

Methods of Fitting Football Helmets

Introduction

One of the predominant reasons for the emergence of *professional* equipment managers was the need for *qualified* athletic personnel to *fit football helmets*. It was not until the advent of the plastic shell helmet, which contributed to a more intense contact game, that the number of injuries in the sport greatly increased. This increased focused attention on the need for properly fitted equipment and specially trained athletic personnel to assure that this was accomplished.

The high incidence of football injuries and fatalities seen in the 1960s was attributed to 1) spearing coupled with 2) *improper fit*. Further, a study of football injuries in California revealed that 95.3 percent of the injured athletes were wearing improperly fitted helmets. However, the occurrence of serious head and neck injuries has dropped dramatically as a result of rules banning spearing and an earnest attempt to better fit the football helmet.

A properly fitted football helmet is not only desirable for reducing injuries, but also helps to foster confidence when the athlete wears the helmet. This is achieved by maximizing the athlete's visibility, comfort, and hearing. Impairment in any of these areas disrupts a player's concentration, leading to poor judgment and making that player more prone to mistakes that can result in faulty performance and injury. Another serious consideration in obtaining and maintaining a properly fitting helmet is the possible liabilities involved. Although the more recent lawsuits against helmets have concentrated on the "failure to warn" or "improper coaching techniques." failure to properly fit the helmet has been cited as a secondary claim in many of these cases

Asserting a Professional Attitude

Earning the player's respect and trust is imperative when fitting that player's helmet. This begins with the equipment manager's attitude.

The best method of achieving this success is not to present a casual attitude, but, rather to treat the task with the respect it deserves, especially in the case of younger athletes. Get them off on the right foot in their attitude towards their equipment. Do not let the athlete control you when doing the fitting by telling you what they want. You tell them what is needed.

Asserting a professional attitude will help the athlete gain confidence in you and the equipment you fit.

Educating the Athlete

Use the fitting time to educate the athlete about the equipment. Athletes spend most of their time concerned about the X's and O's and their coach's attention, but when fitting them for their helmet, you have a small segment of time with their full attention. Use it. Explain what you are doing and why; keep it simple. Also explain the need for daily checks and how to make them. Encourage the athletes to come to you with any equipment problems and to not try to solve them for themselves.

Removing the Mystery and Keeping it Simple

With the many rules, regulations, and warnings concerning helmets, coupled with a multitude of sizing parts, the fitting of the football helmet can become a maze filled with mystery and fear. Keep everything in perspective, and remember that the ultimate end goal is to end up with a helmet that is in firm, but comfortable. Contact with the head. Everything else is secondary.

Manufacturer's Guidelines

Every helmet manufacturer provides various fitting pamphlets with each helmet sold, detailing how to fit the helmet. These instructions *must* be followed. Always keep current copies of the pamphlets on file. Because the pamphlets are updated frequently, be sure to read those provided with each new helmet shipment you receive and to replace any old versions.

Often, larger "poster" versions of the fitting pamphlets are also shipped with new helmets. These posters should be posted in the area(s) you commonly use to fit helmets. If these are not available, call the manufacturer or post the smaller pamphlets provided with the helmet.

NOTE - Because the manufacturer's fitting guidelines are updated every few years and new helmets are periodically introduced or discontinued, a complete listing of the manufacturer's guidelines for each helmet will not be presented here. That decision allows this article to avoid becoming dated in a short period of time. However, it will remain the equipment manager's responsibility to obtain and keep current fitting pamphlets on me. The fitting guidelines that follow are only intended to summarize and supplement the guidelines provided by the manufacturers, not to replace them.

Fitting Guidelines

Step #1—Prepare Helmets and Organize Fitting Area

Prepare Helmets. Before beginning any helmet fitting session, all the helmets should be properly prepared, as follows:

1. Clean and sanitize each helmet.
2. Inspect each helmet, inside and out.
3. Be sure that all needed repair work has been completed.
4. Check each helmet to assure that it bears a *current* NOCSAE (National Operating Committee on Standards for Athletic Equipment) certification stamp (*see* manufacturer's recommendations for their definition of current).
5. Be certain that the helmet warning label is clearly legible on the outside of the helmet.

Be sure there is a full range of sizes ready to be issued.

Organize Fitting Area. Any helmets not ready to be issued should be removed from the fitting area and clearly marked so they are not used accidentally. After assuring that all helmets are ready to be issued, organize your area to ensure a smooth flow. Then make certain all necessary paperwork is ready, with plenty of writing utensils, and that your measuring tools are accessible. A clean, well-organized fitting area will reinforce an athlete's image of your professionalism.

Step #2—Obtain Information from the Athlete

Position. Athletes should be questioned informally during the beginning of the fitting process. Determine what position they will be playing; this helps you decide later on the appropriate facemask and sometimes affects the style of helmet used.

Medical History. Check for any prior medical problems. If athletes have a history of concussions, you will want to keep a close eye on them. If they have had allergic reactions to *some* of the helmet materials that come in contact with the skin, you may need to change to another helmet with a different type of liner material. If they have had a broken nose on more than an isolated occasion, you will need to determine whether it was the result of a poor fit or whether the style of helmet they used just did not grip their particular head shape well enough. If there is a prior medical problem, make a permanent note. When necessary, consult your trainer for advice.

Past Experiences. Ask athletes what type or types of helmets they have used in the past. Get their opinions on how the helmet performed. If they have had problems, simple questions such as, "Did it move on your head?" "Was it comfortable?" "Did it have pressure points and, if so, where?" all provide little clues that can be added up to give you a good indication of their past experience with helmets. This information will be valuable in determining what type of helmet to select and allows athletes to provide input into the fitting process, helping them to be more comfortable with the fitting and giving them more confidence in the end result. Do not put a helmet on an athlete just because he wants to wear it, however, it has to fit.

Physical Abnormalities. Visibly check the athlete's head for any physical abnormalities. Use your hand to feel the areas of the head covered by hair. Examples of abnormalities might include a severely sloping forehead, lumps beneath the skin, an overly extended brow, an extra-large occipital bone, protruding moles/warts, scars, or any other unusual occurrences that may cause problems with the helmet's fit or comfort.

Step #3—Obtain Measurements

Circumference. There are two head measurements commonly used when fitting helmets. The first is the head circumference measurement taken by a cloth tape measure. There are specially designed tapes for taking this measurement. They have a metal loop at one end and a full range of head sizes marked, so that the head can be measured by head size and not just in inches. However, a common cloth tape will suffice. The measurement can be noted in either inches or by head size and should be recorded on the athlete's records.

Begin by placing the tape around the athlete's head at the widest point. The tape should be 1 inch above the eyebrow in front and on the Occipital lobe in the back. The tape should be over the hair, but check to make certain it is not over the ears. Pull the tape snug and take the measurement. To be certain of what snug is, first pull the tape verifiably tight then back off just a little without letting it become loose.

Caliper. The second measurement is taken with a head caliper. Begin by having the athlete sit in a chair so the caliper can be read more easily. Place the caliper 1 inch above the eyebrow in front and on the crest of the occipital lobe in back. Carefully read the measurement before removing the caliper from the head. As before, record the measurement on a permanent record for the athlete.

It is highly recommended that both measurements be taken because they can be compared,

providing information about the overall head shape you are fitting. The "ideal" head shape should produce circumference and caliper measurements that are equal. The measurements may not equal each other, however. Then, depending on the difference, you will have either a "short, squatty" head shape or a "long, oval" head shape.

Assume that all three head shapes have an equal circumference. If you compress the normal head shape (A) into a more circular shape (B), the caliper measurement would be smaller. If you stretched head shape (A) into a "long oval" (C), the caliper measurement would be larger.

A variance of one to two head sizes is somewhat common; however, a variance of two to three head sizes or more usually means that you have an unusual-shaped head that will require special attention.

Step #4—Select the Helmet

Style. The first decision in selecting an appropriate helmet for the athlete is the style to be used. It is recommended that you not limit yourself to only one style of helmet, as the various styles tend to fit different types of head shapes differently: some are better than others. Before choosing a style, consider the athlete's past experience. Any abnormalities you have noted, and the level of play. At this point, you must combine your product knowledge of the various helmet styles, your experience in fitting, and all the information on the athlete to choose the best helmet for the situation. Seldom are there clear-cut answers. Product knowledge comes from reading available literature and attending workshops and equipment shows; experience comes from working with the athletes and other seasoned equipment managers.

Size. Once the style has been selected, choose the appropriate size. First, check the athlete's measurements; second, refer to the appropriate sizing chart for the helmet style selected. Each helmet manufacturer publishes a complete sizing chart for all their helmet styles. These charts should be readily available for quick reference. The helmet size you choose should be considered as only a starting point; you may need to size up or down after completing the next step.

Step #5—Initial “Positioning and Sizing” Check

Preparation. Before the athlete tries the helmet on, it is recommended that you wet the hair down to approximate the sweaty conditions under which the helmet will be used. With younger players, a quick review of how to put the helmet on properly will be very helpful. The use of a facemask during the initial check is discretionary, as manufacturers have shown proper fitting procedures both with and without a facemask on the helmet.

NOTE: The following procedures and the order in which they occur vary depending on the helmet brand and style you are fitting. You *must* follow the manufacturer's guidelines and use the following only as supplemental information.

Prepare Air-Filled Pads. If the helmet you are fitting uses air-filled pads for fitting purposes, you will need to follow the manufacturer's recommended procedures for either inflating or deflating the pads before placing the helmet on the athlete's head for fitting.

Height. Ask the athlete to put the helmet on. The first check will be for the correct height. The frontal rim of the helmet should be 1 inch (or one finger width) above the eyebrow. If the height is incorrect, follow the recommended procedure for adjusting the height. The correct height must be established before continuing the fitting, because many of the remaining fitting checks will vary depending on the height.

Chin Strap. Once the correct height has been established, the chinstrap must be correctly fastened; this will keep the helmet in the proper position while you check and adjust the remaining pads in the helmet. Hold the chin cup squarely on the athlete's chin, and then adjust and fasten the front straps and finally the back. Make certain that the tension is equal on all straps and that none is pulled out of alignment.

Neck. Use your fingers to feel just under the posterior rim of the helmet. The padding should be in firm, but comfortable contact with the head. The neck padding is one of the major areas that grip the head to keep the helmet from sliding down onto the nose. If there are any gaps or if the helmet is too tight, follow the manufacturer's guidelines to make any necessary adjustments.

Back to Front. The fit of the front and the back pads should be checked at the same time, because they affect each other. The very center of the back pad cannot be reached, but the sides can be checked somewhat by placing a finger into the ear hole and feeling for a firm contact with the head.

The front pad is visible, and several types of checks are recommended for this area. First, grip the helmet firmly on each side and rotate it gently from side to side, then up and down. The skin of the forehead should move with the helmet. If the helmet slips without moving the skin, an adjustment needs to be made.

Second, standing in front of the athlete, lock your fingers behind the athlete's head and pull firmly toward you. If a gap appears between the front liner and the forehead, adjustments will have to be made to increase the thickness of the front and back pads. Care should be taken in this procedure, as too much force can cause a gap even if there is a good fit.

The last check requires that the helmet be on the athlete for at least 1 minute. After that time, remove the helmet and immediately check the color of the forehead. There should be no hint of whiteness, which indicates a loss of circulation (the helmet is too tight). Redness, however, is acceptable.

Sides. The sides can be partially seen from the front and can be felt by slipping a finger through the ear hole. Check for firm, but comfortable contact with the skin. If the sides are too tight or loose, follow the manufacturer's recommendations and make the needed adjustments.

Cheek Pads. The cheek pads can be clearly seen from the front. As much of their surface area as possible should be in firm, but comfortable contact with the skin without squeezing the cheeks into a puckered position.

Facemask. Check your paperwork to determine the position that the athlete plays (it should have been recorded earlier). Then *use* the manufacturer's guidelines to select the proper style and size of mask based on the athlete's position and helmet size. Follow the manufacturer's instructions to attach the mask, then check the fit. The clearance between the end of the nose and the inside of the mask should be two to three fingers widths. Also, ensure that the athlete's vision has not been impaired by the placement of the horizontal bars.

Adjustments. Air-filled pads are the easiest to adjust by inflating or deflating the appropriate cells. However, padded cells require a little more work. If any pad within the helmet does not fit properly, replace it with the appropriate-thickness pad. Each manufacturer supplies various thickness of pads that can be interchanged without voiding their warranty. This helps assure the athlete of a "custom" fit. If you are unsure of which pads to use, consult the helmet manufacturer, a reputable helmet dealer, a reconditioner, or an equipment manager.

Step #6—The Final “Grip” Check

The final goal is to obtain a firm yet comfortable grip on the head. There are several quick methods to assure that this goal has been attained. With the helmet fully assembled, have the athlete put the helmet on and affix the chinstrap.

Crown Check. Lock your fingers on the very top of the helmet and firmly pull straight down on the athlete's head. Ask the athlete where the pressure is felt. Be cautious not to "lead" the athlete into giving you an answer. If the pressure is felt evenly distributed all over, then you have a good fit on top. If the athlete says that pressure is felt on top, the answer is still acceptable. However, if the athlete feels pressure mainly in front and back, then the helmet is too tight from front to back and you will need to make more adjustments.

Lateral Movement. Place your hands on each side of the helmet and ask the athlete to hold the head still. Gently force the helmet from side to side, watching the skin on the forehead. It should move with the helmet. There should be a firm resistance to the helmet. The cheek pad should bunch the cheeks, but not slide around toward the nose. If there is too much movement, check the cheek pads, side pads, and chin strap.

Vertical Movement. Again, place your hands on each side of the helmet and ask the athlete to hold the head still. Gently force the helmet up and down. The skin on the forehead should move with the helmet. and with enough force it will eventually slip a little, but it should catch on the eyebrow without coming down on the nose. If it does come down on the nose, check the neck pad first, as it is designed to grab the base of the occipital lobe to keep the helmet from sliding forward. Also check the chinstrap and the front and back pads. It should be cautioned that with enough force, even a good-fitting helmet can be brought down onto the nose, especially if the force is exerted on the facemask and not the sides of the helmet.

Final Check. When you have completed the fitting, ask whether the athlete is comfortable with the helmet, and let the athlete know that you are pleased with the fit. This will help build confidence in the equipment and the player's trust in you. You are like a salesperson making the final sale. Just be sure that you do have a good fit before you make that final sale.

Comfort. *Comfort* is a relative term at best. The phrase "firm but comfortable" has been used throughout the fitting process already described and therefore should be defined. The sensitivity of each individual will determine what is comfortable for that person. Some players, particularly those with little skin fat in the head area, will be more sensitive, and they will not feel comfortable unless the helmet fits loosely. In such cases, it is more important that a firm fit be maintained, sacrificing some of the athlete's comfort.

Recording. Make certain that all pertinent information on the athlete's helmet has been permanently recorded in a file that will be easily accessible when needed. This information will be needed during future maintenance, inspections, and inventories. More important, it provides solid documentation if needed within the courtroom. Also, each helmet should be clearly marked with some type of serial number. so that both the equipment manager and the athlete can clearly distinguish it from other helmets.

Customized Padding

To obtain a good fit without customizing the helmet is preferred. However, if customizing is needed, the helmet manufacturers have provided various pad thicknesses, allowing for considerable customization when fitting the athlete. It is imperative that you follow established guidelines when changing these pads. Following are some key points:

1. Never interchange pads between different brands of helmets.
2. Pads are often made to fit within a specified shell size, for example, M, L, or XL. Make certain that you are using the correct pad for the given shell size.
3. Never alter a pad by "cutting it down."
4. If you must add padding and already have the thickest pad the manufacturer provides, be careful not to inhibit the function of the helmet as designed by the manufacturer.
5. In the rare circumstance that you cannot get a helmet to fit "firmly but comfortably," and you are unsure how to customize the helmet, call the helmet manufacturer for advice. Never attempt customizing unless you know how to properly achieve your goal.

Specialized Pads. Many of the helmet manufacturers have specialized pads already designed for some of the more common problems. These pads include such items as the "Denver front" for severely sloping foreheads; side shims for the long, narrow head; and special crown pads to lift up low-riding helmets. If you do not have any of these items, contact your helmet dealer for further information.