Coaching Athletes with Visual Impairments

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The characteristics of athletes with visual disabilities vary widely, making predictions of athletic performance difficult. However, the nature of visual loss causes some common consequences that, if known, help coaches understand the origins of certain behaviors and provide a means by which to problem solve. Paramount among them are: (a) the age at which the impairment had its onset and (b) the degree and type of the athlete's visual loss.

Persons who were born with visual limitations tend to have some difficulty with conceptual constructs or motor abilities, while those who experienced losses later in life will more likely encounter emotional effects of the loss; at least during early stages of adjustment. However, these effects range from virtually none to severe within each subgroup.

Age at Onset

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Child Development

Congenital visual impairments, as defined here, have their onset during prenatal or early childhood development. The earlier they occur, the more profound their effects tend to be. Early onset affects cognitive, psychomotor, and affective domains of development in ways that can have consequences on a person's ability to perform the skills required for athletics.

Cognitive Development

The limitation in the cognitive domain relates primarily to the nature and degree of the body of knowledge one holds as an adult and is a result of learning without visual input. When sight is severely limited, learning must occur through

the less efficient senses of touch and audition (Lowenfeld, 1972). The tactual sense is helpful in that it is a relatively concrete sense when compared to sight, but it is limited in scope and range. Many items are too far away, too small or large, too hot or cold, or moving too fast to explore tactually. Hearing is beneficial for learning because it needs little training and has a larger physical range than does touch, but is limited by one's inability to direct it and by its relatively abstract nature. The sounds one desires to glean from the environment are sometimes masked by others, but perhaps more importantly, sounds are not always easily related to their sources. If a child never connects the ticking of a clock to the clock itself, for example, the information has no practical meaning. Even more complex are the concepts involving space. The relationship of self to objects and objects to other objects is extremely difficult for those who have never seen (Cratty, 1971). Sight is also limited in scope and range, but is certainly superior to audition and touch. Unless parents or teachers intervene, the result of these limitations is that severely visually impaired children are not exposed to the same amount of information as are their sighted counterparts, nor is the information as concrete. The practical implications for coaches, particularly of novice athletes, are that they must be more aware of prerequisite skills, conceptual developmental schemes, and must be sure that intellectual understanding is supported by actual performance. Specifically, coaches may encounter those who express intellectual knowledge about certain activities like long jumping, but may not be able to perform them physically. Another common practical problem may arise when some learners are expected to understand the spatial relationship of one piece of equipment to another. For example they may know how to find the rowing machine and the stationary bike from the door of the workout room, but not know how to get from one to the other. One remediation that has proven helpful for use with those who read braille is a description that relates one object to another through the familiar dots in the braille cell. The cell is composed of six dots placed in two columns and three rows. They are numbered one through three going down the left column and four through six down the right. Using this system, the room might be described as: "the rowing machine is at dot 1, the bike at dot 2, the door at dot three", and so on. This technique is also good for describing the layout of a large area, like a gymnasium.

Psychomotor Development

The development of motor skills is measured through the milestones of grasping, sitting independently, crawling, standing and walking. In general, children with severe visual limitations attain them at later ages than do children with normal vision (Ferrell, 1986). Because stimulation for motor involvement in seeing children is primarily from visual feedback, there is little reason for preschoolers with severe visual limitations to reach for things or move toward them. Thus, there is less exploration, less overall body movement, and less learning about the environment. In addition, movements tend to be less fluid and deviations in posture and gait are more common in such youngsters as a result of these limitations (DiFrancesco, 1980). This is also true because motor skills are to some extent learned through observation (Lowenfeld, 1973). Therefore, the practical problem facing a coach who works with adult athletes with severe congenital visual impairments is one of limited agility and dexterity. Also, many persons who had early onset of blindness tend to be physically guarded, and as such, may demonstrate limited range and degree of movement. Inability to stop a goal ball that is thrown within a foot or two of the person is common because there may be a reluctance to reach out from the body. Remediations include modeling the action and providing a great deal of opportunity.

Lack of motor involvement during child development may also manifest itself in repetitive behavior such as rocking, head swinging, and eye poking (Griffin, 1981). In general, persons exhibiting these behaviors are not consciously aware of their occurrence which makes them difficult to control. Interestingly increased inner ear stimulation, like spinning on a merry-go-round or increased physical activity appears to eliminate them during the activity. However, they will likely return at activity's end. New coaches should understand the origin of such behaviors and that simply informing the athlete of them will likely have little effect. Remediations are possible, but take a great deal of time.

Affective Development

The limitation to development of the psychological realm (affective domain), appears to be largely a function of the parents' attitudes toward the child with a visual disability, because it entails the formation of love bonds between child and parent and the recognition of the consequence of self-initiated actions (Ginsberg & Opper, 1988). Lowenfeld (1973) described the effects of the

parental attitudes of: (a) acceptance, (b) denial, (c) overprotection, (e) overt rejection, and (e) covert rejection. The attitude of acceptance leaves the child relatively unaffected physically and psychologically; denial causes motor and psychological difficulties, because the problems are not addressed; overprotection results in limitation of motor skills and life experience, because the child is not allowed to explore; and overt rejection causes self image problems, because love bonds are never established. Covert rejection, which is a psychologically complex form of rejection that appears to observers to be overprotection, is perhaps the most devastating. The overprotective behaviors of the parent limit the child experientially, but he/she is also psychologically affected by the inner knowledge of being rejected which in turn limits learning (Ginsberg & Opper, 1988). The consequences of negative parental attitudes, from the coaches' standpoint, are the typical lack of confidence behaviors associated with low self esteem and decreased physical ability because of limited experience.

Degree of Adjustment

Acquired or so-called adventitious visual impairments, because they have their onset after early childhood developmental stages are completed, have little effect on cognitive or psychomotor domains. However, the affective ramifications are significant (Carroll, 1961; Cholden, 1958; Cull, 1972; Schulz, 1980, Tuttle, 1984). There is consensus among all these authors regarding the effect of the loss on the image of "self". Carroll (1961) appears to be among the first to express this theory. In fact, modern rehabilitation practices are based on his writings and those of his cohorts. They described loss of sight as an extreme blow to self image resulting from the devaluations concomitant with loss of job, loss of personal expertise, inability to perform the simple skills required for daily living and loss of personal independence (Carroll, 1961; Schulz, 1980). Carroll (1961), in his classic monograph, described these losses in detail and suggested rehabilitation regimes to overcome them, the modernized versions of which are still being used.

Cull (1972) and later, Schulz (1980) expanded the theory by describing the mechanism through which self image rebuilding was accomplished. They held that the psychological coping strategies utilized in everyday life were responsible for this phenomenon. So called "psychological defense mechanisms" (PDM's) are

unconscious psychological reactions, which protect the ego under periods of unacceptable realities. Theoretically, one or more PDM's operate to protect the person from the reality of the new visual loss. As rehabilitation services proceed, the need for such defenses subsides, because adaptive techniques make the reality less harsh and more acceptable. Therefore, the use of PDM's is a positive step toward return to status quo. However, the behaviors exhibited by persons utilizing them are not always positive in terms of social norms. Therefore, it is essential for anyone working with persons who are adventitiously blind to recognize common coping mechanisms and to understand that the negative behaviors are not consciously contrived. The latter is especially true, because certain behaviors, such as anger, are common and are easily internalized by a coach or anyone else interacting with relatively newly blinded persons.

There appears to be no data supporting the contention that coping mechanisms are sequential in nature. However, some are apparently more frequently used during the beginning stages of adjustment to loss (Cull, 1972; Schulz, 1980). Although a coach is not likely to work with newly blinded athletes or see early reactions to sight loss, the more important ones are included herein as general information. **Denial**, which can be defined as a PDM characterized by not acknowledging the existence of the problem, is usually one of the first to appear. It commonly takes two forms, first the denial that it happened, followed by denial of its permanence. Denial appears to be closely related to depression, because both tend to fluctuate during early adjustment stages. When denial is operative depression is not, but when denial is broken down by negative experiences such as a confrontation with the limitations of sight loss, an encounter with a person who "feels sorry" for them, or with negative medical reports, depression returns. Anger and anxiety are related to denial in a similar way. Therefore, the coach working with a relatively recently impaired person should expect some emotional fluctuation.

Other PDM's are often simultaneously operative with or follow denial. **Withdrawal**, a PDM characterized by decreasing one's need for human interaction and regression, a PDM characterized by going back in time to a safer time or place, are also early coping tools. The former is manifested in lack of interpersonal interaction, even when in the company of others and the latter is demonstrated by adopting former styles of dress, musical preference, etc. (Cull,

1972; Schulz, 1980). Both mechanisms allow the subconscious to "create realities" that are less threatening and more comfortable. Several other PDM's that generally appear later in the rehabilitation process are: (a) **repression**, a lesser form of denial, characterized by selective forgetting, (b) **fantasy**, characterized by creating one's own reality, (c) **identification**, characterized by achieving success through association with power holders or valuable objects, (d) **rationalization**, characterized by giving socially acceptable reasons for unacceptable realities, and (e) **compensation**, characterized by achieving success through alternative means. Repression is useful in dealing with one's own prior attitudes regarding handicaps or with everyday limitations that cannot be overcome through rehabilitation; identification helps, because it yields success when little may exists; fantasy allows for the creation of success or future success and may serve as the beginning of ideas for new vocational or educational goals and rationalization might aid in assisting one to overcome the losses associated with thwarted goals. Compensation is perhaps the most important to the rehabilitation process , because it is the basic tool of rehabilitation. The so called "adaptive skills" are the alternative means through which success is accomplished.

The speed with which any given individual regains self image is a function of many factors. Cull (1972) included (a) one's view of the importance of his/her need to be outstanding in a positive way, (b) the effect of the impairment on life style, (c) one's prior attitudes toward blindness or visual impairment, (d) one's knowledge of blindness, and (e) the amount of emotion expended during the loss. Rapid recovery would be inhibited if, for example, one's physical beauty is important, if one's vocation is highly dependent on vision, if he/she knows little about blindness and/or he/she repressed emotional outflow during initial adjustment phases. It would appear that athletes who lost their sight might be among those most affected in terms of a" and "b" above. Athletes are, by definition, highly competitive and it would likely be difficult for a world class sprinter to face such a significant loss. Therefore, adventitiously visually impaired athletes may display some adjustment behaviors well after the sight loss. There is no evidence regarding the length of time it takes the average person to adjust, but it is not uncommon to see adjustment behaviors years after the loss. In addition, poor athletic performance, which often causes anger or depression in fully sighted athletes, might also be expected to trigger the return of some negative adjustment behaviors.

It should be noted that the list of factors affecting speed of adjustment that was presented above does not include how much vision was lost. In fact, it is highly usual to observe similar loss reactions throughout the loss continuum. Therefore, there is no reason to expect B1, B2 or B3 athletes to react differently. However, B2 and B3 athletes' vision commonly deteriorates during their lifetime, which may cause typical adjustment reactions with each new loss. Consequently, even those who have had low vision since birth, may display some adjustment behaviors after being visually impaired for 20 or 30 years.

In summary, when encountering PDM behaviors one should consider that they are unconscious reactions, and as a result are not derived from choice. As such, the athlete with an adventitious visual impairment should not be viewed as "guilty" of contriving negative behaviors. Rather, the behavior should be accepted as "normal" and temporary and should be ignored unless it interferes with team performance or becomes habitual.

Types of Visual Limitations

The athlete's abilities and behaviors are also a function of their visual ability. Generally, those with greater degrees of vision would be expected to perform nearer the sighted norm than those with severe limitations. However, there are several types of visual loss; each having a different effect on visual ability. **Visual impairments either limit visual acuity or visual field**. Acuity limitations may relate to maladies of the cornea, but more commonly result from opacities of the lens. Cataracts, which are the most frequent lens disorder, cloud the entire visual field. In addition, bright light or light reflected from shiny surfaces magnify the limitation. Therefore, the affected person has difficulty with reading and other near vision tasks, as well as with moving through unfamiliar environments (Jose, 1983).

Field limitations generally take one of three forms, including: (a) central loss, (b) peripheral loss, or (c) irregular loss. The most common central field loss is caused by a condition common in elderly persons termed macular degeneration. The macula is the portion of the retina which is most responsible for acuity. Therefore, a central field loss is essentially a loss of acuity in the center of vision, but peripheral sight is often unaffected. In beginning stages of loss, a diffuse spot

appears in the center of vision, which some persons describe as a blue dot. As the person ages, the occlusion generally becomes denser and more obtrusive. The functional result of such a loss is a severe limitation in reading and other near vision tasks (Jose, 1983). However, since the peripheral vision is intact, mobility is less restricted. Persons also become adept at eccentric viewing, i.e., turning the eye so as to move the blind spot out of the path of vision.

The most common causes of peripheral field loss are retinitis pigmentosa and glaucoma. The former is a genetically inherited disease which results in the progressive destruction of cells within the retina, while the latter results from the closure of small retinal blood vessels due to extreme interocular pressure. In both cases, the peripheral field is gradually reduced, resulting in a narrow tunnel of vision, sometimes to the point of total blindness. Although the outer boundaries of vision are lost, central acuity is usually unaffected. Therefore, near vision tasks can often be accomplished, but movement in unfamiliar surroundings is generally difficult. In addition, since the peripheral portion of the retina is responsible for night vision, these persons may be functionally blind after dark (Jose, 1983).

The loss of visual field in randomly placed irregular patches is most frequently the result of diabetes mellitus. The disease causes premature atherosclerosis, which results in the rupturing of tiny vessels in the retina. This condition is referred to as diabetic retinopathy. It not only affects the field of vision, but may also cause extreme acuity problems as a consequence of interocular bleeding. Blood components leak into the eye, blocking the course of light from cornea to retina. Therefore, the practical problems imposed by retinopathy fluctuate greatly and range from limitations in the accomplishment of near vision tasks to mobility difficulties.

Factors Affecting Visibility

In order for a coach to assist the B2 or B3 athlete he/she should understand the factors affecting one's ability to see objects in the environment. these factors include: (a) illumination, (b) contrast, and (c) size.

Illumination

Illumination, which is the amount of light reflected from the surface of the viewed object into the eye, is critical to visibility. Generally, as the degree of illumination is increased, so is visibility (to a certain point). Perhaps because normal vision is extremely efficient, lighting in the average training situation is not optimal. As a result, the simple addition of lights in one's environment may be helpful.

Other factors relating to illumination such as glare and the learner's degree of light sensitivity also determine how well an object is seen. If reflected light strikes the eye at an oblique angle, glare results and interferes with visual tasks. Glare can be controlled by adjusting the angle of the light source or by placing the target to be viewed on a less shiny or more absorptive surface (Carter, 1983). Glare is especially troublesome from shiny surfaces like gymnasium floors, basketball backboards, etc. If the learner has an eye condition that results in photophobia or oversensitivity to light, too much illumination can be detrimental and may even decrease visual efficiency. In such cases, reflected light can be controlled with sunglasses. Coaches involved in outdoor sports should be especially aware of this solution. Indoor ambient light, which is the light that exists naturally in the surrounding environment, may also need to be controlled, particularly if it is bright sunlight. This can be accomplished by having athletes wear a billed cap or by having them use sunglasses that have side and superiorly mounted shields. When activities are held indoors, shades and blinds/curtains may help control the sunlight entering the room. Overhead lighting can also interfere with vision. Visors are usually helpful in such situations.

Contrast

The degree of color difference between the viewed object and the surface upon which it is being viewed is termed contrast. Glare, in essence, interferes with contrast by making the two objects appear to be closer in color. Contrast is especially helpful to persons with low vision because it can be created with little or no effort or expense. Whereas increasing lighting may require expensive fixtures or installation costs, it is a simple matter to increase the contrast of an object by placing something of a significantly different color behind or beneath it. For example, the take off board in the long jump could be whitened with chalk or a white high jump bar can be wrapped with day glow orange tape. In addition,

contrast for printed instructional materials can sometimes be made more visible by wearing yellow sunwear or by placing a yellow acetate sheet on black and white reading material. Yellow filters tend to make print, especially faint or colored print, appear blacker, thus increasing contrast (Jose, 1983).

A typoscope, which is simply a black sheet of paper or plastic with a one-line window cut out, can also be used to increase contrast and reduce glare by isolating one line of print at a time. The typoscope assists the reader by blocking out extraneous material, thereby directing the eye to the correct line.

Size

Degree of visibility is also affected by the size of the object to be viewed. Perception of size can be manipulated by increasing the size of the object to be viewed, by bringing it closer to the eye, or by creating a larger image through optical magnification. Increasing physical size is not especially practical, with the exception of providing larger print or enlarged copies for reading. However, as anyone who has experienced limited vision quickly learns, it is a simple matter to enlarge the image by bringing the object closer to the eye. This phenomenon, known as relative distance magnification, results in a doubling of size when the distance from eye to object is decreased by one-half. Some athletes will also use varying types of optical low vision aids, which for the most part, will be monocular telescopes that function much as do common binoculars.

Principles of Coaching Persons with Visual Impairments

It should be obvious from the preceding sections that interacting with and instructing those with visual impairments is a complex task. However, the knowledge gained from these insights serves to aid in the derivation of certain practical teaching principles. However, overriding them in importance, is the coaches ability to communicate with someone with limited vision.

It is well-known that communication is the most difficult barrier to overcome when teaching persons who have limited or no hearing. Because the standard verbal language cannot be employed, the teacher must learn manual language systems to make his/her instructional points. In some regards, teacher to

learner communication is also the most difficult problem facing a coach who works with persons with severe visual impairments. Although verbal language is available, the usual forms of nonverbal language are not. One cannot simply point at the parts of a high jump standard to explain its location unless the athlete has considerable remaining vision. Even then, activities requiring quick movements, like throwing a discus, may not be seen well enough to be demonstrated as it is to fully sighted athletes.

Communications utilized during periods of instruction can be enhanced through (a) giving the learner more descriptive responsibility, (b) modifying demonstrational techniques, and (c) utilizing precise vocabulary. One of the most difficult barriers for the coach of novice athletes is introducing new instructional equipment, such as an unfamiliar gymnastics apparatus or a weight training device. If one attempts this task verbally, he/she soon encounters the difficulties of using positional words like "front and back" or directive phrases like "to the left and to the right". If however, the instructor asks the learner to investigate the instrument tactually or at a short visual distance for a few minutes and then asks him/her to describe its parts, the teacher to learner communication problem is circumvented. For example, most athlete's who are totally blind would be able to not only describe something like a weight machine, but could probably figure out how to use it as well. However, as in any instructional situation, the instructor should be sure that all the integral parts are identified.

Although demonstrations are more difficult with persons who have severe visual impairments, they can be modified and are probably better instructional choices than verbalization. **Modeling** is one form of demonstration that can be used as a communications tool. The most common tactual means of modeling is by either having the learner follow the instructor's movements or by manipulating his/hers. The former type is useful for such chores as comparing a proper and an improper shot putting technique, or for demonstrating the proper body position for the take off in long jumping. In the case of putting, the instructor would demonstrate (model) the movement and have the athlete either get close enough to see it or to tactually "watch" it.

Manipulation of the learner's movements can sometimes be helpful, but may not always be well received, because controlling someone else's movements

has ego implications. It may be perceived by the athlete as being "pushed around." As such, the athlete whose arm is manipulated to demonstrate the proper putting technique, may not benefit. However, there are situations in which manipulation is the only way to get one's point across. Obviously, permission should be requested before implementing such a procedure.

Verbal explanations are also effective teaching tools, but are usually more cumbersome; particularly if the task to be taught is complex. Anyone who has tried to verbally guide the movements of a blind person, who has had no prior experience through the painstaking steps of throwing a discus or clearing a high jump bar knows the difficulties all too well. However, verbal instruction is appropriate when the activity can be explained easily or when there are no better alternatives. If explanations are used in instruction, there are two guidelines to keep in mind, i.e., (a) use familiar analogies where appropriate, and (b) employ specific word usage. Analogies are especially useful with adults, because they generally have some knowledge of the subject, even if it is indirect. Examples might include the similarity between the bowling delivery and throwing a goal ball or between squatting and using the legs in lifting a weight bar from the floor.

Precise word usage is important because the use of generic words cannot be supplemented by pointing or gesturing as can be done with fully sighted athletes. Phrases like: "that thing", "over there, or "that stuff" are especially troublesome. Therefore, one should strive to be as specific and consistent as possible.

Verbal instructions can also be supplemented by using auditory cues. For example, if the coach is attempting to get an athlete to walk to a specific piece of equipment, it commonly works best to place oneself at the point at which the athlete is being directed and simply tapping the equipment once or twice and saying: "The uneven bars are over here." Another helpful technique for directing persons with severely limited sight is by using the "**sighted guide technique**." The guide asks the person to be guided if he/she would like to take an elbow. Once contact has been made, they can be led to the location. Virtually anyone who has been visually impaired for even a short period of time, will generally be able to follow the guide with ease. Some persons prefer to be told of upcoming

stairs, but there is usually no need to announce turns, stops, etc. Guides should pull their elbow in and behind their back to warn of upcoming hazards.

Summary

Although the complexities of working with athletes with visual impairments have been described in detail in this document, it should be noted that they are certainly not operative in many situations. Many USABA athletes have a significant amount of usable vision or have had a great deal of experience with athletics. However, novice athletes and an occasional veteran will display behaviors requiring special considerations. The most common among them will surely be those related to spatial concepts in those with congenital impairments, emotional ups and downs in those with adventitious vision loss, and those relating to the visual abilities among all athletes. Coaches should also be familiar with the communications methods described above, as they have nearly universal application among USABA athletes.