in front of this fencer to alert him/her of the standing of the competition. Second, a tactile device that utilizes vibratory impulses can be used to warn the fencer with hearing impairment to begin fencing or to stop. The tactile device can be worn on the wrist. However, placement of the device on the ankle may be a more feasible placement as long as the fencer with hearing impairment can feel the impulses consistently. The battery-operated activating device is controlled by the ofÞcial.

For electronic scoring, visual signals of scored points are accompanied by audible signals. The ofÞcials must ensure that the fencer with hearing impairment is aware of these indicators. The ofÞcials can use additional hand signals to notify the fencer of the status of the points scored by or against them.

Tryouts and Practice

Communication between coach and athlete must be free ßowing during training and practice of any sport. In fencing, hearing aids and/or FM devices can be worn during practice if the protective headgear is not worn. This will allow the fencer to hear the coachÕs instructions. Only the coach can determine if there are appropriate times to practice without head gear. However, if the headgear is worn, the use of hearing aids or an FM system may not be feasible because of the heargear itself. In these cases, it is advised that visual signals and/or demonstrations be utilized for instruction. Frequent use of demonstrations or pictorial representation would beneÞt the fencer with hearing impairment even with use of ampliÞcation devices.

Field Hockey

The fact that Þeld hockey is played on a relatively large Þeld outdoors is the main reason why communication may be difÞcult for the player with hearing impairment. Many of the strategies that are used with other fast paced sports (i.e., basketball, soccer) also apply to Þeld hockey.

Competition

An FM system incorporated into the playerÕs hearing aids (built-in BTE FM) may provide a partial solution to communication problems between the player and coach during the game. However, an FM system can only be used if the other members of the team do not have any difÞculty hearing the coach. If the players with normal hearing cannot effectively hear the coach, then providing the player with hearing impairment with a personal communication device would provide an unfair advantage. In this case, other methods must be employed to ensure that the player can be updated on the game and her role when it is necessary. Since coaches typically yell from the sidelines to communicate with players during a game, the coach and the other team members could use a signal system to convey necessary information to the player with hearing impairment. A player on the Þeld can tap the player with hearing impairment on the shoulder to inform her to look to the sideline for instruction. Hand motions to show position or who to cover on defense can be used and often already are because of distance and noise impacting communication with everyone.

If the player with hearing impairment is on the opposite side of the Þeld from the coach, another player on the same side can obtain the coachÕs message and relay it to the player with hearing impairment directly or through other teammates. Another solution to this problem could be placing a coach on the same side of the Þeld as the player with hearing impairment to relay and give coaching instructions whenever necessary. Coaches should inform ofÞcials

that the necessity of having a coach in this position is for the beneÞt of a player with hearing impairment.

Substitution is another way a message can be relayed to a player with hearing impairment. A player who enters a game as a substitute must report to the ofÞcial scorer, give her number and the number of the player she is substituting. The ofÞcial scorer should be given the number of the player with hearing impairment in order to avoid possible confusion if she is the person entering or exiting the game. A player on the Þeld can tap the player with hearing impairment on the shoulder to indicate that she is being substituted. An incoming player also can bring new instructions to the player. She can relay the coachÕs message easily once she is in the game.

During time-outs or when the player with hearing impairment is not in the game, communication in the bench area may be necessary. During time-outs the coach can use illustrations to depict plays and strategies to be used by the team. If verbal communication is necessary, the coach should face the athletes with hearing impairment when talking and should not talk rapidly even though the time-out period is short. An FM or hardwired system can be used during bench time, but must be removed before entering the game.

The ofÞcials must be informed that a player with hearing impairment is on the team and what her number is. The ofÞcials start and stop play by blowing a whistle. The whistle may not be heard by the player with hearing impairment who may continue to play. The ofÞcials should be informed in the pregame conference that the consistent use of appropriate hand signals is necessary and that repetition of calls may be needed for the player. In instances of the continuation of play by the player with hearing impairment after a whistle is blown, the ofÞcials should give leeway to this player due to her inability to hear the whistle. OfÞcials also must be aware that if they call a penalty on the player with hearing impairment and a verbal caution is warranted, they must make sure that the player understands what she has done to deserve the penalty.

Tryouts and Practice

Communication is a fundamental part of tryouts and practice. All players need to hear instructions and directions from the coaches. The use of the other players in relaying information to the player with hearing impairment is as important in practice as it is in a game situation. Additionally, small group explanations are often used to teach fundamentals and give instructions. The coaches should use the same strategies in these small groups as they would in a time-out situation during a game. The use of illustrations in these situations may be beneÞcial to all members of the team and not just the athlete with hearing impairment. Another way to instruct any player is through the use of frequent demonstrations. Using demonstrations allows the player to view exactly what it is the coach wants them to do.

During practice and tryout sessions, the use of assistive listening devices is appropriate. An FM system incorporated into a hearing aid (built-in BTE FM) can be beneÞcial during drills, practice games, and any time a coach is giving instructions. A traditional FM pack receiver with wires to couple the signal to the hearing aid may not be satisfactory because of the possibility of other players or sticks tangling in the wires. The player with hearing impairment and the coach should discuss any instances where communication is breaking down and develop custom methods and strategies for remedying the situation.

Football

Football is a team sport that is highly dependent on communication among players and between the coaching staff and the players. Unfortunately, due to the amount of physical contact and the fact that helmets will cause feedback, traditional hearing aids cannot be used easily during a game. In addition, football is generally played in large stadiums where crowd noise can be tremendous. All of these factors can lead to communication difÞculty for the player with hearing impairment.

Recently, in the National Football League (NFL), players have begun using helmets that receive signals from a transmitter worn by the coach. This technology allows the player to better hear the coachÕs instructions and called plays under the adverse listening situation already described. Unfortunately, while this technology is becoming more widespread in the NFL, its use is banned at the high school level. According to the Football high school rule book, electronic or mechanical devices for communication are illegal and phones and headsets may not be used by players. The rule book states that a team composed of deaf or partially deaf players may use a

Òdrum to establish rhythmic cadenceÓ following the ready for play signal. Clearly, this strategy would not be appropriate for the mainstreamed student with a hearing impairment as the majority of his teammates will have normal hearing. Therefore, additional strategies must be considered.

Competition

If it is determined that the student would like to attempt to use a hearing aid with the helmet, the following solution may work. A hole is drilled in the top of the helmet and the BTE hearing aid is actually secured in the top of the helmet with the microphone situated in the hole. A long piece of plastic tubing connects the earhook of the BTE to the earmold that is situated (as always) in the ear. The athlete will be hearing from the top of his head which is not completely natural but some students may prefer this to being auditorily isolated.

Fortunately, much of the communication that takes place in football is dependent on signs and signals. For example, rehearsed plays can have a signal associated with them that can be used when communicating from the sidelines to the quarterback. Different strategies are needed depending on the position played by the player with hearing impairment.

Offense

The quarterback with hearing impairment may have difÞculty hearing plays that are called in from the sidelines. There are several strategies that may help in this situation. Another offensive player with normal hearing could receive the play and then inform the quarterback. Another option would be to associate a sign with each play, then the quarterback could visually receive the play choice. A third option, due to the unlimited substitution allowed between downs, would be to send the play in with a substitute each down. Regardless of the method, the quarterback with hearing impairment should still be responsible for telling his teammates which play will be run.

The quarterback with hearing impairment does not have to worry about hearing the snap count, as he is the player doing the counting. The offensive linemen, however, need to clearly hear the count in order to avoid jumping offside. This may be especially hard for the ends and tackles who are located farthest from the quarterback and closest to the crowd noise.

The offensive lineman is limited in his mobility and for the most part must remain motionless during the snap process. Therefore, he cannot watch the quarterback, or be signaled through touch by one of his teammates. Unfortunately, there is no easy solution to the problem of not being able to hear the snap count and/or quarterback audible (a last minute change in play) short of some major rule changes. This will be a difÞcult position for an individual with severe hearing impairment.

The player with hearing impairment, who is unable to hear the count and any audibles, may want to consider playing a different position. Not knowing when the ball has been snapped has the potential to be dangerous, as he will not know exactly when the corresponding defensive player is coming. This is not to say that a player with hearing impairment cannot play on the outer offensive line, however, it will take an exceptional player who can react very quickly.

Defense

The defensive player with hearing impairment is in a slightly more advantageous position than the offensive player with hearing impairment. Not hearing the snap count is less likely to cause the defensive player to jump offside. One strategy used by linemen with hearing impairment is to watch the ball and not try to hear the snap. The defensive player with hearing impairment may not be able to hear the quarterbackÕs audible which can cause a problem. A teammate may need to tap the player with hearing impairment if a change in the opponentsÕ offense occurs since the player may be focusing on the ball.

As with offensive play calls, defensive play calls are generally delivered to the captain who delivers the play to the rest of the defense. Each possible play should have a sign associated with it so verbal communication is not a necessity. Cornerbacks generally look at the person they are covering and do not move until that person moves, hence they also do not need to hear the snap count.

Tryouts and Practice

During tryouts and practice, the use of assistive listening devices is appropriate. Game Þlms generally do not have sound, but it is important to be able to hear the coach as he/she goes over the Þlms. An FM or hardwired system might be helpful in this case. The coach would speak into the microphone on the transmitter and the player would wear the receiver (coupled to the ear via neckloop and telecoil or direct audio input). Any instruction given while not actually playing can be enhanced with the use of an FM or hardwired system.

During practice and in drills in which physical contact is warranted, hearing aids and/or assitive listening devices should not be worn. Fortunately, much of what is taught in football is learned through demonstration.

The teammates of the player with hearing impairment should be responsible for alerting him in the event the coach is trying to get his attention. The teammates also can be responsible for relaying messages during practice.

All plays that are practiced and will be used in games, whether offensively or defensively, should have a corresponding sign that everyone knows, not just the player with hearing impairment. Part of practice should include sending and receiving plays; making sure the player with hearing impairment is not having trouble understanding play calls in a rapid, efÞcient manner. Any taps or touches that will be used with the player with hearing impairment to signify a change in plans also should be practiced.

Golf

Golf is an individual sport with strict rules of etiquette. Golf is played on a designed course. The object of the game is to hit the ball with a club and try to put the ball in the hole with the fewest amount of swings.

Golfers with hearing impairment are not placed at a disadvantage. The game of golf itself is not a noisy game where communication is constantly freeßowing. While the golfers are playing, spectators and other golfers are quiet so as not to interfere with the concentration of the golfer.

Competition

The rules of golf prohibit giving advice to any player except his/her partner. A player can only ask for advice from their partner and the caddies of either player. Advice is deÞned as Òany counsel or suggestion which could inßuence a player in determining his play, the choice of a club or the method of making a strokeÓ (United States Golf Association Rulesbook, 1994). Advice does not include information given on the rules of golf or any matter that is public knowledge (placement of the ßagstick, hazards, etc.).

In the instances where advice is allowable, hearing aids may be adequate for the golfer with hearing impairment. Golf courses are quiet environments with little background noise to interfere with communication. However, hearing aids can be affected if they get wet from perspiration or rain. Hearing aids can be protected from moisture by covering the aid with a special latex protector designed for hearing aids (typically available from the playerÕs audiologist).
A traditional FM system or a hearing aid with a built-in FM system may be used between a golfer with hearing impairment and his/her partner and/or the caddy. The microphone of the system can be passed back and forth between speakers. However, the use of an FM system may put opponents at a disadvantage if its use is abused. Coaches and other individuals other than caddies and partners may have access to the microphone, thereby, allowing for illegal communication to take place. Strict regulation of the FM microphone by the ofÞcials may be necessary to ensure that no golfer has an unfair advantage. A pregame conference should be used to explain the device, its purpose, and who will be using it. At that time, the ofÞcials should decide how to regulate its use.

Tryouts and Practice

Proper training and instruction are essential to any sport and golf is no exception. Use of proper ampliÞcation (hearing aids) may be sufÞcient for the golfer with hearing impairment. Although this may be adequate for some, a FM system is the logical choice for those who are not beneÞting from hearing aids alone because of distance or noise problems. A traditional FM system will be adequate. The golfer may want to wear the receiver hooked to his/her belt (or in a fanny pack) in back so it wonÕt interfere with his/her swing. An FM receiver will pick up the transmitted signal regardless of where it is worn.

The use of visual examples and demonstrations would be especially helpful in the instruction of golf. Visual examples would include writing down information as well as drawings illustrating the instruction the coach is trying to give. Demonstrations of swings or putts would be helpful to a golfer with hearing impairment because they do not have to rely on their hearing to understand the coachÕs instruction. This type of demonstration if worthwhile for all players.

Gymnastics

Gymnastics involves individual and team competitions using acrobatic moves on various apparatus. Points are awarded by the judges on the merit of the performance. Gymnasts with hearing impairment should have little problem in participating in the sport.

Competition

Since gymnastics is such an intensely physical sport, the use of BTE hearing aids is not recommended while the gymnast is performing. During competitions coaching is prohibited while a gymnast is performing on an apparatus. In addition to the risk factor, hearing aids are not needed for the gymnast to hear the coach since communication is not allowed.

Communication between coach and athlete usually takes place immediately before or after the athlete is scheduled to perform. Last minute advice and encouragement are given prior to the performance while praise and sometimes comfort are given after. The gymnast has two options during these times. First, the gymnast with hearing impairment can use his/her hearing aids and remove them before starting the performance. However, a noisy atmosphere of a gymnastics meet could be detrimental to the gymnastsÕ ability to communicate. The second option is the use of an FM or hardwired system (if the only communication will be close to the coach) which would reduce the background noise because the coach talks directly into the microphone. It may be desirable to use either the FM or hardwired system coupled to the ears with earphones. In this way, the gymnast just removes the earphones when itÕs time to compete. If the systems are coupled to personal hearing aids, there is more chance to lose the hearing aids when removed.

The only gymnastic event to incorporate music is the girls ßoor exercise. Typically, the music is loud but not excessively loud so as to disturb the other events that are occurring simultaneously. If the gymnast with hearing impairment can not hear the music, the coach may request that the music be turned up slightly for this athlete or that the speaker be placed closer to the ßoor exercise mat (even facing down on to it). The gymnast with hearing impairment may be able to Òfeel Ó the music if the speaker is closer to the area of the performance. This should be practiced prior to a competition.

If during the competition, announcements are used to inform the gymnasts and the spectators of the order of the performance or scores, it is the coachÕs and the gymnastÕs responsibility to assess whether or not the gymnast can hear the announcement. If not, then the coach or a teammate should inform the gymnast with hearing impairment of his/her status or score. A visual scoring system accompanied by an announcement is typically used in gymnastics. As long as the gymnast can see the visual score, the announcement is not a concern.

OfÞcials should be informed before the meet begins that an athlete with hearing impairment is performing. Any special requests should be stated at this time. It is essential that the ofÞcials know a gymnast with hearing impairment is performing not only for safety reasons but also for any communication challenges that may come in the competition.

Tryouts and Practice

Preparation to become a gymnast is long and hard. Communication between coach and athlete is essential for learning different skills and routines of the sport. The gymnast with hearing impairment may not be able to utilize his/her hearing aids or assistive listening devices while practicing or training. Visual instruction and demonstration should be incorporated into the training of a gymnast with hearing impairment.

Routines, training procedures, and work-outs can be fully described and illustrated in a written form for the gymnast with hearing impairment to follow. Instruction that does not require the physical performance of a skill can be done with the use of the individualÕs hearing aids or with an FM or hardwired system. The microphone of the system is worn by the coach (or whomever is speaking) and the receiver is worn by the gymnast.

Judo

Judo is a high contact sport, and as such, the use of hearing aids or assistive listening devices is contraindicated. However, strategies can be developed that allow a competitor with hearing loss to participate in this activity without being at a disadvantage.

Competition

The competition area itself is fairly small, ranging from 14m X 14m to 16m X 16m. The ofÞcials in

a Judo contest include a referee and two judges. The judges are located in close proximity allowing for easy view by the competitors while the referee is generally located within the competition area. Scoreboards are required as well as ßags or visible electronic displays to be used by the timekeepers.

Each action taken by the referee is accompanied by an appropriate gesture. All ofÞcials should be informed if an individual with hearing impairment is competing. The referee needs to understand that he/she may need to have the individualÕs attention before making an appropriate gesture. Each gesture should be maintained for several seconds. Each action taken by the judges also is accompanied with an appropriate signal.

An audible signal is used to signify the end of the contest. The contestant with hearing impairment may not hear this signal or the refereeÕs announcement. The referee should purposely position him/herself in view of the athlete when ending the contest and an agreed upon hand signal should be employed.

Tryouts and Practice

During practice and tryouts, the individual with hearing impairment should be located close to the demonstration area and/or person giving instructions. When not actually competing, the use of assistive devices and hearing aids is appropriate. One strategy would be to loop the instructional/practice area and give the coach the microphone. A power outlet will be required for this system. The athlete with hearing impairment can listen directly to the coach by setting his/her hearing aid to telecoil. He/she would simply have to remove the hearing aid before engaging in a high contact activity. A traditional or built-in BTE FM system also would accomplish the goal.

Lacrosse

The relatively large size of the playing Þeld (120 x 70 yards, goals 100 yards apart) and the fact that this game is played outdoors are the main reasons why communication will be difÞcult for the player with hearing impairment. Many of the strategies that are used with other fast paced sports (e.g., basketball, soccer) apply to Lacrosse and are outlined below.

Competition

The lacrose goalie wears a solid/hard face mask, helmet, throat and chest guard. This type of arrangement does not lend itself to wearing hearing aids set to the microphone setting due to feedback. The goalie with hearing impairment may need to rely on careful attention to the action (all goalies rely on this) and hand signals from players and coaches during the game. During time outs and/or breaks in the game, when the goalie is on the sidelines, either personal hearing aids or assistive listening devices can be used during communication.

The rest of the players are not required to wear head gear but may wear a soft cap/helmet. These caps usually have ear ßaps with cutouts in them to allow players with normal hearing to hear through the ßap. If the cutout is positioned such that the microphone of the hearing aid (regardless of style) is in the cutout, feedback should not be a problem. Again, this head gear is optional and the athlete with hearing impairment may not want to use it.

A built-in BTE FM system (FM receiver is built into the BTE hearing aid) may provide a partial solution to communication problems between the Þeld player with hearing impairment and coach during the game. A traditional FM receiver may be bulky to wear attached to a belt or in a fanny pack on a soccer player who is trying to move quickly and who may be hit by the ball or another player. An FM system can only be employed if the rest of the team does not have any difÞculty hearing the coach. If the players with normal hearing cannot effectively hear the coach, then providing the player with hearing impairment with a personal communication device linked directly to the coach would provide an unfair advantage. Either an FM or hardwired system is appropriate for communication around the bench area (i.e., during time outs, when the player with hearing impairment is on the bench).

Substitution is one method for getting a message to a player. A player wishing to enter a game in progress reports to the scorerÕs table and gives his/her number and the number of the player being replaced. The scorer should be informed if a player with hearing impairment is on the team to avoid possible confusion during substitution. The player entering the game can relay any coaching instructions.

The ofÞcials should be notiÞed and given the numbers of any players with hearing impairment. The ofÞcials start and stop play through the use of a whistle which may not be audible to the player with hearing impairment. Consistent use of the appropriate

hand signals for the various penalties is required as well as patience on the part of the ofÞcial if requested to repeat a call. The player with hearing impairment should be given some leeway if he/she continues to play after a whistle has been blown. Certain infringements in Lacrosse require a verbal caution to the offending player. The ofÞcial must make sure that the player with hearing impairment knows what she has been penalized for. This may be communicated in an up-close, one-to-one fashion, through an interpreter, or in writing depending on the hearing status and communication preference of the athlete with hearing impairment.

Tryouts and Practice

During tryouts and practice, the use of assistive devices is clearly indicated. If the hearing impairment is interfering with communication, the coach and the player can determine which strategies work best at improving the situation. A built-in BTE FM system is ideal during drills, practice games, and any time the coach is giving instructions. It reduces the impact of distance and noise while permitting unlimited freedom of movement.

Rifery

With riße competitions, the ability to maintain communication with others participating in the meet is crucial from a competitive as well as a safety standpoint. There are strict rules governing range operations during competition in order for the event to proceed smoothly and safely. Traditionally, interactions between the range ofÞcers and the competitors are of a verbal nature. When competitors with hearing impairment are present, however, modiÞcations must be made in range protocol to ensure the safety of all participants. (Note: rules and regulations cited in this chapter were taken from the 1995 NRA Smallbore Riße Rules and the 1995 International Riße Rules).

Competition

Coaching is prohibited in individual matches while the competitor is on the Þring line. The competitor must leave the Þring line in order to confer with his/her coach. Therefore, communication between the coach and the shooter, while on line, is not an issue. Communication between the range ofÞcers and the competitor with hearing impairment, however, is an important issue. The suggested protocol for the execution of a match is as follows:

1. The chief range ofÞcer commands, ÒRelay NO. ___ Match on the Þring lineÓ (competitors take their place on the Þring line).

2. The chief range ofÞcer states, ÒThe preparation period starts nowÓ (range ofÞcers check the locations of the competitors).

3. After 3 minutes, the chief range ofÞcer states, ÒThe preparation period has ended.Ó

4. The chief range ofÞcer states, ÒIs the line ready?Ó, after which any competitor may answer, ÒNot ready on target.Ó The chief range ofÞcer will then respond with, ÒThe line is not ready.Ó

5. If the line is ready, the chief range ofÞcer states, ÒThe line is ready.Ó

6. The chief range ofÞcer then gives the ÒLoadÓ command (competitors may load their rißes).

7. The chief range ofÞcer then gives the ÒCommence ÞringÓ command.

8. When time is up, the chief range ofÞcer states ÒCease Þring-bolts openÓ (competitors unload their rißes and leave the Þring line).

9. The chief range ofÞcer then asks, ÒIs the line clear?Ó (line ofÞcers conÞrm that the line is clear).

10. The chief range ofÞcer states, ÒThe line is clearÓ followed by ÒGo forward and change targetsÓ, ÒRemove your equipment from the line for the next relayÓ, etc.

At any time during the match, the range ofÞcers will command, ÒCease Þring-bolts openÓ if a situation should warrant it (i.e., possible danger to someone if Þring continues). ÒAs you wereÓ indicates that the competitors should disregard the previous command given.

Hearing protection should be worn by all competitors regardless of hearing impairment to prevent (further) hearing damage! Even individuals with profound hearing loss should wear hearing protection.

As can be seen from the preceding, it is imperative that the competitor with hearing impairment be able to follow the range commands to avoid accidents. Even individuals with a mild hearing loss may have difÞculty hearing commands due to the presence of hearing protection devices that attenuate ALL sounds. This problem may be circumvented, for mild losses, through the use of level-dependent hearing protection devices. These devices attenuate dangerously loud sounds while allowing conversational level sounds to pass through relatively unattenuated or mildly ampliÞed. This can be accomplished via a passive or an electronic mechanism. It should be noted, however, that level-dependent hearing protectors are a relatively new technology only recently becoming commercially available. Many types and models currently being sold have not been tested/researched adequately. An audiologist should be consulted if the use of a level dependent hearing protector is being considered. According to the rule book, only sound reducing devices may be worn by competitors. However, it is felt that level dependent hearing protectors, including those that provide mild ampliÞcation, follow the spirit of that rule since loud sounds are attenuated.

Regardless of the type of hearing protection employed, there will be many individuals with hearing impairment who will not be able to clearly hear the range commands. One strategy for dealing with some of the commands, is to wait until just prior to the Ôcommence Þring Ó command to put on the hearing protectors. However, the most crucial commands, when to start and when to stop Þring, will be presented while the hearing protectors are in place.

Visual or tactile signaling are not referenced in the rules book. A visual signal could consist of a series of different colored lights, different combinations of which would light up for each command. This strategy, however, may prove distracting for the competitors and would require the shooter with hearing impairment to continually look at the lights peripherally while trying to aim at the target. A more reasonable strategy would be the use of tactile stimulation. Tactile devices consisting of a trigger mechanism (a variety of buttons that can be pushed depending on what is being communicated). The trigger sends an FM signal out to a vibrating wrist band. This may solve these communication problems. When the button on the trigger mechanism is pressed, the wrist band will vibrate, thereby alerting the shooter with hearing impairment. Different patterns of vibration can be presented and each pattern could correspond to a different range command (i.e., one vibration for cease Þring and several vibrations for commence Þring). The vibrotactile device can be worn on an ankle if vibration of the wrist impacts shooting ability. Another method consists of a series of lights on top of the wrist band that indicate what button was pushed (and therefore what the message is). Either method will require practice on the part of the range ofÞcer, who needs to know which button to press, and the shooter, who needs to know which pattern (or light) corresponds to which command. With some practice, the competitor with hearing impairment should respond quickly and correctly to the range commands.

Another strategy would be to have the competitor with hearing impairment Þre his/her match separately while a coach or teammate stands behind him/her and gives the commands. The commands could be given via a tactile system using taps to the legs. While adequate for the interests of safety, this strategy is least attractive for time and sportsmanship reasons. The competitor with hearing impairment should be able to participate in the same manner as his/her teammates and competitors.

Although a thorough knowledge of range protocol and the practice of range protocol is indicated for all shooters, the use of special strategies must be practiced extensively by the shooter with hearing impairment. The range ofÞcers also must be instructed with regard to the special circumstances of having a competitor with hearing impairment on the range. Ideally, through the use of assistive devices, this will consist mainly of pressing the appropriate button in a timely matter.

Physically disabled shooters, according to the rule book, have the right to petition the NRA Protest Committee for permission to use special equipment, assume a different position, etc. There is no reason why a competitor with hearing impairment should not receive the same right and be able to petition for the use of any of the above strategies. With the cooperation of the range ofÞcials, the coaches, and the competitors, the presence of a shooter with hearing impairment should not jeopardize the safety of others nor disrupt range protocol.

Tryouts and Practice

In addition to the devices outlined above, several additional assistive listening devices would be appropriate for use during tryouts and practice. An FM system would help the individual with hearing impairment to hear the coachÕs instructions and suggestions during team meetings, in noisy situations, etc. A hardwired system is not practical because the coach cannot be too close to the shooter on the Þring range. A hearing aid alone may be adequate during tryouts and practice if it is not too noisy and communication is not over too great a distance. If any type of amplifying device is used while the individual or teammates are shooting, it is essential that the device have appropriate output limiting so the loud signal does not cause more hearing loss. Further, the limiting should provide good sound quality (e.g., compression output limiting) or the listener with hearing impairment will Þnd the sound quality on the shooting range intolerable.

Rowing

Rowing, as deÞned in the 1995 US Rowing Rules, is Òthe propulsion of a displacement boat through water by the muscular force of one or more rowers....in which the rowers are sitting with their backs to the direction of forward movement of the boatÓ (p.2). Crews can consist of one, two, four, or eight rowers. A coxswain can be included in a crew and operates a steering mechanism if present.

Competition

In Rowing, as with several other sports (track, canoeing, etc.), once an event begins, communication with coaches and others not in the boat is prohibited. According to the rules, no boat may contain electrical devices capable of allowing communication with outside sources. An internal (to the boat) loudspeaker system is allowed and may prove beneÞcial to a rower with hearing impairment. Hearing aid use also will help as long as the individual realizes the potential damage that can be caused by water in the hearing aid. Attempts at waterprooÞng should be undertaken and the use of recently available waterproof hearing aids should be considered. Speechreading will be impossible for the rower as he/she will be facing teammatesÕ backs. The major difÞculties for the rower with hearing impairment will relate to the start of the race and communication with ofÞcials.

Once the boats have been aligned at the starting line, the starter polls each boat to see if each individual crew is ready. The starter calls out the name of a crew and if that crew is not ready, the bowperson signals by raising his or her hand into the air. If the bowperson is hearing-impaired and unable to hear the starter, another member of the crew should be allowed to signal. As with other sports, all ofÞcials, prior to the event, should be notiÞed if an individual with hearing impairment is competing; especially if special strategies will be employed.

Once the starter has determined that all crews are ready, she/he raises a red ßag overhead, calls out Òset Ó, and after a brief pause calls out Ògo Ó accompanied by a quick downward motion of the ßag to one side. If during this procedure, the starter believes the start should not occur, she/he calls out Òas you were Ó.

The use of a red ßag in connection with the verbal commands is a good strategy and would prove beneÞcial to any individual having difÞculty hearing the commands. Furthermore, for crews of more than one person, the rower with hearing impairment could watch for pre-determined signals, which would be delivered by a teammate, that would correspond to the verbal commands (e.g., bring a foot down to signify Ògo Ó).

Another strategy for alerting the rower with hearing impairment (especially if rowing alone) involves the use of a special device that vibrates when signaled (see Òalerting devices Ó in the assistive device chapter). The rower with hearing impairment wears a wrist or leg band that vibrates when signaled. This is analogous to a tactile pager. The device can be made waterproof by wrapping plastic around it and securing it to the skin with waterproof tape. When the wristband is Òsignaled Ó by the transmitter, it will vibrate. The transmitter can be controlled by the starter or an assistant. They simply push a button when the verbal command is given. The decision on which method to use should be made in conjunction with the competitor with hearing impairment and the race ofÞcials well in advance of the event.

Communication with the ofÞcials during competition consists of verbal commands as well as the use of a white ßag and audible signals (horn, bell, etc.) An ofÞcialÕs instruction will usually relate to a change in course and is indicated by waving the ßag in the appropriate direction. The referee calls out the crewÕs name to get their attention. When a crew con-

sists of two or more rowers, and the individual with hearing impairment is behind someone, he or she could watch for head turns by a teammate in the direction of an ofÞcial. As long as the proper ßag signal is given, the rower with hearing impairment will be able to understand the message. If a crew is told to stop rowing, the rower with hearing impairment will notice when his/her teammates stop and will soon follow suit.

When the rower with hearing impairment is alone, the vibrating wrist/leg band technique can be employed. Each ofÞcial should have a transmitter capable of signaling the device. The ofÞcial could then easily obtain the rowers attention and deliver instruction via visual signals (identiÞed prior to the competition).

Tryouts and Practice

Several strategies can be employed during practice to make rowing more accessible to the individual with hearing impairment. The coach and competitor should work together to determine which strategies work best. During periods of instruction on land, an FM or hardwired system in conjunction with a personal hearing aid (depending on noise and distance) can be used.

In crews of two or more individuals, an individual with normal hearing could relay messages from the coach when the crew is in the boat. If the coach needs to talk to the rower during practice, he/she can wear an FM system transmitter while the rower with hearing impairment could use a traditional FM receiver or built-in BTE FM receiver. It must be understood, however, that this strategy comes at the risk of ruining equipment in the event it becomes submerged or excessively wet.

Again, the use of a vibrotactile wrist/leg band, with the coach having the transmitter device, is a good method of getting the individualÕs attention. This method does not, however, facilitate spoken communication. If tactile signalling is to be used during the event, the rower with hearing impairment should practice receiving information well before competition.

Rugby

Rugby is a highly physical game that is generally played with 15 players on a team (in the U.S.). The object of the game is to score as many points as possible by carrying, passing, kicking and grounding the ball. Considering the physical nature of this sport, BTE hearing aid use is deÞnitely contraindicated due to the increased risk of physical injury and damage to the device. An ITE or canal hearing aid may be used without risk of any more injury than any other player being hit in the head. If possible, the inserted hearing aid should have a soft canal, making it more ßexible if pushed.

Substitution rules are very strict in Rugby. An unlimited number of players may be substituted in the event of an injury severe enough so that the player can no longer continue. However, according to the United States of America Rugby Football Union (U.S.A.R.U.), only three substitutions can be made, for any reason, when the ball is dead. An additional three substitutions can occur during halftime. Any additional arbitrary substitutions only can be made during halftime and only with the permission of the referee. Therefore, the relay method of getting a message to a player with hearing impairment via substitutes cannot readily be applied in Rugby.

The teammates with normal hearing must be responsible for getting any messages from the coaches to the player with hearing impairment. With more severe impairments, the use of a predetermined set of signs may be needed to relay commonly occurring messages. The teammates must realize that shouting may not be an effective method for getting the attention of a player with hearing impairment and that hand/arm gestures may be more appropriate.

As with many other sports, a whistle indicates the beginning of a match, halftime, a score, an infringement, and resumption of play. If the player cannot hear the whistle, then the teammates must assume responsibility for communicating the appropriate information to that player. Leeway by the ofÞcials should be given in the event the player with hearing impairment keeps Ògoing Ó after a whistle is blown to stop play. The ofÞcials should be given the jersey number of any players with hearing impairment. The appropriate body gestures should be used by the ofÞcials for all infringements and should be repeated if necessary for the beneÞt of the player with hearing impairment. The touch judge holds up a ßag when indicating whether a ball or player has gone into touch and physically indicates the place of throw in.

During a scrummage, all players are Òbound Ó to at least one other player. The teammate who is bound to the player with hearing impairment, through the use of a predetermined tactile signal, should alert the player when the referee gives the ÒEngage Ó call. This is especially important if the player with hearing impairment is in the front row. He or she, after being alerted, will know to engage and expect the ball to arrive momentarily.

Tryouts and Practice

During periods of instruction an FM or hardwired system can be used with the coach speaking into the microphone of the transmitter. During practice games, as in the real game, a BTE hearing aid cannot be worn and therefore an assistive listening device cannot be coupled. The teammates should be responsible for getting the individualÔs attention for the coach when necessary. Hands-on demonstration will be important and some extra one-on-one time between the coach and player with hearing impairment may be necessary to ensure that all needed information is being delivered.

Skiing

Skiing competition consists of starting after a given command and making your way through a predetermined course to the bottom of a slope.

Competition

During actual competition, the skier with hearing impairment is not at a disadvantage compared with his or her peers with normal hearing. Coaching during competition is obviously impossible, however, accommodations need to be considered during practice and try-outs.

A visible starting procedure should be used. This can consist of the typical red, yellow, green light display similar to a traf Þc light. As long as a visible display is used for all competitors, the skier with hearing impairment will not be at a disadvantage.

Tryouts and Practice

During tryouts and training, the use of assistive listening devices is recommended. The coach and skier can determine which strategies work best at facilitating communication. An FM or hardwired system would be appropriate any time a coach is lecturing.

During training, a built-in BTE FM system would allow the coach to talk to the skier while actually skiing. If the coach does not normally talk with skiers while they are skiing, this is not necessary. One-on-one conferences may be more valuable after a run down the hill, at which time advice could be given and any demonstration could take place. A hardwired system using earphones may be best for this communication. The coach can keep the system in a fanny pack when the skier is skiing and take it out for communication purposes at the end of a run. There is no physical danger to the skier in wearing a hearing aid, but the hearing aid itself may be damaged by severe cold and condensation. Fortunately, much of what is learned in skiing is done by demonstration.

Soccer

Soccer is a team sport that is played over a relatively large area (100 to 120 yards long, 55 to 75 yards wide). The teamsÔ benches are located at least ten feet from the touchline. Under these conditions, communication between the coach and a player with hearing impairment will be dif Þcult even if hearing aids are used.

Competition

According to the high school Soccer rules book, both ITE and BTE hearing aids are legal provided the device does not create the threat of injury.

If the player collides with another player or the ball hits directly into the BTE, the hearing aid casing may break and cut the player on the outside of the head. An ITE or canal aid may be used without risk of any more injury than any other player being hit in the head. The player may have some discomfort if hit directly in the ear simply because there is an object Þlling the ear and it is less ßexible than an open ear. If possible, the inserted hearing aid should have a soft canal, making it more ßexible if pushed. Soccer players have a higher likelihood of being hit in the side of the head than other athletes because it is legal to purposely hit the ball off of oneÔs head.

There are several methods in which a coach can get a message to a player with hearing impairment. In soccer, an unlimited number of substitutions is allowed. The substitutes report to the scorer, giving their jersey number and the number of the player

being replaced. The player then remains at the scorer table until beckoned on to the Þeld by an ofÞcial. For this reason, both the scorer and the ofÞcials need to know the numbers of any players with hearing impairment to avoid possible confusion during the substitution procedure. The player with hearing impairment must remain alert so that he or she is ready to visually receive permission to enter the game. Because of the unlimited substitution rule, any time a coach needs to get a message to a player with hearing impairment on the Þeld, he/she can send in a substitute bearing the message.

For commonly occurring messages, a series of hand/arm signals can be devised. In this case, the playerÕs teammates are responsible for alerting the player if the coach needs help getting his/her attention.

If the players with normal hearing are not having any difÞculty hearing the coach during game time, a built-in BTE FM system can be used. The coach would speak into the microphone of the transmitter and the player with hearing impairment would hear via the built-in BTE FM receiver. The coach should remember to turn off the transmitter when not speaking to the player with hearing impairment, especially when yelling, as this may be uncomfortably loud for the player. The coach should be instructed that yelling into the transmitter will most likely make communication even more difÞcult for the hearing aid user. As mentioned previously, a player may not want to wear a BTE hearing aid for safety reasons.

For communication while on the bench or during time outs, a hardwired or FM system will reduce the impact of noise and distance for the player with hearing impairment. The infrared system will not work outdoors and a loop system generally requires a power outlet.

A sign system should be developed and learned, by every member of the team, for the purpose of communicating certain messages during competition. The players with normal hearing need to know that yelling may not be an effective method of getting their teammateÕs attention. Waving oneÕs arms may prove more effective.

The ability to understand the ofÞcialsÕ calls is important for the player with hearing impairment. A whistle is blown at the occurrence of each foul and is used to start and stop play. The referee should accompany each whistle with the appropriate hand signal for each call and should repeat the call for the beneÞt of the player with hearing impairment if asked. The referee should give the player with hearing impairment some leeway if he/she continues to play after a whistle has been blown as he/she may not have heard it. A visible timing device should be employed. The playerÕs teammates are responsible for making sure their teammate knows when the two minutes left signal has been given toward the end of each half.

Tryouts and Practice

During tryouts and practice, the use of assistive devices is indicated. If a hearing impairement is interfering with communication, the player and coach can determine which strategies work best at improving the situation. A built-in BTE FM system may be ideal during drills, practice games, and any time the coach is giving instructions. Remember that players can be hit in the head even during practice games so the player may want to remove the hearing aid during play. Also, the player, coach, and teammates should conduct at least some practice under game-like conditions (using hand signs, etc.).

Softball

Softball is a team sport with 10 active players. Softball involves pitching, hitting, throwing, and catching a ball and is played on a diamond-shaped Þeld outdoors. Runs are scored when a player crosses home plate.

Like baseball, softball relies heavily on signs and signals and, therefore, can easily accommodate athletes with hearing impairment. Communication between players and coaches during a game ßows freely which in turn does not limit or disadvantage the player with hearing impairment.

Competition

Defense

The outÞelder with hearing impairment is the player furthest from the ÒactionÓ. The home plate umpireÕs calls will be difÞcult to hear and see from the outÞeld. In this case, some help from an inÞelder is needed. After each pitch, the inÞelder could use simple hand signals to indicate the call of the umpire. For example, if the left Þelder is the player with hearing impairment, the third baseman could raise his right hand for a ball and his left hand for a strike. The outÞelder with hearing impairment would then be

able to keep track of the pitch count. It is important to practice this before game time so the pitcher is not thrown off by the third baseman's movements.

Communication from the coach to the outfielder usually relates to field position. Once the coach earns the player's attention (with some help from an infielder, if necessary), he/she uses body language and hand movements to direct the player to the desired position. According to the high school softball rulebook, amplifiers and bullhorns may not be used for coaching purposes. The player with hearing impairment could be instructed to glance toward the dugout between each batter.

Play calls by the field umpires are accompanied by the signals for "safe" or "out" and are often exaggerated. The player also can look to see if the runner exits the field or remains on base if the call by the umpire was missed. The outfielder should have no trouble with this aspect of the game. It is customary for teammates to periodically remind each other of the number of outs in the current inning.

The infielder with hearing impairment is at a slight advantage by being closer to home plate. As long as the plate umpire consistently accompanies each pitch call with the appropriate hand signal, the infielder will be able to keep track of the pitch count. Again, communication from the dugout usually relates to position and can be accomplished by obtaining the player's attention and relaying via gestures. If a teammate sees the coach's instructions are not being understood, he/she should call for "time" and relay the message.

Communication between a pitcher and catcher is heavily dependent on signs, usually relating to what type of pitch should be thrown and where. This is true of both slow-pitch and fast-pitch softball. Verbal indication is not useful since the batter would know which pitch was coming.

With the proper gestures on the part of the umpire, the pitcher with hearing impairment should not have difficulty with the pitch count. A catcher with severe hearing loss, however, may have difficulty seeing as well as hearing the call due to his/her position facing away from the umpire. One strategy to circumvent this problem would be a simple sign system, between the pitcher and catcher, with the pitcher indicating whether the pitch was a called ball or strike. In the event of the catcher dropping the ball on a possible third strike, the catcher may want to throw to first immediately instead of waiting for the pitcher to signal the call.

According to the rulebook, each team, while on defense, is allowed three charged conferences within seven innings (the length of a high school game) and one in each extra inning. If the pitcher is removed as a result, the conference is not charged. When one-on-one communication is necessary, any player or coach may call "time" so that they may have a conference. However, by using some common sense communication strategies, charged conferences as a result of not being able to hear should be a rarity. Any time "time out" is called, it is the responsibility of the teammates to notify the player with hearing impairment if he/she has not noticed.

Offense

There are two coaches' boxes on the field, one at first base and the other at third. The batter generally receives instructions (i.e., bunt, take a pitch, etc.) in the form of signs. This form of communication is ideal not only from a secrecy standpoint, but for the player with hearing impairment as well.

Helmets are a challenge for every hearing aid wearer. In junior and senior high school softball, the team often owns four batters' helmets (one for each of the three potential basemen and one for the hitter) that have plastic shields over both ears as opposed to a shield only over the ear facing the pitcher. Some players own their own helmets in order to get a better fit. Rules generally dictate that the players wear the hard helmets around the bases. The problem is the likelihood that the hearing aid will feedback because the helmet is so close to the microphone. There are several solutions a hearing aid wearer may want to try if he/she wants to wear the hearing aid(s) during offense. Ideally, a custom helmet should be used that only has one ear flap (facing the pitcher). The batter would then use the opposite hearing aid. If he/she normally uses the hearing aid that would now be under the flap, the aid should either be removed or turned off to avoid feedback. If the student is an ITE user, it might be possible to have a flap (and helmet) made with the hole in the flap positioned right over the microphone. If the hole is wide enough and some extra sponge padding in inserted around this area you may not get feedback. You can try this with a BTE as well (the hole would be up above the top of the ear) but the extra bulk of the BTE case may be uncomfortable.

In the case of a more severe hearing impairment, the batter may not be able to hear the umpireÕs call. If the batter does not turn in time to see the call, he/she may ask the umpire to repeat it. As a courtesy, the umpire should be forewarned that a player with hearing impairment is participating in the game and that calls may have to be repeated. The same applies for calls made by the Þeld umpires. The player may not hear or see if he was called safe or out. In addition, the base coaches could help the batter/runner with pitch calls and base calls.

While on base, communication is accomplished via signs (i.e., steal, hit and run, etc.). Whenever Òtime outÓ is called, it is the responsibility of the base coaches to inform the runner with hearing impairment. One charged conference is allowed per inning while on offense.

Assistive listening devices, as discussed earlier, would not be appropriate during game time. For example, by using a built-in BTE FM system, the coach would be able to talk to the player with hearing impairment in secrecy. In an actual game, if a coach wants to speak directly to a player without having a conference charged, it is at the expense of having everyone else hear. Clearly, a built-in BTE FM system would give the team an unfair advantage.

Tryouts and Practice

During tryouts and practice assistive listening devices would be appropriate. An FM system would allow the player with hearing impairment to hear the coachÕs instructions/suggestions during team meetings, when the player is in a remote location from the coach and in noisy situations. A built-in BTE FM system for the player would be ideal as the conventional Òwalkman Ó type receiver might get in the way during physical activity. A traditional FM receiver (case can be contained in a fanny pack) that couples to a hearing aid via a direct wire or neckloop can be used and most likely wonÕt be too cumbersome given that players arenÕt generally crashing into each other. This system also can be used during time outs or when the player is on the bench in a real game.

Swimming

Athletes with hearing impairment can easily participate in swimming and not be greatly disadvantaged by their hearing loss. Communication between athlete and coach during a meet occurs before and after a race. The rules of swimming prevent coaches from using communication during a race especially for instructing the swimmers on how to swim. Practice is where the most communication takes place for swimming.

Competition

Since swimming involves submersion in water, consistent verbal communication during a race is virtually impossible. The swimmer with hearing impairment is unable to wear hearing aids in the pool and may not hear any verbal instructions. Some swimmers today choose to wear custom-made swim plugs that further attenuate sound. It should not be expected of a swimmer with hearing impairment with or without swim plugs to hear sound for the purpose of communication.

In most swimming competitions, the following auditory signals are used: 1) a whistle is blown to call the swimmers to the starting block where they will dive in to start the race or where they will enter the water where some swimmers prefer to start the back stroke; 2) the ofÞcial asks if the judges and timers are ready; 3) swimmers are told to Òtake your markÓ at which time they assume their starting position and are ready to start the race; 4) a gun is sounded to indicate the start of the race; 5) the gun is sounded a second time to call the swimmers back to the starting position if a false start (somebody left too early) is identiÞed.

Depending on how busy the coach is at a meet, either the coach, assistant coach, or team helper should be responsible for keeping the swimmer with hearing impairment advised of any auditory announcements. These would include current standings, any change in order of events, and when the swimmerÕs event is being called to the blocks. Unless there are special circumstances, swim meets follow a very predictable order and the meet sheet (program) lists the order of events. The swimmer with hearing impairment should be expected to be familiar with the order so he/she knows when his/her event is coming up.

The swimmer with hearing impairment may not hear the ofÞcial ask the judges and timers if they are ready. This will not put them at a disadvantage, but the swimmer should be aware that this is the order of events. A delay is generally caused because someone is not ready. If there is a delay, the coach (or assis-

tant) should be allowed to inform the swimmer with hearing impairment who is standing on the blocks in order to prevent undue anxiety caused by not knowing what is happening. The swimmers on the blocks with normal hearing will know what the problem is because they have the opportunity to overhear the ofÞcials.

Finally, the swimmers are told to Òtake your mark.Ó When a swimmer with hearing impairment is in a meet, this should be communicated by raising a ßag. The ßag can be dropped to indicate the start of the race. This can be done in conjunction with the gunshot or not. It is best to do both because the athletes with normal hearing may not have practiced with the visual signal and needing to look may throw off their starting position. In order to be consistent, the ofÞcal should use the visual signal in all of the events during the meet whether the athlete with hearing impairment is swimming or not.

Some systems are set up to ßash a strobe light instead of or in conjunction with the gun shot to start the race. Most swimmers currently are used to this sytem. This is adequate for starting the race, but does not tell the swimmer when to take his/her mark. This can be accomplished by a tap on the shoulder by a fellow teammate standing behind the blocks right when the ofÞcial states Òtake your mark.Ó It is preferable, however, for the ofÞcial to use a visual signal even if itÕs just the raising of a hand.

The auditory false start signal will most likely go unnoticed by the swimmer with hearing impairment because he/she is swimming at this point and there may be a great deal of crowd noise. A coach or teammate may need to wave from the sidelines to signal the swimmer. A ßag can be dropped into the water infront of the swimmer or a bright lap marker can be lowered into the water at the end of the lane. The goal is to notify the swimmer as quickly as possible so he/she does not waste a great deal of energy that will be needed for the real race and to avoid delaying the event unnecessarily.

At different levels of competition, a false start has different consequences. At some levels, several false starts are allowed before anyone is disqualiÞed. At other levels, one false start disqualiÞes a swimmer. No special leeway should be afforded the swimmer with hearing impairment as long as the starting signal is appropriate for that individual.

The ofÞcials should be made aware of the swimmer with hearing impairment and which events he/she will be swimming in. This will prevent any confusion or problems that may occur. The ofÞcials must know of any difÞculty by the swimmer with hearing impairment in hearing the signaling devices and any recommendations on how to accommodate this athlete. In addition, the ofÞcials should be informed of the presence of any additional personnel on the pool deck whose purpose is to notify the swimmer with hearing impairment of the start of the race or a false start. Whatever signals are going to be used should be clearly explained to all ofÞcials and swimmers at the beginning of the meet.

At other times during a meet, the swimmer with hearing impairment can use his/her normal ampliÞcation method. If the swimmer wears hearing aids, the humidity of the pool area may cause the hearing aid to malfunction. Waterproof hearing aids may be beneÞcial in this situation if they are appropriate for the individualÕs hearing loss. These aids are not truly waterproof and should not be submerged in the water. Additionally, a FM system (by itself or incorporated into the hearing aid) or a hardwired system can be used for the swimmer to communicate with his/her coach and teammates. If the individual with hearing impairment does not wish to have his/her hearing aids poolside (risk of loss or water damage), inexpensive earphones can be used with either system.

Any devices used in the pool area (personal hearing aids or assistive devices) should be placed in a dehumidifying kit (e.g., DryAid “) to help remove internal moisture. These kits can be obtained from any audiologist.

Tryouts and Practice

Practice is where much of the communication involved in swimming occurs. Since some instruction and guidance must occur in the pool, the importance of illustrations and demonstrations can not be overstated. In or out of the pool, these techniques can be used in teaching strokes and techniques, for example, to ensure proper understanding of coachÕs instructions. Training procedures and work-outs can be fully described and illustrated in a written form for the swimmer with hearing impairment to follow. Instruction that takes place outside of the pool (including dryland exercises) can be facilitated with the use of the individualÕs hearing aids or with the FM system described in the competition section. The

microphone is with the coach (or whomever is speaking) and the receiver is worn by the swimmer with hearing impairment.

There are special waterproof headsets that can be worn in the water. These headsets receive an FM signal from a microphone outside of the water (from the coach). The coach has a volume control so the signal can be made more intense if needed. We have tried these with a few swimmers (they would be used in practice, not competition) and they were found to be very bulky. Several swimmers expressed that they would not want to practice in one condition while racing in another. These devices might be more valuable when teaching an individual to swim.

Table Tennis

Table tennis, popularly known as ping-pong, is a singles or doubles team sport that is played on a table with a low net stretched across the middle. A ball is hit back and forth across the net with a paddle-type racket until the ball is unreturnable.

Competition

Table tennis competitions are played indoors and easily accommodate athletes with hearing impairment. Communication with coaches is free-ßowing but limited to between games. During a game, a player may confer with a doubles partner but not with coaches.

Since communication during a competition is limited, the use of the playerÔs own hearing aids may be adequate for communication with a partner during play or during between game conferences. If competitions are very noisy, the athlete with hearing impairment may want to use a hardwired or FM system during between game conferences. The microphone of the system is held near the speakerÔs mouth thereby reducing the input of background noise. These systems will not help with doubles communication during competition. The doubles partners should use practice time to work out a set of hand signs to communicate essential messages during competition.

Tryouts and Practice

During practice, the use of an FM system would be appropriate and one with a receiver built into the hearing aid (built-in BTE FM) would be ideal since the body-pack type receiver might be awkward when the player is swinging the racket. The receiver built-in to the BTE eliminates any wires or bulky instrumentation to interfere with the course of play.

Tennis

Tennis has strict rules about communication between players and coaches while a game is in progress. The only communication allowed is between the players and the umpires. Communication in practice is essential for the proper learning of the sport. Athletes with hearing impairment should be able to adapt to the communication rules of tennis and not be placed at a distinct disadvantage during a game.

Competition

In game situations, no communication between players and coaches is allowed during individual matches. For team competitions, coaching may occur by the captain sitting on the court but only during the changing of ends at the end of a game. Conventional hearing aids should be effective for this situation if the communication area is not too noisy. However, perspiration from the continuous play may cause the hearing aids to become nonfunctional. A waterproof hearing aid can be used by the player with hearing impairment if the aid is appropriate for the individualÔs hearing loss. Alternatively, the player may want to use a latex cover that can be pulled over the BTE hearing aid during competition.

During doubles play, the use of hand signals and short conferences between points often occur. Hand signals are used to call plays or inform the other partner of the position in which he/she should stand. These signs should be practiced before competition.

Communication between the players and the umpires is necessary at certain times during the course of a match. It is suggested that hand signals or hand-held cards be developed to make the player aware of the current standing of the game. Hand signals or score cards can be held up by the chair umpire to update the player with hearing impairment on the score, who is serving, or to reafÞrm a line judgesÔ call. If the player with hearing impairment has to communicate with the umpires, effective communication may be achieved through the use of the playerÔs hearing aid if the player is close to the umpire when communicating.

In the case of the player who does not wear hearing aids during competition, communication between player and umpire may be facilitated through the use of a battery operated FM or hardwired system with earphones. The system must provide enough ampliÞcation for the player to hear the umpire so that effective communication is achieved. This should be tested before competition. An FM or hardwired system with direct audio input into the playerÕs hearing aid also can be used in this situation if this capability is available on the hearing aid. Its use would have to be controlled by the umpires since communication is limited during games. Use of an FM system by player and coach during play would be illegal according to the rules of the sport.

Calls by the line umpires may come from behind the athlete with hearing impairment. A hand signal from the line judge opposite (to the front of) the player with hearing impairment especially to signify that the ball was out may be necessary. The player may not hear a call so hand signals by all of the ofÞcials will aid the player with hearing impairment. The hand signals should be agreed upon and reviewed prior to the match.

Tryouts and Practice

Use of a hearing aid with a built in FM system (built-in BTE FM) during practice and tryouts would allow the player with hearing impairment to hear the coachÕs instructions. A traditional FM receiver would be cumbersome for the player because the device and wires may interfere with play. The assistive device is appropriate for team meetings and discussions and other noisy situations. An FM system lets the athlete with hearing impairment hear the speakerÕs voice while reducing the interference of the background noise.

The use of visual examples and demonstrations would be especially helpful in the instruction of tennis. Visual examples would include writing down information as well as using illustrations. Demonstrations are easily performed and valuable to all players.

Volleyball

Volleyball is a 2 team sport with 6 players per team on the court during play. Volleyball involves serving a ball over the net where the other team uses their hands and arms to keep the ball in play and return it back over the net. Points are scored to the serving team when the non-serving team does not clear the ball over the net or the ball travels out-of-bounds prior to hitting the court or being hit by the serving team.

While the players are on the court, signs and hand signals are used by the players to call plays and by ofÞcials to inform the players and coaches of the status of the play or game. Free ßowing communication between players, coaches, and ofÞcials is allowed in volleyball. The use of hand signals does not place the player with hearing impairment at a disadvantage, however, the free ßowing verbal communication may be easily missed.

Competition

The volleyball player with hearing impairment can communicate with his/her teammates using hand signals during a game. Plays are often called using gestures. It should be the responsibility of the player with hearing impairment as well as his/her teammates to ensure that this player is aware of the play and the standing of the game. The visual scoreboard can be used by the player with hearing impairment to keep apraised of the game standings.

Whistles are often used by the ofÞcials during a volleyball game for such events as serves, dead balls, time-outs and substitutions. For all of these events, a visual signal accompanies the whistle except for dead balls. The visual signals are all described in the volleyball rulebook. Again, a designated player on the court can give a signal to the player with hearing impairment regarding events that may be easily missed. During the prematch conference, the coach must emphasize the importance of using visual signals in addition to the whistles by the ofÞcials. In cases where the player with hearing impairment wears hearing aids during a match, it must not be assumed that he/she can hear everything including the whistles. Noise from the crowd will greatly impact what is audible to the player with hearing impairment. The suggestions stated above should still be followed.

Communication between coach and player is not prohibited as it is in some sports. Coaches often communicate verbally and visually with their players. Hand signals are recommended because verbal instructions may be missed. In instances where verbal instructions are necessary, the coach may consult

another player who can relay the information to the player with hearing impairment on the court. Another alternative is a loop system at the home court gymnasium. This requires an ampliÞer plugged into an outlet. This would allow the player with hearing impairment to use his/her hearing aids set to telecoil during play in order to hear the coach who would wear a battery operated microphone that sends an FM signal to the ampliÞer that drives the loop of wire. There are 2 downfalls to looping the gym. The Þrst is that since volleyball is such an active sport with constant movement and jumping, a behind-the-ear hearing aid may ßop around and be bothersome. A product called HuggieAid “ can be used to secure the BTE hearing aid to the head. These can be obtained from any audiologist. An in-the-ear hearing aid would eliminate this problem, however, a direct hit to the ear (from the ball, ßoor, or another player) will be very uncomfortable. Secondly, the loop system will only be beneÞcial to the player with hearing impairment at home games. An alternative method of communication would still be necessary for away games.

If a penalty is issued during a volleyball game, yellow and red cards are shown. Typically, verbal indication of the recipient of the penalty is offered. A coach may request that the ofÞcials use hand signals (indicating the playerÔs number) and point to indicate who a penalty is issued to.

The three most common verbal expressions during the volleyball match occur between players indicating 1) that the ball is headed out of bounds - donÔt hit it, 2) that the ball is going to be in bounds - you better try for it, and 3) my ball - IÔm going to hit it, donÔt run into me. Depending on the level of the individualÔs hearing loss, one word expressions (with sounds in his/her hearing range) may be determined that will allow for these communications. Use the graph in the ÒEar, Hearing, and CommunicationÓ chapter and the studentÔs hearing data to determine what sounds are audible. Now create words for each of the three situations using the audible (but different) sounds. Remember, there can be a lot of noise in the actual game situation. YouÔll need to practice the calls in noise to make sure theyÔre still audible. An example of this strategy is detailed in the ÒCommunication Needs AssessmentÓ chapter. If audible calls cannot be created, the athlete with hearing impairment will have to pay close attention to the ball position and the movement of the other players.

According to the rule book, each team is allowed two time-outs per game. It is important to use whatever means possible to convey information to the player with hearing impairment. Signals and simple communication strategies (such as looking directly at the player with hearing impairment) will aid the player in understanding the information. If the coach discusses plays, use of paper and pencil drawings or an erasable marker board will assist all players, not only the athletes with hearing impairment, in understanding the directions of the coach. Hearing aids or assistive devices designed to eliminate background noise (FM or hardwired) can be used during time outs.

Tryouts and Practice

During practice and tryouts, assistive listening devices should be used. Use of a BTE hearing aid with a built-in FM receiver during practice and tryouts would be ideal. A traditional FM system would be cumbersome for the player because the device and wires may interfere with play. In addition, the use of these devices is appropriate for team meetings and discussions and other noisy situations. An FM system allows the athlete to hear the speakerÔs voice while reducing the interference of the background noise. If the player does not wish to use assistive devices during tryouts, time should be taken to make sure that the student with hearing impairment knows exactly what is expected of him/her. At least some time in practice should be devoted to mimicking the game situation. For example, if hand signals are going to be used to call plays, they should be used in practice.

Water Polo

Water polo is a game played in a swimming pool by 2 teams. Each team must attempt to score points by moving a rubber ball down the pool and throwing or pushing it into the opponentÔs net.

Water polo can be adapted to accommodate a player with hearing impairment. The necessary modiÞcations to the rules do not require any signiÞcant changes to the existing set-up of the game. Communication during a game is mainly between players except during time-outs and between periods.

Competition

Since water polo is a fast-paced game that is played in the water, hand signals should be devised for communication with a player with hearing impair-

ment. The water polo player with hearing impairment will not be able to use ampliÞcation or assistive listening devices in the water. Play calling and any other necessary communication must be relayed using a signaling system. The player must be aware of his/her position and where the ball is at all times because he/she may not be able to hear the yells of teammates for this information. Even water polo players with normal hearing will have difÞculty hearing because their ears are under water part of the time, water is splashing around them, they are making noise swimming quickly, and crowd noise is ever present.

The game is started with a whistle blast. The referee throws the ball onto the center line and both teams (previously lined up near their goals) swim toward the ball. Swimming cannot start until the whistle is sounded. Instead of a whistle or in conjunction with the whistle, a ßag can be raised over head to indicate the start.

After a goal is scored, the game is restarted by a whistle blow. The team that didnÕt score has the ball at the center line and can start moving the ball as soon as the whistle sounds. Again, a ßag wave can supplement the whistle blow. This technique should be used consistently regardless of the position or the team membership of the player with hearing impairment.

A whistle is blown to indicate a technical foul (e.g., submerging the ball, pushing off the bottom, etc.) and a plackard or ßag with the cap color of the team who should start play with the ball is held up. The ball is quickly given to the player that was fouled and he/she immediately starts the action from the point of the foul. This is very different from most sports where an ofÞcial receives the ball and gives it to the correct team in a special location. The player with hearing impairment may not hear the whistle. If he/she is the one who was fouled, the ball will be handed to him/her and it will be obvious as to what transpired. If he/she is the offender, he/she may keep playing without handing the ball over. The best solution will be for the referee to wave the ßag indicating the cap color of the recipient. Alternatively, a teammate can use a hand signal to indicate the turnover.

When a personal foul is committed (holding, sinking a player, etc.) the referee calls out the cap number and team color of the offending player, points with the free hand to the site where the ball is to be put into play while pointing down to the water with the ßag. Play is restarted when the referee raises the ßag overhead (this is done when the ejected player begins to leave the area of play). This sequence of events will be obvious to the player with hearing impairment because play will stop and visual signals are used. If the player with hearing impairment is the one committing the personal foul, he/she may keep playing, not realizing that the personal foul call was made. The referee can wave a ßag to get his/her attention or a teammate can alert the player.

If an action has been taken that warrants a penalty throw, the goalie and player get into place near the goal. The goalie is allowed to move and the player is allowed to attempt to score only after the referee sounds the whistle. If a player with hearing impairment is involved in this scenario, a ßag should be raised overhead in conjunction with blowing the whistle. The referee should be standing in a place visible to either the goalie or shooter depending on which player is hearing impaired.

Play is stopped with the sounding of a signal, usually a blank pistol, horn, or whistle. These signals may not be audible to the player with hearing impairment, so a different method of alerting may be necessary. This may include incorporation of a visual device (ßashing strobe), hand signals by the ofÞcials or the playersÕ teammates, or waving a ßag.

Some swimmers and water polo players today choose to wear custom-made swim plugs to keep water out of their ears. All of the visual signals described above will help these players as well.

The ofÞcials should be informed that a player with hearing impairment is on the team and what his/her number is. A whistle or signal may not be heard by the player with hearing impairment who may continue to play. In instances where this occurs, the ofÞcials should give leeway to this player due to his/her inability to hear the signal. The ofÞcials should be informed in the pregame conference that the consistent use of appropriate hand signals (or ßag waving) is necessary and that repetition of calls may be needed for the player with hearing impairment. OfÞcials also must be aware that if a foul is committed by a player with hearing impairment and they issue a penalty where a verbal caution is warranted, the ofÞcial must ensure that the message is understood by the player.

The coach is allowed to communicate to players by yelling from the side of the pool. However, with the pace and nature of this sport, the message is not always received. Substitution is another way in which a message can be relayed to players (including but not limited to the player with hearing impairment). A substitute player can enter the game in any manner and from any location. It would be advantageous to the team if a substitute who has a message from the coach for the player with hearing impairment enter the game at a place near this player. A player in the pool can indicate to the player with hearing impairment that he/she is being substituted.

During time-outs or when the player with hearing impairment is not in the game, communication on the pool deck area may be necessary. During time-outs the coach may use illustrations to depict plays and strategies to be used by the team. If verbal communication is necessary, the coach should face the athlete when talking and should not talk rapidly even though the time-out period is short. A hardwired system using inexpensive earphones may be used for auditory communication. This device will reduce the impact of crowd noise and provide ampliÞcation to the athlete. It can be left on the bench during play.

Tryouts and Practice

Instruction in tryouts and practice will most likely occur while the players are in the pool. The coach should try to do as much instruction and training on land as possible. For the times where this is not possible, the importance of illustrations and demonstrations can not be overstated. In or out of the pool, these techniques can be used in teaching strategies and techniques of play. Some coaches videotape previous games to show examples of what to do and what not to do. Training procedures and work-outs can be fully described in a written form and illustrated for the player to follow.

Instruction that takes place outside of the pool (including dryland exercises) can be facilitated with the use of the individualÕs hearing aids or with an FM or hardwired system. The microphone would be with the coach (or whomever was speaking) and the receiver would be worn or held by the player with hearing impairment. If the player will be going from land instruction into the pool continually and quickly, the use of easily removable, inexpensive earphones should be considered.

Weightlifting

Weightlifting is an individual sport involving the use of different methods of lifting weights of varying degrees of heaviness. Since this sport relies on the strength of an individual, an athlete with hearing impairment can easily participate in this sport. Communication between coach and athletes is essential during training but in competitions it is limited.

Competition

Before the competition, the competitors are called into the weigh-in room one by one. If the weightlifter with hearing impairment is unable to hear his/her name called, the coach should indicate when to enter the room. There is no penalty to the competitor for not being present when his/her name is called, however, to prevent any potential problems, a coach should be present to ensure proper weigh-in and communication between athlete and ofÞcial.

After the weigh-in, a weightlifter waits for his/her name to be called by an announcer. In addition to his/her name, the announcer indicates the weight of the barbell and the number of the attempt to be made. With the use of his/her hearing aids, the weightlifter may be able to hear the announcer. In this case, no prompting by a coach or teammate is necessary. The weightlifter should be able to wear his/her hearing aids while lifting unless it is deemed hazardous by the ofÞcials. In the event that the lifter can not hear the announcer, it may be necessary for a coach or teammate to indicate to the competitor with hearing impairment that it is his/her turn. This informer can use a written list to indicate which lift and the attempt number that was stated by the announcer. The weight that was announced is then displayed on an attempt board. Any discrepancy may be disputed by the coach or competitor with the ofÞcials. Once a competitorÕs name is called, one minute is allowed between the time of the announcement and the beginning of a lift. At the 30 second mark, a warning signal is sounded. It is of the utmost importance that the competitor with hearing impairment be aware of the announcement of his/her name so that he/she is not eventually penalized or disqualiÞed due to time limitations.

A competitor may chose to increase or decrease the weight of the lift, he/she can do so by notifying the ofÞcials of the request. Since a coach also can notify the ofÞcials of the request, a competitor may

wish for the coach to do so or at least be present in the event that questions may arise.

As with many sports, communication between the coach and the weightlifter is not allowed while the athlete is actually competing. Communication in weightlifting is limited to the times before and after the competitor is lifting. The weightlifter should use his/her hearing aids if he/she can understand the coaches and teammates with them. An FM system also may be used (to reduce the interference of background noise) but must be removed while he/she is competing due to the possibility of instruction from the coach.

At the end of the competition, the names of the competitors in the Þrst 6 places are announced. If no visual display accompanies the announcement, then the coach or teammates should notify the individual of his/her standing.

Tryouts and Practice

Most of the instruction involved in weightlifting is given in practice. The use of hearing aids and/or FM systems in practice are appropriate and may be necessary for good communication. An FM system built into the hearing aids (built-in BTE FM) is the ideal method for communicating instructions and guidance. This system will allow the coach to be at a distance from the weightlifter and still be able to be heard in a noisy environment. The microphone of the transmitter will be with the coach and the receiver is built into the hearing aid so no external equipment and wires will interfere with the lifts.

During training, the same instrumentation can be utilized. In addition, illustrations and written instructions of training procedures and work-outs may be necessary in the event that the athlete cannot, for some reason, use this equipment in order to hear.

Wrestling

Wrestling is a one-on-one sport and easily can accommodate athletes with hearing impairment. During an actual match, very little communication occurs. However, during tryouts and practice, communication is an important part of training.

Competition

During dual meets, the coaches are restricted to an area that is at least ten feet from the edge of the mat (during tournament competition, two coaches are permitted on chairs on the edge of the mat). Therefore, coaching is usually done from a distance of at least ten feet. At this distance, individuals with normal hearing will be able to hear the coach, however, a wrestler with hearing impairment may have difÞculty hearing the coach depending on the degree of hearing loss and the environmental conditions.

Hearing aid use is not recommended due to the nature of the competition and the possibility of injury. Also, the wrestlerÕs protective headgear would likely cause a hearing aid to feedback (whistle) making it useless. Allowing the coach to be located next to the match, as in tournament competition, would be a reasonable accommodation. The opposing wrestlerÕs coach also should be allowed to sit near the mat. Special methods are employed for blind/visually-impaired wrestlerÕs, and the same consideration should be given to those with a hearing impairment.

Wrestling starts and stops with the blow of the refereeÕs whistle. Although the referee is always in close proximity to the wrestlers, depending on the degree of hearing loss, the wrestler with hearing impairment may not be able to hear the whistle. A different acoustic signal (i.e., horn) may be more easily heard by the wrestler. A visual cue is not helpful since the wrestlerÕs face may not be in a position to see the signal (i.e., facing the mat). One strategy would be to use a tactile signal to cue the wrestlers. Banging on the mat would be a simple method of providing a signal that could be felt by the wrestlers. The ofÞcial should be notiÞed of the wrestlerÕs hearing impairment and should give some leeway if the wrestler does not stop immediately after being signaled.

Tryouts and Practice

Wrestling takes place indoors in a relatively small area. During tryouts and practice, the wrestler with hearing impairment should be located close to the demonstration area and/or person giving instructions. When not actually wrestling, the use of assistive devices and hearing aids is appropriate. One strategy would be to loop the instructional/practice area and give the coach the microphone. The wrestler would set his/her hearing aid to telecoil to receive direct input from the microphone. This system requires a power outlet where the ampliÞer is located. The loop of wire is connected to the ampliÞer. He/she would simply remove the hearing aids and put on protective headgear before actually wrestling. A built-

in BTE FM system would provide the same advantages without the need of a power outlet and loop of wire around the room.

Chapter 7

Officials

The preceding chapter outlined strategies that would allow an athlete with hearing impairment to compete fairly and effectively in each sport. While many strategies were unique to only one or several sports, there was one underlying theme. The ofÞcials need to be informed and aware of any athletes with hearing impairment and the strategies that are being employed. The ofÞcial also needs to understand what impact a hearing loss will have on the playerÕs ability to hear and understand any call. The ofÞcial must understand his/her responsibility to implement and/or permit the required accommodations for the student.

Throughout the preceding chapters, it was emphasized that the ofÞcials should be notiÞed, prior to the game, if there are any athletes with hearing impairment participating. This could be done through the coach or the athlete could self identify to the ofÞcial(s). Once informed, the ofÞcial should ask the coach or player for suggestions on how to effectively communicate with the player throughout the course of the game/event. The ofÞcial should be informed of what strategies will be used by the teammates and coaches for communication so he or she can determine if these strategies are within the spirit of the rules. The responsibility of informing the opposing team of any procedural changes as a result of the presence of a player with hearing impairment should lie with the ofÞcial. Any communication strategies that are employed should be explained to the opposing team in order to allay any suspicion of unfair play. For example, the use of an FM transmitter by a coach is bound to cause some confusion to the opposing team. The reason the FM system is being used should be openly discussed with the opposing team.

A hearing loss is likely to affect the athleteÕs ability to understand the ofÞcial; especially in the noisy environments associated with most sporting events. Many important acoustic signals (i.e., a whistle blows) will not be heard by some individuals with a hearing loss, even with the use of a hearing aid. The ofÞcial needs to understand this and allow some leeway to the athlete with hearing impairment. For example, if a player with hearing impairment continues after a whistle is blown to stop play, the ofÞcial should not view this as a deÞant act on the part of the player. He or she may not have heard the whistle and it would be unfair to penalize him or her for that reason.

Appropriate hand/ arm gestures need to be used with any verbal explanation of a foul or infraction. This will not only aid the player with hearing impairment, but the other players and spectators as well. In addition, any call should be repeated at the request of the player with hearing impairment. Once the ofÞcial has learned that a player with hearing impairment is present, he or she should commit that individualÕs name or number to memory to avoid possible confusion during the game.

Most ofÞciating is already accompanied by visual signals (hands, ßags, etc.). The consistent use of the signals helps everyone know what is going on in the game.

Chapter 8

Hearing Loss Didnt stop these athletes, coaches, and parents from participating

Four individuals graciously agreed to be interviewed for this book in order to motivate coaches, parents, and young people to make athletic activities accessible to individuals with hearing impairment. You will Þnd a brief biography about each athlete and then personal answers to questions about communication challenges and athletics. These people represent individual and team sports, men and women, various races, students and parents. We hope their testimonials motivate you.

Heather Whitestone

Miss America 19

It is the dream of many young girls to someday grow up to become Miss America. Along with the title, there is the fame and prestige, but most of all there are numerous responsibilities such as public appearances, autograph signings, television interviews, and serving as a role model for the millions who look up to you. However, imagine facing these responsibilities without the ability to hear the cheers or the interviewerÕs questions. Would you still strive for the dream? Heather Whitestone did. At 21 years of age, Heather Whitstone became the Þrst Miss America with signiÞcant hearing impairment in the history of the pageant. Her beauty and talent earned her a right to be in the pageant, but her spirit and determination brought her the ultimate glory; the crown.

A pretty face does not alone make one a candidate for Miss America, one must also possess poise, grace, superb communication abilities, and talent in some area. For Heather, her talent is in the athletic arena: dancing. She has been studying and practicing dance since she was Þve. She has Þfteen years experience in formal dance, and on the night of the pageant, her talent was proven to all who watched in amazement at a woman dancing to music she couldnÕt hear. Though it is true Heather couldnÕt hear the music, she could feel the music, giving her the ability to count her steps, just as any professional dancer must do.

Heather lost her hearing as a result of a childhood infection at 1 1/2 years of age. Her right ear is ÒdeadÓ and her left ear is profoundly impaired. She wears a hearing aid in her left ear to maximize her limited auditory capabilities, and has learned to speak through the oral/aural philosophy of educating the deaf. Not only has she won the Miss America pageant, but she has earned impressive academic success graduating from an Alabama high school, where she was mainstreamed with children without special challenges, with an A average. Heather now attends Jacksonville State University where she hopes to graduate with a bachelorÕs degree in accounting and become an educator.

Her role as an educator may have come sooner than she had expected. As Miss America she is able to speak publicly about issues that mean the most to her such as her STARS program ÞSUCCESS THROUGH ACTION and REALIZATION (of your dreamS)Þ. It is her goal to motivate children who are deaf or hearing-impaired to pursue a broad range of communication and educational options in their lives so as to build their self-esteem and ensure their success in life, in whatever area. Heather feels that she serves as a living example of someone who has used the STARS approach to succeed, but recognizes that we all must work to create accessible work and educational environments for those children and adults with special challenges.

Heather Whitestone provided answers to the following questions in order to encourage young people with hearing loss to pursue their dreams.

1. When you were learning how to dance, how did you communicate with your dance instructor?

I began learning to dance when I was 5 years old. I had to remind the teachers to look at me when they were speaking so that I could read their lips. I didnÕt mind doing this because they were very eager to have me in their dance class. They just naturally forgot to look at me. However, perhaps most impor-

tantly, I read their body language as they danced to the music.

2. Did you use any communication strategies or assistive devices in talking with instructors or fellow dancers who were hearing?

I wore my hearing aids to help me hear the music. I didnÕt wear any assistive devices like an FM system.

3. Did you Þnd it difÞcult to communicate at times?

I understood the ballet steps very well, so I didnÕt really Þnd it difÞcult to communicate.

4. Can you remember any particular moments that were especially challenging to you (in terms of difÞculty with communication)?

When the dance teacher decided to change the choreography at the last minute, I had a hard time understanding what they were saying. That only happened a few times.

5. Can you remember any moments that were especially wonderful?

Every year, I danced in a recital until I graduated from high school. I loved performing on the stage and these were my favorite moments. It was like I could escape from the real world and enter the world of imagination and creativity.

6. Are there personal experiences from this time period that you wish to be included in the book?

I had an intense desire to worship God through my dance. At Christmas time, as a little girl, I waited until my family went to bed. Then, I would sneak down into the living room and turn on the Christmas lights. I held a baby doll, pretending I was Mary. I danced around the Christmas tree. I felt so much love from God. I will never forget these private moments.

7. What advice would you give a young person with hearing impairment who wishes to participate in athletics?

ÒAnything is PossibleÓ as long as you have a positive attitude; a dream (especially an education); a willingness to work hard; a realistic look at your limitations and a willingness to master them; and a support team. I believe God is our main support team.

Jim Ryun

At 45 years of age, Jim Ryun, former Olympic medalist and former world record holder in middle distance running, tried on his Þrst pair of hearing aids. Ryun refers to that day as Ò a revolutionary experienceÓ. Until that day Ryun, who suffers from a binaural high frequency hearing loss, didnÕt even know what he was missing.

He was born a gifted athlete. At 17, he was the Þrst high school student to run the four minute mile, and in the very next year he broke his own record and ran the mile in 3:55.3. That record still stands at his high school after three decades. This then lead to a very promising athletic career for Ryun who in 1966 was named Sports IllustratedÕs Sportsman of the Year, and in the same year captured the AAU Sullivan Award for best amateur athlete. In 1967, he quickened his stride and ran the mile in 3:51.1, a world record that stood for nine years. It was time to prove his abilities to the world, when in 1968 he ran for the U.S. Olympic Team and brought home the silver medal for the 1500m race.

Although Ryun was born a gifted athlete, he needed to overcome the challenges of his hearing loss. Simple things that many runners take for granted, such as hearing the starterÕs pistol, or hearing their competitorÕs footsteps behind them, Ryun had to compensate for. Now thanks to better hearing aid technology, Ryun who now wears binaural hearing aids, hears more of his wonderful life with his wife of 25 years Anne, and his four children.

Ryun has spent the last three years trying to prevent children and other adults from going through years of compensation, exclusion, and low self-esteem because of their hearing loss. He has teamed up with ReSound to present ÒSound of SuccessÓ to different schools across the country to motivate students with hearing impairments.

These questions were answered by Jim and his wife Anne in a telephone interview.

1. When you started to run in school, how did you communicate with your track coach?

Jim didnÕt start running in track and Þeld until he was a sophomore in high school. He only has had two coaches in his entire life. Both coaches communicated well with him by getting his attention and being patient.

2. Did you use any communication strategies or assistive devices in talking with coaches or fellow teammates who were hearing?

Jim's hearing loss wasn't discovered until he was in 6th grade. By then he was a good lipreader and had learned a variety of communication strategies (like making sure people got his attention before talking). He did not use any hearing aids or special devices in school or in athletics. It was not until four years ago that he found hearing aids that helped him. He is currently a hearing aid user.

As you race, timer's around the track call out your time so you know how your are doing compared to your other times and track records. Jim's timers knew to yell the times as loud as possible and he could usually hear them.

3. Did you Þnd it difÞcult to communicate at times?

The most difÞcult situation was when reporters (Jim was the youngest individual to break a 4 minute mile) characterized him as snobbish and cold. They felt that he ignored their questions when really he didn't hear all of the questions coming at him from all directions at noisy track meets.

4. Can you remember any particular moments that were especially challenging to you (in terms of difÞculty with communication)?

The reaction of the press to what they perceived as Jim's coldness was very hard to handle. Jim's wife explained that they both conciously decided not to be bitter about this reaction. She indicated that they have become more religious over this time period and have found this to help in their acceptance of other people's reactions. We live in a very fast paced world and you Þnd that some people cannot take the time to communicate with someone who can't hear. That is their loss and you cannot waste your energy being angry about it.

Jim has devoted a great deal of time through Better Speech and Hearing Month (May) and his program 'Sound of Success' to promote understanding and tolerance of communication inconveniences caused by hearing loss.

5. What advice would you give a young person with hearing impairment who wishes to participate in athletics?

Through various programs, Jim encourages students with hearing loss to pursue their dreams whether they be in sports, academics, or both. He is now a user of assistive technology and encourages young people to use whatever is available to them to communicate successfully in their activities.

Curtis Pride

Born on December 17, 1968, Curtis John Pride was welcomed into a world he could not hear. Although diagnosed at nine monthes with a profound hearing loss, he and his parents did not let his hearing impairment stand in his way of greatness. He was fully mainstreamed into his neighborhood schools by seventh grade and graduated from John F. Kennedy High School with a 3.6 GPA.

Along with his academic success, Curtis enjoyed a great deal of athletic success as well. He was awarded a full basketball scholarship to the College of William and Mary, but just prior to his high school graduation Curtis was drafted by the New York Mets. Valuing his education, and through a unique arrangment, Curtis agreed to sign with the Mets part-time while attending William and Mary as a full-time student and a four-year starter at point guard. In 1990, he graduated with a degree in Þnance.

In 1992, Curtis signed with the Montreal Expos as a minor league free agent. He soon proved his abilities by batting a combined .324 with 21 homeruns and 50 stolen bases. Then in 1993, Curtis pride became the Þrst deaf athlete in the major leagues in 50 years. To prove that his deafness would not hinder his abilities, Curtis Þnished his Þrst year in the major leagues with a .444 batting average.

Through all success, awards, and achievements, Curtis still Þnds time to be a role model for all children, but especially those with special challenges. In the off seasons, Curtis has been employed as an Instructional Assistant in the Montgomery County Public School System working primarily with kids with disabilities. Most recently, in 1995, he added a new prestigous honor to the list of the many he has already earned, when he was chosen by the U.S. Commerce Committee as one of the ten outstanding Young Americans.

John Pride is the father of Curtis Pride. He answered the following questions as a parent of a

high school (and now professional) athlete with a hearing impairment.

1. When Curtis was training and practicing, how did he communicate with the coaches?

Curt has always communicated with his coaches orally. There were occasions in basketball where coaches used hand signals to indicate a particular offensive or defensive set-up, but basically it was completely oral.

2. Did he use any communication strategies or assistive devices in talking with coaches and fellow teammates who were hearing?

Only his hearing aid and speech reading. All coaches and teammates were asked to face Curt when talking to him and this worked out very well.

3. Did he Þnd it difÞcult to communicate at times?

Only when he was very young (6-8 years old) and he was learning the rules and strategies of the various sports. Otherwise there were no major problems.

4. Can you remember any particular moments that were especially challenging to Curtis (in terms of difÞculty with communication)?

As mentioned in question 3 above, there were some early problems in learning the rules and strategies.

5. Can you remember any moments that were especially wonderful?

Yes!

As a ten year old he stole the ball with seconds left on the clock and scored the winning basket in a major youth basketball game at the buzzer.

The day he signed his letter of intent to attend the college of William and Mary.

The day he got his Þrst major league hit.

6. As a parent of an athlete with hearing impairment, was the junior high and high school time period especially difÞcult for you in terms of ensuring Curtisô participation and success in athletics?

It wasnôt really that difÞcult because Curt had so much natural ability. He has always stood out above his peers. That natural ability coupled with his willingness to work as hard as necessary made working with him relatively easy.

7. What advice would you give a parent of a young person with hearing impairment who wishes to participate in athletics?

That the parents get involved personally with the kidsô athletic career. Work with him or her at home on fundamentals and rules. Volunteer to assist with the coaching staff so you can be there to deal with any problems that arise. Parents should also have a one-to-one talk with each coach prior to the kidôs participation to provide an orientation with regard to potential problems.

8. As a successful athlete, is there any advice Curtis would like to give to young athletes with hearing impairment?

Curt has said many times that no one should let their disability inhibit them from trying to be the best that they can be at any sport. It is not important how other people may view your perceived limitations Ñ the important thing is that one recognizes their own particular strengths and take maximum advantage of those strengths.

Neil Gwinn

Neil Gwinn is a guidance counselor at Laurel Woods Elementary School and a soccer coach at Mount Hebron High School in Howard County, Maryland. In his òspareô time he is an assistant coach and player for the United States Deaf Soccer Organization (USDSO). Neil has had a progressive hearing loss since childhood. Gradually hearing aids were not useful to Neil because of his degree of hearing loss. He received a cochlear implant (a device that stimulates the nerve of hearing directly) in June 1995. He has been a very successful cochlear implant user and currently is able to hear using the telephone! Neil lives in Maryland with his wife Alice, two year old daughter Megan, and new baby.

1. When did you start participating in sports?

I started playing soccer when I was 8 years old.

2. Did you use any communication strategies or assistive devices while participating in the sport?

My hearing loss was moderate when I started playing sports and it progressed to a profound hear-

ing loss over the years. I gradually got to the point where hearing aids were not much help. As a player, I learned that using my eyes was very important, because I was unable to hear on the Þeld. Using my eyes helped me to become an outstanding player because I would use the whole Þeld to pass the ball to the open space.

As a coach, I always believed in show and tell (show and explain how to use the proper technique to perform the skill). I think it is very important when coaching kids that you are out there with them on the Þeld to demonstrate the skills rather than always coaching on the side. When coaching during a game Ñ I will have the players make eye contact with me and show them a skill or movement to try next time in that situation. From my point of view Ñ coaching hearing, hard of hearing, or deaf Ñ if you have a coach who is yelling at them from across the Þeld on what they could have done differently, the coach will not get the message across because most likely that player is too focused on the game. When you have eye contact and you show the player what to try next time - your point gets across in a positive way.

3. Please tell us about any particularly challenging moments that were caused by your hearing loss.

It was very challenging to be successful in school. Without my parents support and encouragement I would never have been successful. I say that because at times when I felt I couldnÛt do it Ñ my parents refused to let me give up. Little did I realize that is an important value for everybody in this world.

4. Please tell us about any moments that were particularly rewarding (related to participating with hearing loss).

It is very rewarding to be able to show everybody that regardless of what disability you have if you want to do it no one has a right to say you canÛt. Today, I am a full-time elementary counselor (hearing public school) and I coach at the high school (boys JV soccer). IÛm very fortunate to have a wonderful (hearing) wife and (hearing) daughter. I never thought of not being able to get to do anything, but I realize today that there are people in the world who have views that if you have a disability you canÛt do or be anything you want.

5. Are there any personal experiences from your junior/senior high school days that you wish to share?

I only wish that I could have met somebody in the adult world with a hearing loss who was successful. I can remember, in high school days, feeling like ÒWill I ever be successful?Ó I never knew of anyone successful with a hearing loss that I could talk to about feelings related to hearing loss. Because of this, I make myself available to anyone in Maryland who has contacted me about talking with their hearing-impaired child.

6. What advice would you give a young hearing-impaired person who wishes to participate in athletics?

Go for it all the way!

7. Any advice for coaches and parents?

For coaches: ÒShow and TellÓ technique and to establish a way to communicate together during the game. For parents: Never ever give up Ñ you can only go with what your heart tells you. You as a parent know your child better than anyone else.

Chapter 9

Resources

The following organizations are concerned about athletics for hearing-impaired individuals.

American Athletic Association for the Deaf
3607 Washington Boulevard
Ogden, UT 84403-1737

National Association for Disabled Athletes
17 Lindley Avenue
Tenaßy, NJ 07670

National Deaf Bowling Association
9244 E. MansÞeld Avenue
Denver, CO 80237

National Deaf Women's Bowling Association
Meadow Lark Lane
Ervin, SD 57233

The Deaf Bowler
PO Box 171786
Arlington, TX 76003

United States Deaf Skiers Association
5053 Kenmore Drive
Concord, CA 94521

The following organizations deal with issues and concerns of individuals with hearing loss.

American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, MD 20852
(301) 897-5700

American Academy of Audiology
1735 North Lynn Street, Suite 950
Arlington, VA 22209-2022
(703) 524-1923 - 1-800-AAA-2336

Alexander Graham Bell Association for the Deaf
3417 Volta Place, NW
Washington D. C. 20007
(202) 337-5220

Self Help for Hard of Hearing People, Inc.
7910 Woodmont Avenue, Suite 1200
Bethesda, MD 20814
(301) 657-2248 (V) - (301) 657-2249 (TTY)

Pennsylvania's Initiative on Assistive Technology
Institute on Disabilities/UAP
Temple University
Ritter Annex, Room 433
13th & Cecil B. Moore Avenue
Philadelphia, PA 19122
1-800-204-PIAT

Parent Education Network
333 East Seventh Avenue
York, PA 17404
(717) 845-9722 - 1-800-522-5827

Pennsylvania Academy of Audiology
Box 21
Scranton, PA 18501-0021

Pennsylvania Speech-Language-Hearing Association
100 High Tower 302
Pittsburgh, PA 15205

Telecommunications for the Deaf, Inc.
8719 Colesville Road, Suite 300
Silver Spring, MD 20910-3919
(301) 589-3786 (V) - (301) 589-3006 (TTY)

American Society for Deaf Children
E. 10th and Tahleequah
Sulphur, OK 73086
1-800-942-2732

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
(301) 587-1788 (V) - (301) 587-1789 (TTY)

The National Organization for the Advancement of the Deaf, Inc.
P.O. Box 10076
Beaumont, TX 77710

National Black Deaf Advocates, Inc.
246 Sycamore Street, Suite 100
Decatur, GA 30030
(404) 997-1489

National Hispanic Council
c/o D.E.A.F., Inc.
Frederick C. Schreiber Center
215 Brighton Avenue
Allston, MA 02134
(617) 254-4041

The following organizations are rule sources and governing bodies for each sport in this book.

National Federation of State High School Associations
11724 NW Plaza Circle, Box 20626
Kansas City, MO 64195-0626
(816) 464-5400

Archery
National Archery Association of the United States
One Olympic Plaza
Colorado Springs, CO 80909-5778
(719) 578-4576

Badminton
United States Badminton Association
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 578-4808

Baseball
USA Baseball
2160 Greenwood Avenue
Trenton, NJ 08609
(609) 586-2381

Basketball
USA Basketball
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 632-7687

Bowling
American Bowling Congress
5301 South 76th Street
Greendale, WI 53129-1127
(414) 421-6400

Women's International Bowling Congress
5301 South 76th Street
Greendale, WI 53129-1191
(414) 421-9000

Canoeing
U.S. Canoe and Kayak Team
Pan American Plaza, Suite 470
201 S. Capitol Avenue
Indianapolis, IN 46225
(317) 237-5690

American Canoe Association (ACA)
8580 Cinderbed Rd., Suite 1900
P.O. Box 1190
Newington, VA 22122-1190
(703) 550-7523

Curling
United States Curling Association
100 Center Point Drive, Box 971
Stevens Point, WI 55481

Fencing
United States Fencing Association
One Olympic Plaza
Colorado Springs, CO 80909-5774
(719) 578-4511

Field Hockey
United States Field Hockey Assn. (Women)
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 578-7567

Field Hockey Association of America (Men)
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 578-7587

Football
National Federation of State High School Assn.
11724 NW Plaza Circle, Box 20626
Kansas City, MO 64195-0626
(816) 464-5400

Golf
United States Golf Association
Golf House
Far Hills, NJ 07931
(908) 234-2300

Gymnastics
USA Gymnastics
Pan American Plaza
201 S. Capitol Avenue, Suite 300
Indianapolis, IN 46225
(317) 237-5050

Lacrosse
United States Women's Lacrosse Assn, Inc.
PO Box 2178
Amherst, MA 01004
413-253-0328

Rißery
National Riße Association of America
11250 Waples Mill Road
Fairfax, VA 22030
(703) 267-1000

Rowing
U.S. Rowing Association
Pan American Plaza, Suite 400
201 South Capitol Avenue
Indianapolis, IN 46225
(317) 237-5656

Rugby
U.S.A. Rugby National Oþce
3595 E. Fountain Blvd.
Colorado Springs, CO 80910
(719) 637-1315

Skiing
U.S. Ski Association
P.O. Box 100
Park City, UT 84060
(801) 649-9090

Soccer
United States Soccer Federation
1801-1811 S. Prairie Avenue
Chicago, IL 60616
312-808-1300

Softball
Amateur Softball Association
2801 N.E. 50th Street
Oklahoma City, OK 73111
(405) 424-5266

Swimming & Diving
United States Swimming, Inc.
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 578-4578

United States Diving, Inc.
Pan American Plaza, Suite 430
201 South Capitol Avenue
Indianapolis, IN 46225
(317) 237-5252

Table Tennis
USA Table Tennis
One Olympic Plaza
Colorado Springs, CO 80909
800-326-8788

Tennis
United States Tennis Association
51 East 42nd Street
New York, NY 10017
(718) 760-6200

Track and Field (+ CC, Decathlon & Pentathlon)
National Federation of State High School Assn.
11724 NW Plaza Circle, Box 20626
Kansas City, MO 64195-0626
(816) 464-5400

Volleyball
USA Volleyball
1750 East Boulder Street
Colorado Springs, CO 80909
(719) 578-4750

Water Polo
United States Water Polo, Inc.
201 South Capitol Avenue, Suite 520
Indianapolis, IN 46225
(317) 237-5599

Weightlifting
United States Weightlifting Federation, Inc.
One Olympic Plaza
Colorado Springs, CO 80909
(719) 578-4508

Wrestling
USA Wrestling
225 South Academy Boulevard