

Concussions Caused By Soccer

Everything You Need to Know about Concussions in Children that are caused by Playing Soccer

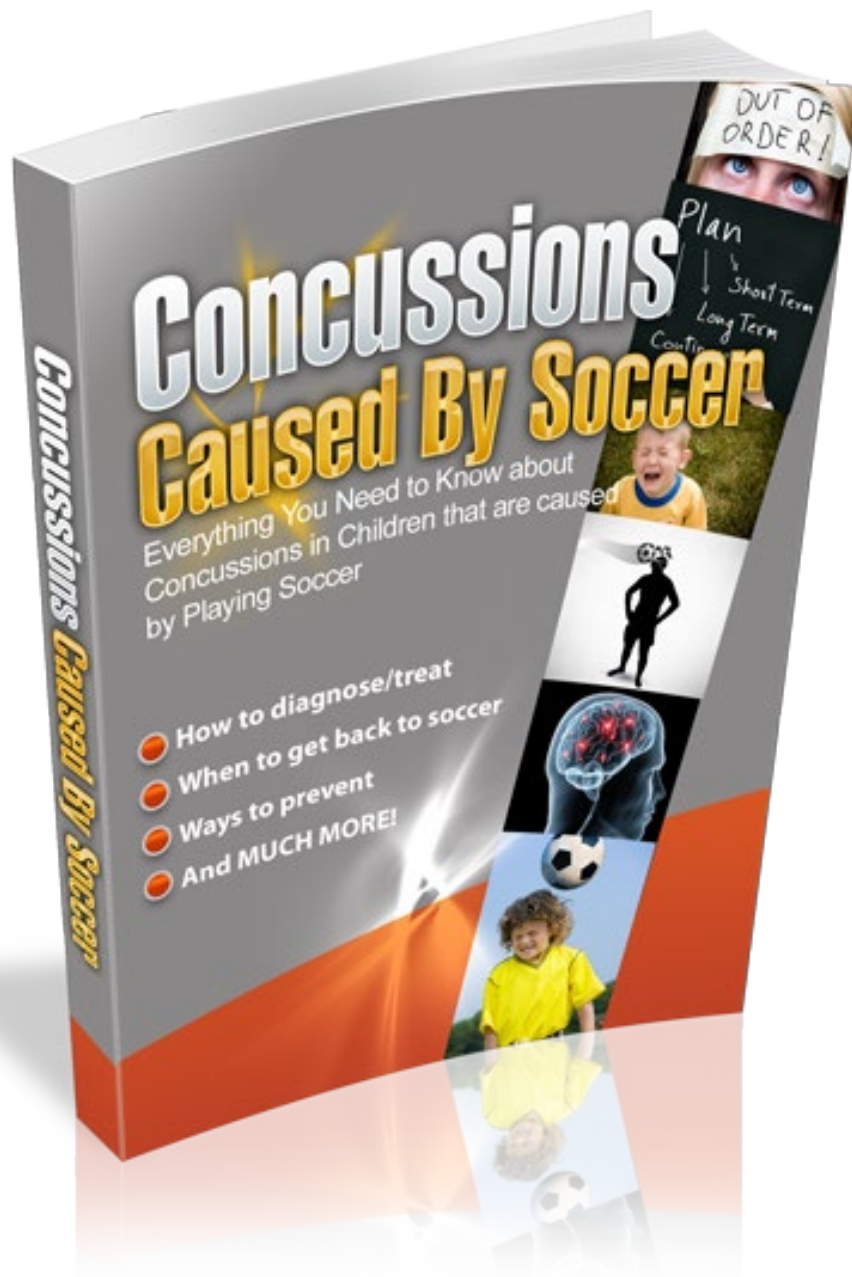


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Introduction



As with any sport, soccer can lead to quite a few injuries in children. Kids of all ages love to play this very popular sport and the physical nature of it means that they are prone to more injuries than if they were sitting inside reading a book. Various injuries that can occur from playing soccer include everything from mild soreness all the way to broken legs.

One of the most common injuries in kids that play soccer is a concussion. Concussions can range from mild to severe and there are often no outward signs that a child has suffered from a concussion. As a parent, it is absolutely

vital that you are aware of all of the signs and symptoms to look out for if you think your child might possibly have a head injury. Knowing the signs can be a key factor in whether your child gets the treatment necessary or whether he takes much longer to recover.

This eBook will offer you all of the information that you need to know in order to determine whether your child might possibly have a concussion as a result of playing soccer, what you should do for your child, as well as common treatments and recovery periods. We will also cover some of the long-term effects of concussions, so that you can be vigilant about your child's health and help them through the post concussion phase.

We will also cover how to prevent concussions during soccer. While you cannot prevent concussions during soccer 100%, you can teach your child some safety precautions and quality methods for avoiding serious head injuries. Consider this eBook your essential guide to concussions from playing soccer in youths.

Chapter 1

Youth Soccer Injuries: An Overview of Common Injuries Suffered by Youths while Playing Soccer



Soccer is by far one of the most popular sports among youths today. Soccer is an excellent way for children of all ages to get and stay in shape, as well as to learn such valuable principles as teamwork, sportsmanship, perseverance, and work ethic. In addition, studies have proven that starting such sports as soccer at an early age can be immensely helpful for helping children to have the ability to move their body much more freely than if they did not play any sport at all.

While the benefits of soccer are many for youths, there are also some nasty side effects. As with any sport, injuries can occur while children are on the field. These can range from a minor (cuts and scrapes) to more serious (broken bones and concussions). Most of the common injuries that children can suffer from are of the moderate variety and come in two very distinct forms called cumulative and acute.

Cumulative Injuries

Cumulative injuries are often called overuse injuries and they have become more common as children are starting to play soccer at younger ages and are playing much harder than ever before. With various soccer leagues and numerous practices per week

(sometimes two per day), children are playing soccer quite a lot. These injuries will occur over time because of excessive stress on joints, muscles and soft tissues without enough time for healing. Youth soccer players may not notice the start of these injuries, as they begin as a small, nagging pain or ache, but can grow into a very serious, sidelining injury if they are not treated early enough. Some of the overuse injuries that can occur in youths are detailed below.

- **Achilles Tendonitis**

Felt as pain in the back of the ankle, this chronic injury can lead to the complete rupture of the Achilles tendon.

- **Iliotibial Band Syndrome (IBS)**

Overuse can lead to IT band friction syndrome, which is felt as knee pain on the outside of the knee or possibly even lower.

- **“Runner’s Knee” or Patellofemoral Pain Syndrome**

Soccer players have to run a lot over the course of an entire game, leading to this injury, which is one of the most common running ailments. This is felt as pain under or around the kneecap.

- **Shin Splints**

These are characterized by pain that is felt along the front of the leg, generally along the shinbone. This is generally thought to be caused by cumulative stress, as well as increasing the amount of soccer play quickly, instead of gradually building up.

- **Stress Fractures**

This is a break, or crack, in the bone of the leg caused not by trauma, but by overuse generally over a long course of time. These can take months to heal and may require surgery.

These are just some of the common chronic injuries that can occur in youths as a result of playing soccer. Most overuse injuries can be treated by taking some time off from the soccer field, alternating between hot and cold therapies and slowly easing back into the sport. More severe overuse injuries can lead to a need for surgery or a prolonged period of rest (multiple months or more).

Prevention of overuse injuries includes:

- Adequately warming up prior to all practices and games
- Thoroughly resting in between intense practices
- Wearing proper safety gear, such as shin guards
- Backing off when any pains or aches are felt

Acute (Traumatic) Injuries

Traumatic injuries occur while youths are playing soccer as a result of a sudden impact or force. Many times, these types of injuries can be quite dramatic in nature and can lead to a trip to the emergency room. The most common traumatic injuries that occur in youths while playing soccer include:

- **Ankle Sprains**

This is the most common of all ankle injuries and occurs when the ligaments that surround the ankle joint are stretched or torn. This can be quite painful, and the injured youth will be able to tell immediately that an injury has occurred.

- **Broken bones**

Most often, soccer players will break their bones in their legs or arms during collisions with other players or dangerous slip and fall accidents. Children's bones are often more flexible than mature bones, so sometimes they will bend and not fully break, yet this is still incredibly painful and needs to be treated immediately. A broken arm or leg can either be classified as a closed fracture break, where the skin is not broken, or a compound fracture, where the bone will break and go through the skin.

- **Sprains and Strains**

These can vary considerably in severity, but are usually the cause of twisting or falling in an unnatural way while playing soccer. These injuries will result in pain, swelling and bruising of the joint that has been injured.

- **Torn Knee Cartilage**

Twisting, pivoting or a sudden impact in soccer can cause the cartilage that acts as a cushion between the thighbone and the shinbone to tear. This can be very, very painful, yet will generally need to be tested by a physician to be accurately diagnosed.

- **Pulls, Strains, or Tears of the Hamstring**

The hamstrings, or the muscles in the back of the thighs, are commonly injured in youth soccer players. These injuries are usually a result of intense running at high speeds. They can range from mild to severe.

- **Ligament Knee Injuries**

These are injuries that are a result of sudden stopping or fast starting in soccer. These injuries include those to the ACL (Anterior Cruciate Ligament), PCL (Posterior Cruciate Ligament), MCL (Medial Collateral Ligament), or the LCL (Lateral Collateral Ligament). These are various ligaments located within the knee. Often, the injury is marked by a loud popping noise. Many times, no pain is felt and an MRI is usually needed to confirm the injury.

- **Concussion**

One of the most common and most dangerous injuries suffered by youths in soccer games and practices is the concussion. Concussions are a type of traumatic brain injury that occurs because of a sudden blow to the head or body, a fall, or some other type of mishap that causes the brain to shake inside of the skull. There are often no outward visible signs of a concussion, but they can be very painful and lead to disorientation and even passing out (though this does not

always happen). Concussions can be mild or severe and in some cases they can lead to very serious damage.

Technological advances and increased awareness of the long-term effects of concussions have put attention on sports head injuries at the forefront of every major athletic organization.

Most of that awareness, however, is focused on football, a fact that isn't surprising considering the sport's popularity and a recent settlement between the National Football League and its players for the better part of \$1 billion.

But the concussion discussion has trickled down to the high school level — and even younger.

While most traumatic injuries are as a result of an accident during soccer, some preventative measures can be taken to avoid these ailments. Players can ensure that they are warming up, staying hydrated and staying aware of where others are on the field.

As mentioned above, concussions are one of the most common injuries in youth soccer players, yet many parents are not aware of the causes, signs and symptoms, treatments and risks that are associated with these traumatic injuries. The rest of this guide will focus on concussions and will hopefully help parents to identify if their child is suffering from a concussion and what they can do to help their child to avoid any serious damage.

Chapter 2

Understanding Soccer Concussions: What they are, what Causes them, and the Most Common Symptoms

When children play soccer (at any age), they are of course susceptible to a wide range of injuries, as outlined in the previous chapter. While most are not serious, one of the most common injuries, the concussion, can be very scary for parents.

Many people think of soccer as a safe sport. The perception among some is that it is safer than football, though soccer players experience concussions about as often as football players. Concussions are usually caused by head collisions with players, goalposts, or the ground.

In addition, soccer players often use their unprotected heads to pass or shoot the ball. A soccer ball can hit the head with significant force, and there has been considerable debate over whether such “heading” also fosters brain injury.

For an updated study on heading the ball see page 33.

Soccer is among the fastest growing team sports in the US, especially for girls and women. Millions of children and adolescents participate in youth soccer leagues and there are hundreds of thousands of adolescents on high school soccer teams. The growing popularity of soccer among youths combined with reports in the medical literature that soccer players may be at increased risk for brain injury has fostered concern that children who play soccer may not be adequately protected from head injury.

Concussions are generally a very mild head injury, but it is wise for all parents of youths who play soccer to understand what they are, how they happen and the symptoms to look out for.

What are Concussions?



A concussion is a mild head injury that occurs when a blow occurs to the head or body, as well as when a person falls, and the brain is shaken inside of the skull. A youth may have some bruises or cuts on their head or face, but often there are no apparent signs of a concussion on the outside of the body.

Some children may lose consciousness completely when they have a concussion from playing soccer, while others may not pass out but will forget what occurred right before the injury occurred. Recovery time varies from child to child and will be discussed in a later section.

Concussions are by nature a mild head injury, but they can sometimes lead to serious problems for youths in very rare cases. A very severe concussion can require surgery or lead to certain problems such as problems with movement or speaking. The same can be said if your child suffers from multiple concussions, which is why brain injury prevention is so important and will be addressed in Chapter 5.

What Causes Concussions in Youths?

Understanding exactly what a concussion is essential for any parent of a child or teenager that plays soccer, whether they are a serious player or just get out there for fun. Everyone's brain is a very soft organ that is completely enclosed in spinal fluid. Your hard skull protects the brain and the fluid surrounding it. If your child bangs his head in any way, the fluid that encases the brain acts as sort of a cushion to keep the organ from slamming into his or her skull. Sometimes, however, your child will hit his head or body so hard that their brain will crash into his skull, leading to the mild head injury known as a concussion.

When your youth is playing soccer, he or she will be running hard alongside many other players, while focusing intently on the ball. This is a prime situation for children to injure themselves, as they can run into one another at high speeds, trip and fall over the ball or simply their own feet, or even bang heads with another player when performing a move called a “header.” A “header” is when a soccer player hits the ball with his head instead of kicking it. This would normally not cause a concussion, but if two players attempt to head the ball at the same time, you can see how this would be dangerous. In Chapter 5, we will discuss brain injury prevention and other head injury prevention steps, so that you can help your children to play soccer in the safest possible way.

What are the Most Common Symptoms of Concussions in Youths?

There are a wide range of emotional and physical symptoms that your child will experience and exhibit if he has suffered from a concussion while playing soccer. These symptoms vary greatly depending on the child and the severity of the concussion.

Most concussion symptoms are in the mild range (however sometimes they are severe) and they can last anywhere from just a few hours to a few days or even weeks. In some cases, concussion symptoms from playing soccer can be noticeable for months.

The most common indications of a concussion in your child fall under four distinct categories. These include:

- **Physical Signs**
 - Headaches
 - Blurred vision (your child may describe their sight as fuzzy)
 - Vomiting and nausea
 - Dizziness
 - Issues with balance

- Lethargy or just generally feeling tired
 - Extreme sensitivity to noise or light
- **Emotional Signs**
 - Easily angered or upset
 - Sadness or melancholy
 - Anxiety or nervousness
 - Generally, more emotional
- **Memory and Thinking**
 - Lack of clear thoughts
 - Feeling slowed down
 - Inability to concentrate
 - Lack of memory
- **Sleep**
 - Issues falling asleep
 - Sleeping far more than normal or sleeping far less than normal

If you have a younger child, you may find that it is harder for them to tell you these symptoms clearly, so you will need to watch out for other behaviors in order to determine if they have a mild head injury. Some indications that your very young child has a concussion include:

- Excessive crying
- Changes in the way that they behave or want to play

- Excessive temper tantrums, as well as being upset more easily
- An overall sad mood
- Lack of interest in things they use to enjoy, such as a favorite game, food, or toy
- Issues with walking and a loss of balance
- Inability to focus and pay attention
- Forgetting things they just learned

Of course, all children are different and may exhibit various symptoms to different degrees. It is vital that you pay close attention while your child is playing soccer, regardless of their age. Older children and teenagers can even be more prone to concussions because of the advanced level of play that they are at. They may also be the most likely to pretend as if they are feeling much better than they are. Ask a lot of questions about how they are feeling and do your very best to evaluate whether or not they need medical attention. Chances are that if you are genuinely concerned a concussion has occurred as a result of a soccer accident, then one probably has.

Once you have determined that your child may have a concussion, it is important that you immediately seek medical care. This is the first step in serious brain injury prevention, as you may be able to head off any more damage by seeking treatment early on. More information on the treatment of concussions and the recovery period will follow in Chapter 3.

Chapter 3

Treating Concussions Caused by Soccer and the Recovery Period



If you believe that your child may have a concussion or exhibits other head injury symptoms, it is wise to immediately seek medical attention. The thing about treating a concussion in children, or any head injury in people of all ages, is that it must be properly diagnosed and determined to not be serious before treatment can

be administered. Even if you think that your child may be alright, if they have even one indicator that they have a concussion, you should take them to see the doctor and seek out concussion treatment.

Your child may simply say that they want to go to sleep and do not want to go to the doctor, but until the concussion has been officially diagnosed you should try to avoid letting them sleep. Many people warn that concussion sleep is dangerous and can lead to serious brain damage.

This is not true.

Your child will not suffer from brain damage simply because he has gone to sleep when he has a concussion. It is wise to keep your child awake if you believe he has a head injury, because his level of consciousness needs to be monitored. If he has a very serious concussion and you let him sleep instead, you are missing out on valuable time when you could have been at the doctor's office getting diagnosed and treated.

Do not let your child continue playing soccer when you believe he has suffered from a concussion and get him to a medical facility immediately.

Diagnosing a Concussion

You may be wondering how the doctor will diagnose your child with a concussion sustained from soccer. He will most likely start off by asking your child and you a number of questions about the particular injury and about your child's head injury symptoms. He may also ask your son or daughter various questions in order to observe his or her level of cognition and consciousness. He may want to see how your child can pay attention and whether or not his memory is up to par with his age level. Various ways to test this include showing your child objects and then hiding them and asking him to recall what the item was. The doctor may also test your son or daughter's balance, coordination, reflexes and more.

In some cases, the doctor may determine that a more serious injury than simply just a concussion has occurred. Basic head injury guidelines for medical professionals advise them to request such tests as an MRI or a CT scan in order to rule out bruising of the brain or bleeding if they believe that this is a possibility. If your doctor orders such a test for your child, do not panic. More than likely, this is just a precaution. If your child does have bleeding or bruising of the brain, the problem needs to be addressed immediately and these tests will help to identify the issue as quickly as possible.

How to Treat a Concussion

Treating a concussion in children is pretty much the same as treating one in an adult. Once the doctor has determined that your child does in fact have a concussion, he will make recommendations as to which concussion treatment will work best. Often, the doctor will request that your child stay in the hospital to be watched. This is usually if the

concussion is moderate to severe and there is a fear of more damage being done to the brain.

If your doctor believes that the concussion is mild, he will recommend that your child go home with you and rest. Your job will be to monitor the behavior and mood of your child to ensure that he is not acting out in any off ways. You will need to watch for any of the following off behaviors and then immediately call your doctor or visit the emergency room. These “cause for alarm” behaviors include:

- Decrease in coordination
- A weak or numb feeling
- Vomiting and nausea that continues for quite some time
- A severe headache that continues to get worse
- Loss of consciousness
- Slurring of the speech
- Inability to wake them or excessive drowsiness
- Seizures or other convulsions
- A pupil that is dilated more than another
- Confusion or agitation

Younger children may exhibit other signs such as excessive crying or lack of appetite.

Your job is to be very vigilant about watching your child within the first 24-48 hours of returning home from the hospital. This is a critical time during concussion treatment, as the above behaviors can mean that your child is in serious need of more advanced medical attention.

Rest is Vital

When it comes to concussion in children, the most important treatment method that will get the most results is rest. Your child has just suffered from an accident that is hard on their body and they need to recuperate. When your child is resting, his brain will begin to repair itself, but this will take quite a lot of energy. You may find that your child wants to rest for quite some time and this is completely normal. Allow your child to stay off his or her feet for a couple of days to a week and it is wise that they do not return to school too soon either.

Ignoring your symptoms and trying to “tough it out” often makes symptoms worse. Be patient because healing takes time. Only when your symptoms have reduced significantly, in consultation with your health care professional, should you slowly and gradually return to your daily activities, such as school. If your symptoms come back or you get new symptoms as you become more active, this is a sign that you are pushing yourself too hard.

Other ways to treat a concussion, in addition to large amounts of rest, include:

- Not giving your child any extra medications besides those prescribed by your child’s doctor.
- Avoiding mentally or physically demanding or challenging activities. This means you will need to keep your child away from video games, schoolwork, computer games and all sports for a number of days post concussion.
- Ice or cold packs. Place an ice or cold pack on any swelling of your child’s head for 15 to 20 minutes at a time. Place a washcloth or other thin piece of fabric between the ice and your child’s skin.
- Give your child the pain medication that has been prescribed by the doctor in the correct dose at the right time. Your child may ask for more or not want to take the medication, but he needs to follow the doctor’s orders.

You will want to ensure that your child is not attempting to be too physically active when they are still recovering from the concussion and during the post concussion phase. Being too physically active, such as resuming soccer the very next day, can wipe out any progress that your child has made and lead to an increase in risk for a more serious head injury. It is wise to have a doctor look at your child before you allow him or her to return to playing soccer and participating in other physical activities.

Give it a Rest, Will You Please?

A June 2012 study from the Concussion Center of New Jersey (and published in the *Journal of Pediatrics*) found that among people who have suffered a concussion, taking a week off from nearly all mental and physical activity -- including television, talking on the phone and visiting with friends -- resulted in improved mental performance and fewer symptoms.

A week of total rest, even months after the injury occurred, still had benefits, according to the report.

On a test of visual memory, people who started the rest within a week of the concussion or more than a month after the concussion had 10-percent better scores after their rest period, compared to before.

Recovery from a Soccer Concussion

Recovery times can vary considerably from child to child, depending on the severity of their concussion. Some children may bounce back within a few hours and start to feel much better. Others may have head injury symptoms for much longer periods of time, anywhere from a few days to a few months. Your child may try to act as if he is feeling better when he really is not, simply because he wants to get back to his regular routine. It is important to pay attention to how your child is behaving during the post concussion phase, as his actions may speak louder than his words. It is absolutely imperative that

your child spend an adequate amount of time recovering from their soccer concussion before you allow him to get back to his favorite activities. You may feel as if you want to give in, but you have to make sure that your child is nearly recovered before allowing him to ease back into his usual life.

If your child does resume playing soccer and going to school and starts to exhibit symptoms again, this is a sign that he needs to back off and get some more rest. He has pushed himself too hard and may send himself right back to the danger zone if he is not careful.

Recovery Times

It takes much longer for a child to recover from a concussion if they experience another one within a year – very important. What this means is that if they have another concussion within a year of their first one it will take them much longer to recovery from the second one than the first and the recovery just gets longer for each one.

Researchers always knew or at least suspected that the recovery time were longer but a new study by Boston Children's Hospital in June 2013 confirmed their suspicions and put actual time frames on recovery periods.

The study found that kids who had a repeat concussion — either within a year, or multiple times over a lifetime — took longer to recover than those with a first concussion. A single previous concussion more than a year earlier did not increase the risk for a longer recovery.

Most soccer players bounce back from concussions within a few weeks, but some may take months. This new study suggests that the effects may last longer than previously thought – something coaches and parents should consider in deciding when kids should return to the soccer field.

Patients without a prior concussion took about 12 days; those with several previous concussions took 28 days; and recovery from a second concussion within a year took 35 days.

While it's pretty much known that among professional athletes such as football players and boxers that the repeated blows can cause permanent damage, researchers still don't know if there's any added risk for the typical amateur athlete.

A concussion is generally defined as any hit to the head that causes a change of consciousness or leaves the person feeling dazed, confused, forgetful or with a headache, nausea, dizziness or balance problems.

Another study found that concussions are more likely to happen during games than practice sessions. It's not clear whether that's because of the added pressure of playing competitively, or because parents and coaches are more likely to notice an injury during a game.

Improvement

It is important to note whether or not your child's symptoms are improving. If you notice that your child seems to be staying the same as far as recovery goes, or he is actually getting worse, then you need to seek medical treatment immediately. This is a sign that he needs further or more advanced concussion treatment. Your child may also have a more serious head injury and while you have using methods to treat a concussion, he needs much more in-depth treatments. These can include surgery or additional medications and should be caught as early on as possible.

Do not expect that your child will simply wake up the day after his soccer concussion and be back to his old self. This is a common misconception among many parents.

They think that all their child needs to get better from a concussion is sleep. As explained above, rest and sleep are the most valuable treatments for a concussion in children, but this does not mean that one night of sleep will erase all of the damage.

Take it easy on your child and remember that he has suffered from a very serious and physically taxing injury.

Post concussion, your biggest job as the parent of a child who has suffered from such an injury while playing soccer is to watch your child. You will want to observe how he is doing and whether or not he seems overly tired or physically taxed.

Some parents have found that keeping a concussion log is the best way to track their child's recovery and improvement. Write down how your child is acting and how he says he is feeling every single day and compare notes. You may find that even though he seems still fairly worn out on day 5 post concussion, he is still doing far better than on day 1.

Always monitor your child and ensure that you help him to ease slowly back into his regular routine. This is a key for lasting recovery and extensive improvement and can help to prevent any relapses.

Chapter 4

Long Term Effects of Soccer Concussions



You might think that once your child seems to be recovered from their concussion, that they are completely cured. Unfortunately, brain injuries can be very tricky. You think that your child is completely healed and then they start to display symptoms of trauma once again. There are actually a number of lingering problems that can occur after a head injury in children. These can happen months and even years down the road and should be watched out for closely.

These post concussion issues can be scary for a parent, and you should make sure to take your child to see the doctor if any of these come up.

Post Concussion Syndrome

Post concussion syndrome is one of the most common after-effects of a concussion, especially in children. This is a very complex disorder in which various combinations of concussion symptoms, such as extreme dizziness or headaches, will occur and last for months after the soccer injury that brought on the head injury.

Most people of all ages will deal with some level of post concussion syndrome, but this is usually within the first week or so after the soccer injury and will go away within a few

months. For some people, however, the concussion symptoms are just as strong as they were right after the injury and will last for far more than just a few months.

Sometimes, children and adults can deal with post concussion syndrome symptoms for years after the original trauma. This is why doctors have developed treatments that are effective at dealing with post concussion issues that last for far too long.

You'll want to closely observe your child for months after their soccer injury has occurred and ask them about any symptoms that they may be experiencing. If you keep a concussion journal, as described in Chapter 3, you will be able to consult this to note your child's progress. If your child has any of the following symptoms at the same level of severity two months or more after the injury, post concussion treatment may be needed. These symptoms include:

- Dizziness
- Mild to severe headaches
- Extreme fatigue that does not go away after a few nights of quality sleep
- Excessive irritability
- Inability to sleep (insomnia)
- Anxiety
- Inability to concentrate or to remember things
- Sensitivity to noise and light

It is not uncommon for someone who has suffered from a concussion to have headaches for months after their injury, but more serious headaches that are similar to migraines can be a clear sign that your child has post concussion syndrome.

Another sign that your child needs medical treatment months after the initial concussion injury is that their behavior has begun to change. They may exhibit emotional problems that they did not have before, such as lashing out at their family members or exhibiting

depression or anxiety. You may also notice that your child has become much more stubborn or argumentative and this is a clear sign that he is still dealing with the after effects of the concussion.

Overall, the post concussion syndrome symptoms that your child may experience can fit into these three main categories:

- **Cognitive Problems**

According to recent research, many children may have serious post concussion syndrome symptoms that affect their memory, their ability to pay attention and make it very difficult for them to think and concentrate in school. They may also have problems coping with school because of the concussion. A large percentage of head injuries in children affect the frontal cortex, which is important for long-term memory and judgment.

- **Behavioral Problems**

The frontal cortex also controls the child's ability to control their own emotions and their ability to act appropriately in certain settings. This is why many children and young adults with post concussion syndrome will lash out and act far differently than they ever did before.

- **Coping Problems**

Many children have a hard time coping with the long-term effects of their concussion and may find it frustrating. This is why anxiety and depression often occur. Also, a large number of families do not understand what the child is experiencing and do not even believe in post concussion syndrome. This can be even more difficult for your child. You must always be understanding and do your best to help your child through the recovery process.

Why Do Some Children Get Post Concussion Syndrome?

Many parents wonder why their child has post concussion syndrome, while other kids bounce right back to normal within a short amount of time. This can be explained by the level of severity of the head injury in some children. Some experts believe that when the concussion occurs in certain individuals, there is structural damage to the brain. They also think that sometimes neurotransmitter systems are disrupted when the child injures their head while playing soccer.

Other experts believe that some children and adults experience post concussion syndrome because of psychological factors. They believe that many times the symptoms that are experienced, such as dizziness and headaches, are the same as those who have such psychological issues as anxiety, depression or post-traumatic stress disorder. Sometimes the emotional reactions to the psychological effects of a concussion in children can lead to the development of more concussion symptoms long after the injury occurred.

A large amount of research has been conducted in order to determine why some children and adults experience post concussion syndrome and why others do not. They have not been able to make any conclusive findings.

Risk Factors for Post Concussion Syndrome in Children

There are certain risk factors for experienced post concussion symptoms. These include:

- **Age factors** – Young adults and teenagers are more likely to deal with concussion symptoms long after the soccer injury than younger children are.
- **Gender** – Young women and girls are more likely to deal with long-term concussion symptoms.
 - Girls differ from boys in their responsiveness to concussions, but researchers don't have all the answers to this and have reached no concrete conclusions. Many agree that girls may be predisposed from the get-go as their neck muscles are generally weaker and

they tend to rotate their heads faster than boys. There's some indication that girls may take longer to recover from concussions than boys.

- **Trauma** – Concussions from soccer and other sports generally lead to more traumatic injuries than other types, which can lead to post concussion syndrome.

Treatments for Post Concussion Syndrome

If your child is dealing with post concussion syndrome, medical attention needs to be sought. Your doctor will be able to diagnose whether your child has post concussion syndrome and then can offer a number of different treatments to help your child to enjoy a well-adjusted and happy life without constant concussion symptoms.

There is not a specific concussion test for post concussion syndrome, but your doctor can order a CT image to look at your child's brain. He will then be able to see if your child has some lingering damage that needs to be addressed with surgery or other more aggressive treatments.

There is not one type of specific treatment for post concussion syndrome. Instead, your doctor will prescribe various methods for treating your child's individual symptoms.

These include:

- **Headaches**

Various prescription medications are available for your child's severe headaches because of the lingering effects of their soccer injury. These medications will help to lessen the severity of the headaches and will help your child to resume activities that the headaches were interfering with. Some of the most common prescriptions for headaches include Amitriptyline or Reglan (this must be given intravenously at the hospital). Amitriptyline can also help with your child's dizziness and irritability.

- **Cognitive issues**

Various cognitive therapies can help to restore memory after a head injury in children that has resulted in post concussion syndrome. Memory games and other learning activities with a trained psychologist can help your child or young adult to regain some or all of their cognitive abilities in the months and years after their soccer accident that caused the concussion.

- **Behavioral treatments**

Many children and young adults that have suffered from concussions and are continuing to deal with the effects for many years will benefit greatly from medications that treat anxiety and depression. A trained psychiatrist will be able to prescribe medications that best address the emotional issues that your child is dealing with as a result of their concussion. Some children may also benefit from medications that are designed to treat hyperactivity or ADHD, as they may now be living with very similar conditions.

Children who have suffered from a concussion need to be treated with patience and kindness and any lingering affects should be addressed by a licensed physician in conjunction with a psychiatrist. Your child will need your love and affection after a concussion, especially if they are living with post-concussion syndrome. With the right treatments and care, your child can continue on as a well adjusted, healthy and happy kid. If your child tells you that he is having any of the post concussion symptoms described above, take him seriously and seek medical attention. The sooner the concussion symptoms are addressed, the sooner your child can get back to feeling like himself.

Help Prevent Long-Term Problems

If you already had a medical condition at the time of your concussion (such as chronic headaches), it may take longer for you to recover from the concussion. Anxiety and depression may also make it harder to adjust to the symptoms of a concussion. While

you are healing, you should be very careful to avoid doing anything that could cause a bump, blow, or jolt to the head or body. On rare occasions, receiving another concussion before the brain has healed can result in brain swelling, permanent brain damage, and even death, particularly among children and teens.

After you have recovered from your concussion, you should protect yourself from having another one. People who have had repeated concussions may have serious long-term problems, including chronic difficulty with concentration, memory, headache, and occasionally, physical skills, such as keeping one's balance.

Chapter 5

Heading The Soccer Ball



Soccer has become a focal point for questions about repetitive head trauma. It is suggested that the deliberate use of the head to direct the soccer ball (heading) may be analogous to the repetitive blows to the head in boxing, which can give rise to syndromes involving pyramidal, extrapyramidal, and cerebellar signs, and sometimes cognitive impairment and personality change.

If heading the ball can cause such syndromes, the implications would be

serious, considering the estimated 16 million active soccer players in the United States and perhaps 40 million to 120 million worldwide.

The possible danger of brain injury from heading has led to investigations into the nature, mechanics, and possible long-term effects of the practice. Following is a review on the chronic, cumulative effects of heading, along with recommendations regarding protective measures.

Head Injuries in Soccer

Soccer is a relatively safe activity with an injury rate one-fifth to one-half of that in football, but head injuries do occur. In Europe, head injuries account for between 1% and 20% of all soccer injuries.

Head trauma in soccer can occur in several ways, including a single hard blow from the ball (either accidental or from heading), contact with another player, striking the ground, collision with goalposts, and repeated heading.

In a study of elite soccer players at the 1993 Olympic Festival, 89% of the men were found to have some history of head injury, and 54% had had concussions. The study authors estimated that in a 10-year period, the likelihood of sustaining a concussion in soccer is 50% for men and 22% for women. While properly executed heading was not found to result in any concussive episodes, 18% of the concussions were a result of heading.

National Collegiate Athletic Association (NCAA) soccer statistics indicate a concussion rate of 0.14 per 1,000 athletic exposures for men and 0.15 for women.

The Concern

Two factors that have generated concern about heading are:

- 1.) the reports of heading-related symptoms, some of which suggest the possibility of mild concussion, and
- 2.) the risks of successive minor concussions.

A significant number of symptoms were reported in a survey by Tysvaer and Storli of 128 active Norwegian soccer players. The athletes, who had played an average of 100 games each, reported both "protracted" and permanent symptoms, including headache, neck pain, and dizziness. In addition, there were migraine headaches associated with heading.

Protracted and Permanent Symptoms Reported by 128
Norwegian Soccer Players After Soccer Ball Heading

Symptom	Protracted (no.)	Permanent (no.)
Headache	12	2
Neck pain	6	0
Dizziness	5	1
Irritability	1	1
Insomnia	1	1
Hearing disturbance	1	0
Weakened memory	0	2
Abnormal alcohol reaction	0	1

The concern about heading has been heightened by findings regarding the effects of multiple concussions. Although most minor head trauma symptoms may resolve in minutes, hours, or days, apparent recovery does not ensure that neurons have not been damaged or that an initially negligible condition will not be exacerbated by further damage. Each event may reduce the "neuron reserve," creating a deficiency that may become evident with future injury.

In animal research, moderate repetitive blows at brief intervals have been shown to cause more severe brain damage than intense blows at intervals of days to weeks. In addition, Gronwall and Wrightson showed in 20 adults aged 16 to 26 that information processing was reduced to a significantly greater extent after a second concussion than after the first, and that the effects lasted longer.

Please see page "Most Current Heading Findings" on page 33 for more information.

The neurologic and cognitive effects of repeated minor head injuries may be dose-related and cumulative when the injuries occur over extended periods. But repeated head injuries occurring over an interval of hours or days can be fatal, as in the second-impact syndrome.

Physics of Heading

Factors described as possible influences in injury from heading include:

1. characteristics of the ball
2. frequency of impact
3. physics of ball contact
4. technique of heading

A soccer ball weighs 14 to 16 oz and has an inflated pressure of 14.7-lb/sq in. It can travel at speeds of 37 to 74 mph or more. A ball kicked from 11 yd at half power travels at 52 mph and strikes with an impact of 116 kiloponds¹(kp). At full power, impact is estimated at 200 kp, and contact with the ball lasts from 1/128 to 1/63 second. Leather soccer balls can increase in weight up to 20% when wet, though this is not an issue with modern synthetic balls. A soccer ball striking the head has less impact than a typical boxing punch, producing a head acceleration of 20g vs. 100g for a punch.

Estimates of the number of times a soccer player heads a ball vary from an average of 5 – 7 times per game.

The risk and severity of heading injuries are related to the impact force of the ball and consequent acceleration of the player's head. Studies conducted on animals have shown that concussion is induced with difficulty when the head is held in a fixed position but more easily when the head is allowed to move freely.

Correct heading involves use of the frontal bone to contact the ball, the neck muscles to restrict head motion, and the muscles of the lower body to position the torso in line with the head and neck to increase the resistant mass and decrease acceleration of the head.

For technically correct heading, therefore, correct positioning and conditioning of the entire body, including muscles used in jumping, are recommended.

¹ Kilopond (kp, from Latin pondus meaning *weight*), is a gravitational metric unit of force.

Despite the protection offered by correct technique and adequate conditioning, a study of four elite players using correct heading technique resulted in reporting of headaches by all four after 10 minutes of heading. In addition, half of the Olympic soccer players studied had at least one headache after heading; they also reported worsening of headaches with exertion, throbbing headaches, and bilateral symptoms. The players typically ascribed symptoms to poor heading technique.

The use of helmets in soccer has been suggested, but it has been recognized that this approach is unlikely to be adopted. In addition, helmet use may not effectively diminish acceleration-type injuries.

Most Current Heading Findings

A number of attempts have been made to research the question of potential consequences of heading, with active and retired soccer players serving as both the focus of study and as controls for researching similar issues in other athlete populations. Methods used have been self-reporting, neuroradiologic studies, and neurologic and neuropsychological evaluation. The results of these studies have been mixed.

You learned the correct way to head a soccer ball and do it sparingly and only when necessary during games. So, you would think that you're safe from concussions and there is no danger. After all, you feel fine and are experiencing no signs of a concussion.

New research says you may be very wrong in assuming so.

Those frequent and seemingly mild hits to a soccer player's head may damage the brain at a deep, molecular level, according to a new study conducted by Michael Lipton, associate director of the Gruss Magnetic Resonance Research Center at the Albert Einstein College of Medicine in New York.

The theory, supported by such research, is that these types of blows to the head (called 'subconcussive' hits) while they don't necessarily result in a concussion, may prove to be even more damaging to the brain than a concussion. For years experts thought these small hits, when compared to more violent hits to the head, were harmless. But even these subtle hits, when they happen over and over again, could be just as bad as a more jarring hit.

Lipton and his colleagues examined 37 amateur players, all adults, who had played soccer for an average of 22 years each and had played regularly over the previous year. They filled out questionnaires about their playing style and how frequently they headed the ball on the field and in training drills. Then they were given memory tests and highly sophisticated brain scans, using a type of MRI called diffusion-tensor imaging that looks at microscopic changes in the white matter in the brain. White matter is the tissue that conveys messages from one region of the brain to another.

The researchers found that players had to head the ball a certain number of times in a season before white matter abnormalities started to appear on imaging. The threshold varied from player to player but was generally in the range of 900 to 1,500 headers in a season. Beyond this threshold, the brain abnormalities quickly became more apparent. Those who headed the ball more than 1,800 times in a season scored measurably worse on memory tests than those who had headed the ball less frequently. The difference in scores was in the range of 10 to 20 percent.

The study made it clear that all of the players' functions were still within norms and all basically functional young professionals and students.

So, should you have your kid stop heading? How worried should you be?

The results clearly show some evidence of an association between heading and what looks like brain injury. What they don't know is what this means for the much less frequent heading and at what point players should stop heading before there is significant brain injury.

Soccer is a sport with many benefits and there are risks as well – soccer should continue to be played and keep going with full gusto. The study's message is to understand the role of heading in the game and look at how you can enhance the safety of soccer play and facilitate its expansion.

Soccer Headgear

While evidence for the value of protective headgear has grown, there has not always support for the headgear; further the U.S. Soccer Federation allows protective headgear, but does not endorse it.

Soccer officials worry that endorsing headgear could hurt the future of the game: **it could scare parents away from signing their children up to play.**

The headgear was originally thought to be protection from injuries caused during intentional heading of the ball, which has proved to be the least common cause of soccer concussions.

Headgear has been proven to reduce the impact of heading a soccer ball and recently there has been more evidence that headgear reduces soccer concussions as a whole.

In a study of soccer players aged 12-17, ~53% percent of athletes who did not wear headgear suffered concussions, while the rate dropped to ~27% percent for those athletes that did wear the headgear.

There is now also evidence that shows that while intentionally heading of a soccer ball may not cause a concussion, the repetition of heading a ball may lead to concussion-like damage of brain cells. Researchers believe that the threshold for having evidence of brain damage appears to be between 1,000 and 1,500 headers per year—only a few headers per day.

[For more information please see page 33.]

That study would make it appear that many competitive soccer players would be at risk for concussion-like brain damage. A reduction in the severity of the blows from headers by headgear could, in theory, change the threshold for number of headers that translates to brain damage. However, there has been no such research done.

Research Needed

Can protective headgear prevent head injuries in soccer players?

An innovative Canadian study examined the issue with 268 adolescents playing club soccer and generated the first results from the field instead of the lab. Just after the soccer season, the 12- to 17-year-old participants from a premier club were studied.

Although only 52 of them had worn headgear during the season, the study showed a significant decrease in risk of concussion for those players. The unprotected majority of the players in the study was 2.65 times more likely to have been injured:

- 52.8% of participants who did not use headgear reported being injured, compared to 26.9% of participants who did

This study may help convince parents and players that soft protective soccer headgear can be an effective part of a comprehensive plan to reduce the number of head injuries and concussions in soccer.

Manufacturers of soccer headgear have designed their gear to decrease the forces associated with heading and assume that doing so reduces the risk of head trauma. To date, however, only one study has been conducted to evaluate the gear's efficacy.

The most substantial finding of that study was that application of the headgear was linked to a decrease in the peak force of impact from a soccer ball traveling at 35 mph. This force was approximately 112.5% lower, as compared to the unprotected force platform. No differences were seen among the different brands of headgear; **the decrease measured in the peak force suggests that a soccer player using any of the tested brands of headgear would be subjected to lower forces.**

While there is “no evidence” headgear helps, there are theoretical grounds for questioning whether headgear use might actually hurt some players. For example, the headgear could produce a false sense of security in players, leading them to rely on a device instead of proper medical evaluation after suffering a possible concussion.

Or headgear use could contribute to feelings of being invincible that promote recklessly aggressive play.

There is much to learn about headgear. A recent study sponsored by FIFA’s sports medicine committee concluded that headgear has a negligible effect in head-to-ball impacts but does provide “measurable benefit” in subconcussive head-to-head impacts.

One still-unanswered question—and the most important—is the extent to which soccer protective headgear diminishes risk of concussion, if indeed it does. The U.S. Soccer Federation’s own sports medicine committee continues to monitor the available literature and encourage further research into, for example, whether decreasing impact force translates into decreasing concussions or whether using headgear gives players a false sense of security or causes them to play unusually aggressively.

In the meantime, for those who do use protective headgear, it is important to remind players, coaches, and parents that headgear is not a substitute for proper medical evaluation and treatment of possible concussions. Consultation with a doctor is always the best first step when any sort of head injury occurs.

In Summary

Available data on the efficacy of soccer protective headgear may suggest, in light of the relatively ordinary ball speed employed in the research, that use of headgear decreases the force of an impacting soccer ball and thus offers typical players protection. But before any recommendation or mandate is issued for all players to use soccer protective headgear on the field, further investigation of these products should directly address their clinical utility.

More soccer players are wearing protective headgear, on average three or more high school players per team wearing variations of the headgear.

[The use of protective headgear has grown most significantly among youth players (age 12 and younger), even though players at this level are least likely to engage in play that would lead to concussions. The U.S. Soccer Federation has said marketing of protective headgear is primarily to children, even though the incidence of concussion in players under 12 is low.]

The use of headgear in soccer may not be fully endorsed by organizations such as the U.S. Soccer Federation or compulsory to wear like shin guards, but soccer—especially youth soccer—may be headed that way.

How To Properly Head the Ball

In order to reduce this risk, the following techniques should be applied in teaching the proper heading technique:

Keep Eye on the Ball While in Flight

It is the mistake of many young athletes to take their eye off the ball as it travels through in the air. As is the case with catching a fly ball in baseball, the same type of technique applies with winning a header. In many cases, players will misjudge the flight of the ball due to taking their eyes off it as it travels. By keeping an eye continuously on the ball as it travels players will increase their chance of positioning themselves in the proper location to make an advancing play off their head.

Talk to Teammates While Ball is In Air

We have all seen a situation where two teammates attempt to win the same ball out of the air with a header. Many times, a collision occurs due to the teammate's failure to communicate whose ball it is prior to it being played. This is not only detrimental to advancing the ball but can also exposure athletes to a significant risk of injury. It is

important for athletes to call out “mine!” or some other phrase that will emphasize to other teammates to stay clear.

The Forehead is the Sweet Spot

The forehead, which is the thickest part of the skull, is the sweet spot when it comes to playing head balls out of the air. Not only is the risk of a concussion significantly diminished due to the added protection, but the forehead also allows players to generate a maximum level of power and control.

Keep Your Eyes Open Until Contact is Made

Young athletes will have the courage to step under a ball to play it with their head, but despite their best intentions, close their eyes before initiating contact. By taking their eye off the ball prior to contact, athletes are exposing themselves to striking the ball with the wrong part of the head, not only increasing the risk of a concussion but also diminishing the accuracy and power of the header.

Push Through the Ball at Contact

Making contact with the ball with the forehead is not the only characteristic of playing a good header. Headers are played to either advance the ball into an attacking position or to put a shot on goal. In order for players to make the most out of the header they must position themselves to push their head through the ball when contact is made.

Warning Warning

Therefore, while heading a soccer ball has not been proved hazardous, caution is warranted until more definitive evidence becomes available. Given the present knowledge, four steps seem appropriate.

First, education should be enhanced to increase awareness of the potential for injury from heading a soccer ball. This information needs to be imparted to coaches, parents, and referees, as well as healthcare professionals.

Second, correct heading technique must be emphasized and promoted. While some accidental injuries, such as those from goalpost collisions, may be unavoidable, proper techniques for preventing injury can be used consistently.

Third, rules that protect players should be enforced by referees and supported by coaches, parents, and fans. For example, referees should ensure that defenders maintain the full-required distance from the ball on restarts and should not allow encroachment, which decreases defenders' distance from the ball and increases impact.

Fourth, physicians should continue to appreciate the potential for brain injury from heading. Appropriate sideline evaluation of athletes for concussion should be part of care. Additionally, calls from parents or players about symptoms after a game or injury should be addressed and evaluated, and, when appropriate, concussion should be part of the differential diagnosis.

Finally, still needed are controlled prospective studies with an emphasis on the clinical significance of any positive findings.

Chapter 6

Soccer Concussions in Girls

In 2007, the highest year during the past decade for reported concussions to the Centers for Disease Control, girls' soccer players reported 29,167 concussions, **second only to football players**.

In the past decade, girls' soccer has become a mainstay in high school and college athletic departments with just about every high school and college having some soccer teams. With the soccer's increasing popularity, **high school players who show promise can be pushed harder by coaches** and parents to perform on and off the field.

How does this increased demand for top-level performance affect a female player once she suffers a concussion?

A study published in the Jan. 2011 edition of the Journal of Athletic Training said female athletes experience more physical long-term symptoms than male athletes. Data collected from 100 high schools found that two years after a reported concussion, female athletes reported more drowsiness and sensitivity to noise than male athletes.

Males reported more cognitive symptoms, whereas females reported more neurobehavioral and somatic symptoms, according to the study.

Symptoms can include headaches, dizziness, photosensitivity and insomnia or fatigue, according to the Beth Israel Deaconess Medical Center's article on Post Concussive Syndrome.

The constant discussion about how to diagnose, treat and prevent these injuries has been spurred on by mounting concerns for long-term brain health in the years long after

the actual concussion. Problems occur, according to the research, most commonly among athletes who fail to realize or report that they've suffered a concussion.

"The term 'mild' is meant in relation to more severe brain injuries," said Dr. Gerard Gioia, the division chief of neuropsychology at the Children's National Medical Center in Washington, D.C. "It is not meant to reduce the impact or the importance of the injury. If you take a blow to the head, or even the body, any sign or symptom could be a concussion."

According to Dr. Robert Stern, the co-director of the Center for the Study of Traumatic Encephalopathy, approximately 85 percent of concussions require three weeks of recovery time.

Stern, who is also a professor of neurology and neurosurgery at Boston University, said age is a factor in concussion recovery.

"A male high school football player can recover faster than a college football player, who can recover faster than a professional football player," Stern said.

While the severity and recovery times for concussion sufferers can vary, are the long-term effects of one concussion enough to cause permanent damage?

Yes, said Stern and nine other doctors in a 2010 study of chronic traumatic encephalopathy (CTE) and repetitive head injury. The symptoms of CTE can include disorientation, overt dementia and, in severe cases, erratic behavior and gait abnormalities, the study said.

"The severity of the disorder appears to correlate with the length of time engaged in the sports and the number of traumatic injuries, although whether a single traumatic brain injury can trigger the onset of CTE remains a matter of speculation," the researchers said in the study published in the Journal of Neuropathology and Experimental Neurology.

According to the Center for the Study of Traumatic Encephalopathy website, “this trauma triggers progressive degeneration of the brain tissue, including a build-up of the abnormal protein called tau.”

Gioia said it is very important to pay attention to the symptoms presented. In the SCORE program, Gioia employs baseline tests to try and map any damage done to the brain after a concussion.

He said baseline tests can help doctors map how brain function may change after a collision or fall if the tests are performed before and after the injuring event.

According to Gioia, however, baseline tests aren’t always administered as soon as possible after an event like a collision.

Chapter 7

Preventing Concussions while Playing Soccer



Children are prone to injuries in general, because they often lack awareness as to how dangerous some of their actions can be. Whether they are playing inside in their room or participating in a fast-paced sport, the likelihood that your child will suffer from some injury on any given day is high. When your child is playing

sports, they are even more likely to suffer from a mild to severe injury. Suffering from a concussion in sport is common, as well as other injuries. Understanding how injuries occur in sports can help us to teach our children to avoid a certain behavior and lessen the risk of such an accident occurring.

Age Not a Concussion Risk Factor

A recent scientific study dispels the theory that younger athletes may fare worse after sustaining a sports-related concussion than older athletes.

Researchers in the Vanderbilt Sports Concussion Center compared symptoms associated with concussion in middle- and high-school aged athletes with those in college-age athletes and found no significant differences between the two age groups.

Researchers reviewed a database on pre-concussion and post-concussion symptoms in two different age groups: younger (13-16 years old) and older (18-22 years old).

Athletes (~100 in each group) were evenly matched with respect to gender, number of previous concussions, and time to the first post-concussion test.

Each athlete completed individual pre- and post-concussion questionnaires that covered a variety of symptoms associated with concussion, some of which were headache, nausea, dizziness, fatigue, sleep problems, irritability (Does age affect symptom recovery after sports-related concussion? A study of high school and college athletes., 2013) and difficulties with concentration or memory.

The number or severity of symptoms cited at baseline and post-concussion **showed no significant difference between the two age groups**. Symptoms returned to baseline levels within 30 days after concussion in 95.7 percent of the younger athletes and in 96.7 percent of the older athletes.

Why Children Get Concussions While Playing Soccer

As with any sport, soccer is a sport that can lead to a number of injuries in children and young adults. The likelihood for head injuries, especially concussions, in kids is high when they are playing soccer for a number of reasons, including the following:

- **Fast Pace**

A concussion in soccer is common because children are running around at a very fast pace. When kids are moving quickly and focused intently on the ball, they are less likely to notice their surroundings and may run into another player or trip over their feet. The fast-paced nature of soccer is one of the key reasons why it is a sport that can lead to a number of injuries.

- **Specific Motions**

Certain movements in soccer, such as when a player hits the ball with their head, lead to more head injuries. Of course, a concussion in any sport is common, but when you are specifically using your head to hit a ball, this leads to more occurrences of concussions in kids. Kids may often throw their entire body into the header motion, leading to an increase in the likelihood that they will end up

slamming their body into another player or falling hard on the ground, which can jostle the head and lead to head injuries.

Kicking is also a necessary part of playing soccer, as the most common way to move the ball down the field is by kicking. Unfortunately, this can mean that many players accidentally kick others. With children, they may kick wildly in the general direction of the ball and if another player is down, they can suffer from a concussion.

- **Abrupt Stops and Starts**

While not as common, abruptly starting or stopping in soccer can also be a cause of a head injury. A concussion in soccer can be caused by a child or young adult running very fast and then stopping all of the sudden. This can cause the brain to slam into the skull, leading to a mild to severe concussion in your child.

- **Getting Hit with the Ball**

A soccer ball flying at a child or young adult's head can be very dangerous and lead to a concussion. This is especially a problem with middle school age kids and teenagers, as they kick the ball much harder than younger kids. The faster the ball flies at the head or face of a youth, the more dangerous it can be.

There are also other isolated accidents that can occur while your child plays soccer that can lead to a concussion, but the above are the most common ways that a child can get a concussion while playing soccer. Knowing the signs of a concussion and the symptoms of a concussion can help you to determine if your child or teenager has suffered from a concussion while playing soccer.

Preventing Concussions

Now that you know how a concussion in soccer can occur, you need to help your child to play soccer safely in order to avoid such a head injury. There are a number of ways that kids and teens can ensure they are being as cautious as possible while playing soccer in order to avoid a concussion. Of course, accidents happen all the time and when kids are playing sports, they are going to suffer from injuries. However, here are some tactics your kids can use to prevent concussions from occurring as much as possible.

- **Stay Aware of Other Players On the Field**

Kids can prevent a lot of injuries and accidents on the soccer field in they make sure to stay as safe as possible. One of the leading causes of concussions from playing soccer is because kids slam into one another at a very fast pace. If your child makes sure to pay very close attention to where other children are on the field, he can avoid some of the many collisions that can occur. Encourage your kids to pay careful attention to other players and to look before they run.

- **Heading the Ball Correctly**

Kids and teens should try to make sure to use the proper form when heading a soccer ball. Using improper form can possibly lead to a concussion. When the child is heading the ball, they should get down underneath it and use the top of their head to propel the ball away from them. Getting too far underneath the ball can result in your child smashing his face or forehead too hard. Make sure to have kids practice the proper technique with a much softer beach ball so that they can learn the right way to head the ball.

- **Make Sure Kids and Teens Get Plenty of Rest and Stay Hydrated**

You might be wondering how this advice is relevant to whether or not a child gets a concussion from playing soccer. If kids or teens are playing soccer all the time and are not getting the proper amount of rest, they could start to play sloppily.

They may slip and fall because they are so tired that they are in a daze. They

might also run into other players because they are exhausted and lack the ability to keep up. This can especially be a problem in teenagers, as they are often playing multiple fast-paced games within a single week, as well as practicing quite a lot and trying to do their schoolwork. Encourage your kids to get plenty of rest and to stay hydrated as well. Dehydration can also lead to dizziness and poor coordination, resulting in more injuries on the field.

- **Teach Younger Kids the Correct Way to Play**

Younger kids have a tendency to flail about when playing soccer, resulting in some serious injuries to themselves and to other players on the field. If kids are taught the correct way to play, they are less likely to make inappropriate or dangerous movements when on the field. Ensure that all young kids are being taught the proper way to kick a soccer ball, block a goal and perform other essential movements in order to keep them as safe as possible.

- **Teach Kids to Slow Down Before they Stop Running**

In order to prevent a concussion that occurs because a kid stops running suddenly, teach them to slow down first and then stop. Slowing down this motion can help them to avoid a very painful head injury and this is also better on their joints and muscles. Sudden stops and turn should be discouraged during practice and many running drills can help to train kids to slow down their run before they stop.

- **Teach Kids About Concussions**

Give kids an understanding of what concussions are, how they occur, the signs of a concussion and the symptoms of a concussion. This way, they know what to look out for in themselves and their friends. Simply knowing what causes a concussion and how dangerous they are can help kids to change their movements when playing soccer to avoid a concussion. Knowing the signs and symptoms of a concussion will also enable them to seek help if they notice that they are (Sweeney, 2013)experiencing these indications of a concussion.



Soccer is Safe!

With all that has been explained about the prevalence of concussions in children who play soccer, as well as the dangers, you may be wary of allowing your children to play. While concussions can occur in soccer, the overall prevalence of concussions in any sport is not the high compared with more mild injuries. Kids get so many benefits from playing soccer and other sports that they should not avoid them simply because you are afraid that they will suffer from a concussion. As long as the prevention methods are followed, your children of all ages should be allowed to enjoy soccer if it is a sport that they are

interested in. All you can do is know the signs to look out for, encourage your children to play smart and seek medical treatment immediately if you suspect your child has a concussion from playing soccer.

Just about all the researchers agree that the benefits of physical activity and teamwork vastly outweigh the risks of concussion; virtually all kids get better from concussions.

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