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The reason women don't play football is because 11 of them would never wear the same outfit in public.

- Phyllis Diller, comedienne

There's great concern about the safety of football players who play a game where tough, physical athletes generate speed and momentum and crash into each other. Concussions demand most of the spotlight at present, but there are many other injuries common to the game: torn knee ligaments, separated shoulders, ankle injuries and hand and arm damage.

Helmets

All players are required to wear protective equipment, starting with a helmet that is made of lightweight, high-impact carbon fiber and Kevlar, a synthetic fiber used in tires and protective gear — material that is designed to spread and dissipate the force of collisions.

In the 1890s, before helmets, players would grow their hair long, hoping to protect their head although most of the contact came with collisions and blows by the shoulder. Early improvements from "hair helmets" were designed by harness makers who put together leather straps and belts to surround the skull. These were unwieldy and led to leather headgear

that looked like the helmets aviators would wear while dogfighting over France. Braving the mass momentum offensive plays of the early 1900s, dizzy defenders began asking for more padding.

Along with more padding added inside, suspension systems to cradle the skull away from the shell of the helmet were designed and, in 1940, a single-modeled shell was designed by the Riddell Company, a leading helmet manufacturer today. Helmets were colorfully painted to show a team's spirit and help quarterbacks spot pass receivers down field and today are used as trademarks of the team wearing them.

"I have contempt for a game in which players have to wear so much equipment. Men play basketball in their underwear, which seems just right to me."

- Anna Quindlen, columnist

Helmets are expensive — up to \$400 — and because of the dangers of top-speed collisions, players who have not been coached properly or who are disregarding the rules incur catastrophic, sometime permanent, injuries that lead to huge financial vulnerability to all parties concerned.

One situation shocked the sports world in 1978 when Oakland Raider defensive back Jack Tatum blasted New England's unsuspecting receiver Darryl Stingley as he was reaching for a pass thrown across the middle of the field. Stingley was paralyzed for life and died in 2007. Ironically, Tatum, who never spoke to Stingley after the accident, died in 2010.

Face Masks

All helmets are fit with a facemask that is designed to protect the eyes and nose. Facemasks tend to get larger and more elaborate based on the positions players play. Offensive and defensive linemen, who battle on the line of scrimmage every play, have larger masks that cover more of the face and throat, often with a bar running vertically down the middle. But given the rugged busted mugs of some ex-linemen, the larger masks don't always do the trick, either.

There are plenty of stories over the years of fingers poking eyes or — on rare occasions — players even biting the opponent; hence, the need for more protection for players who toil in what's basically a free-for-all.

The masks of defensive backs and ball handlers on offense have less coverage than those of linemen because a wider range of vision is more important to them. Ball carriers still complain of poking and biting in those big pileups, but an unspoken code seems to keep those stories out of the media. Today, many players wear a plastic see-through shield with their facemask for extra protection.

Sometimes you see a kicker with a single bar facemask; that's not much protection, but then again, most kickers manage to avoid body contact and feel they don't need it. Those who do wear single-bar masks hear plenty of harassment from their opponents and even teammates, who consider it wimpy and a reminder of how removed kickers are from the physical nature of the game. There's a reason kickers are the most rested, happy and healthy players on the team.

Shoulder Pads

Shoulder pads were originally made of leather and rested on top of the shoulders. In the old days, most of the body contact in the game was the result of a player using his shoulder to block or tackle an opponent. Leather gave way to plastic fiberglass pads that fit under a game jersey. They made the player look much bigger and more foreboding than he actually was. Players liked this impression, but complained about the big pads restricting their arms when they had to raise them.

In today's game, the shoulder pads are lightweight, sleek, and made of space-age composites that absorb and distribute impacts over a larger area. These materials are also used in body armor for soldiers and police officers. You can pretty much tell the position a player plays by the size of his shoulder pads. Linemen wear the biggest, while backs and kicking specialists wear the smallest. Quarterbacks, susceptible to hard, blindside tackles while passing the ball, often wear rib pads to protect from unexpected hits.

Football Pants

Football pants in the old days might be made of leather or canvas and called "mole skins." As time went by, internal pockets were built in to hold padding to protect the hips, knees and thighs. Today, players wear lightweight hip pad girdles and have fiber thigh and kneepads in synthetic pants; everything is designed for speed and efficient dispersion of built-

up body heat. Light-weight pants — more like tight cycling shorts — accent the derriere of trim, skilled players but don't do so much for the backsides of those heavier fellows who play offensive or defensive line. Some players whose playing position depends on speed and agility will not wear some pads in an effort to be faster. This is not always a smart move, as severe bruises can result from hits to parts of the body that are not protected.

The rules require all players to wear helmets, hip pads, knee pads, mouthpieces, shoulder pads, socks, thigh guards, jerseys and pants. Officials do not always enforce the rule on requiring knee or hip pads.

Shoes

A player's shoes are one of the most important pieces of equipment he wears. All players want shoes that are lightweight; today's products fit that bill nicely. In the early days of football, players wore heavy shoes or boots that came above the ankle. On a muddy field, a player's shoes absorbed water and mud, which made running a more strenuous activity than it is today. Late in a game, a weary player often felt "heavy legged" because his shoes were water-logged. Today, because the mud and grass of traditional football fields have largely gone by the wayside, shoes don't accumulate mud and remain lightweight throughout the game.

Cleating can be crucial as game conditions, particularly in rain and ice, often put the team wearing regular shoes at a disadvantage. Most teams have an equipment staff that offers players a variety of options with shoes and the kinds and sizes of cleats to handle artificial turf, grass fields and all kinds of weather. Stories abound of teams that came to play without shoe options and lost to teams that did.

In 1985, Washington State's equipment manager borrowed special shoes designed for slippery conditions from the NFL Seattle Seahawks in preparation for their rival game with Washington. Every skill player had a pair while the Huskies struggled with their regular footwear. It must have made a difference as the underdog Cougars knocked off Washington on an icy field in Seattle, 21-20.

Accessories

As football became more fashionable with the public, so did the desire of individual players to put a bit of extra gear on to look stylish or rugged. To be stylish, you could go with taping your wrists or

Interested in how football equipment has changed through the years? See this excellent slide show by The Bleacher Report's Amy Daughters from May 16, 2013: http://ble.ac/2jt4p0N

wearing white or colored compression wraps on your arms to look tough. One coach told his players "you can look tough without taping your hands, arms and elbows," and they proved it, even in freezing weather. Coaches who wanted to show their players they were "hip" stood back as the players customized for maximum effect. Eye black, originally used to cut the glare of sun in the eyes, is now used in night games, indoor games and as war paint on the whole face. Some players like to tape their ankles outside of their shoe instead of on their skin — it makes them look faster — while others tie curious rubber bands around their biceps that help guys with small arms look bigger.

The Ball

Competitive college footballs conform to the exact dimensions set down by the NCAA: 10.5 to 11.5 inches in length, with a circumference of roughly 28 inches on the long side of the ball and 21 inches on the short side, weighing between 14 and 15 ounces. The main distinction between official college footballs and those used in the NFL is two 1-inch white stripes located 3 to 3¼ inches from either end of the ball in the college game.

For each game, schools supply the referees with six footballs to be used when their team is on offense. The week before the game, teams will lightly use the balls and rub them down so they're not as slick as when they come out of the box.

"What requirements are there for assigning jersey numbers?"

Football rules require that all offensive linemen (centers, guards, tackles) wear numbers between 50 and 79, primarily so referees can keep track of eligible and ineligible pass receivers on pass plays. Offensive linemen are not eligible to catch a forward pass unless it first bounces off a defensive player.

Offensive backs and receivers must wear numbers from 1-49 and 80-99, while defensive players can wear any number. No jersey may be num-

bered 0. With large squads, two players may wear the same number although rules prevent both being on the field at the same time.

Coaching Points

Although rules require players to wear kneepads in their pants, many don't — and some suffer injuries because of it. In practice, coaches have their quarterbacks wear a bright-colored jersey, usually red, that warns that this player — most often a quarterback or injured player — isn't to be hit.

The rules of football prohibit a player from using his helmet as a weapon to block or tackle an opponent. Doing so puts both players at risk. Coaches have had to teach new methods of tackling because players used to be coached to keep their head and eyes up and use their helmet and face mask as the initial point of contact on a ball carrier. The idea was to stand the runner up, destroy his momentum and hold him until fellow defenders arrived and "cleaned up" with a "gang tackle."

Today's technique is to have your head up, but at the side of the ball carrier, initiating contact with the shoulder while wrapping the arms around and rolling the ball carrier to the ground. In this way, tackling has reverted back to the original method the game used in the late 1800s — and the method rugby players have always used.

Gridiron Tradition

Through the years, players and coaches have extolled the virtues of tough, physical football. In the late 1800s, players wore a minimum of equipment besides jerseys and socks. Most players wore their hair long and shaggy, like rugby players do today, in an effort to protect their heads. It wasn't until 1939 that helmets were required for all players.

As players began to get faster, stronger, bigger and more aggressive, protective equipment became a necessity and no longer carried the stigma of weakness for those who wore such protective gear. As for all the accessories, because players get so much TV "face time" and the game draws so many fans, their desire to personalize their appearance above the uniformity of the team has grown to the point where many coaches think it's a distraction. Then again, if the over-accessorized players are spearheading their teams to victory, it's hard for a coach to complain too much.