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 recharge.health

Near Infrared Light Therapy: The Long-Awaited Recovery Method for Football Injuries

Access FlexBeam's top protocols for
managing football related injuries
and pain, in this in-depth guide book

WRITTEN BY RECHARGE.HEALTH

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Football: The Most Played Sport in the World

The Federation Internationale de Football Association (FIFA) acts as the global governing authority of football. This organization brings together an extensive network of men's and women's clubs worldwide and presently includes 205 member associations, with more than 300,000 clubs and over 240 million players.

However, there is much more to soccer than just players. This gargantuan number of athletes require attention of coaches, referees, physios, and other professionals that allow the players to keep playing and improve the level of the game.

According to the Union of European Football Associations (UEFA), there were over 35,000 coaches with a UEFA A licence in Europe alone!¹ The number of physiotherapists that are involved in the training process of football players around the world is constantly growing, as well.

These numbers show that football is not only the most played sport in the world, but that there is an increasing focus on the wellbeing and general readiness of the players for the challenges of this demanding game.

One of the burning questions in this regard is - how to increase resilience, prevent injuries, and shorten the recovery period for football players?

To understand this more thoroughly, it's important to analyze the contributing factors for improved recovery, and how to boost them.



¹<https://www.statista.com/statistics/1006783/uefa-a-licence-coaches-europe-by-gender/>

Contributing Factors for Football Players' Recovery

The entire phenomenon of recovery needs to be observed from two perspectives. The first is defining recovery and determining the importance and role in the training process. The second is about exploring different efficient, systematic, and sustainable ways of improving the quality of recovery.

According to 'Evidence Based Recovery in Soccer – Low Effort Approaches for Practitioners' it is obvious that amateur and pro-football professionals use many ineffective, and even improperly timed, recovery methods out there.²

Studies have found that soccer players, regardless of their level, often use various recovery methods as part of their routine.

However, not all players have the opportunity to access expensive recovery strategies, leading to differences in how these techniques are used among different playing levels.³ Even in elite soccer clubs, logistical and resource constraints can influence the application of certain recovery strategies (Altarriba-Bartes et al., 2020).

It is only logical to seek out the methods that are accepted and adopted by professional players but also available to everyone.

Near-infrared and red light therapy in the form of a powerful, personal recovery device is the smartest choice. That sweet spot is embodied in FlexBeam: a revolutionary wearable red light therapy device used by stars such as Martin Ødegaard, but also loved by thousands of people around the globe.



²<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9465732/>

³<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5326499/>



“FlexBeam is for everyone - the players at the top and also the normal guy on the street.”

Martin Ødegaard
Captain of Arsenal F.C.

The New Approach to Recovery

But, how do you know that near-infrared therapy is the way to go?
By testing, evidence, and individual approach.


Again, based on the '**Evidence Based Recovery in Soccer – Low Effort Approaches for Practitioners**', it is clear that there is a range of recovery methods commonly used in soccer, such as:

- sleep
- hydration
- nutrition
- psychological recovery
- active recovery
- foam-rolling/massage
- stretching
- cold-water immersion
- compression garments

Evidence of the effectiveness for each of these methods range from weak, to very strong. However, the main conclusion from this study is that recovery methods should be tailored to each player's needs.

While it's essential to rely on the available evidence, practitioners should also consider their experience and the players' preferences when deciding about the chosen recovery methods.

Therefore, let's start with scientific evidence and thorough information so that football professionals can make their own educated decisions on whether this effective tool with no known side effects is a worthwhile recovery option.



The Significance of Red and Near-Infrared Therapy for Football Players

Red and near-infrared light therapy, often grouped under Photobiomodulation (PBM), has been gaining attention in the world of sports and training.

It harnesses the therapeutic potential of specific light wavelengths to enhance athletic performance and recovery. With over five decades of research and 100,000 studies backing its efficacy, PBM, particularly red light therapy, stands out as a safe and effective method to support the body's natural healing systems and keep them at optimal levels.

The Mechanisms of Red and Near-Infrared Therapy

The mechanism is fascinating: when cells absorb these light wavelengths, mitochondrial activity is boosted, leading to increased Adenosine Triphosphate (ATP) production, essential for cellular energy. Think of it as recharging your body's cellular batteries. Here are the key benefits of this therapy in relation to athletic performance and recovery:

Enhanced ATP Production:

Red and near-infrared light stimulates mitochondria in cells, boosting the production of Adenosine Triphosphate (ATP). This increased ATP production gives more energy to muscle, tendon, and bone cells, as well as every other cell that is involved in the athletic activities. Consequently, this enhances endurance, stamina, and general muscle function.

Muscle Recovery and Relaxation:

Improved mitochondrial function accelerates the recovery of muscle tissue post-exercise, reducing muscle fatigue and soreness. This means athletes can train harder and recover faster.

Increased Blood Flow:

Red and near-infrared light promotes the release of Nitric Oxide (NO). NO is a vasodilator, meaning it expands blood vessels. Increased blood flow facilitates quicker delivery of nutrients and oxygen to muscles and faster removal of waste products, both of which can enhance recovery.

Inflammation Reduction:

The red and near-infrared therapy can help reduce inflammation in muscle tissues, which is especially beneficial after intense workouts, aiding in faster recovery and reduced pain.

Enhanced Collagen Production:

Red light therapy increases collagen production, better collagen quality, and earlier scar remodeling. This can assist in the scar repair of muscle tissues, tendons, and ligaments, supporting overall joint and muscle health.

Melatonin Regulation:

Proper sleep is crucial for athletic recovery. Red and near-infrared light therapy can help regulate melatonin, the sleep hormone, ensuring better sleep quality and aiding recovery.

Injury Healing:

By enhancing circulation and cellular repair mechanisms, this therapy can accelerate the healing of sprains, strains, and minor injuries, getting athletes back to training quicker.

Oxidative Stress Reduction:

Oxidative stress can lead to cellular damage. Near-infrared light therapy can help mitigate oxidative stress by stimulating release sub-cellular Melatonin, promoting healthier cellular function and reducing the risk of injury.

Incorporating red and near-infrared light therapy into an athlete's recovery routine can significantly enhance both performance and recovery, making it a valuable tool in modern sports science.



The Must-Have Red Light Therapy Device: FlexBeam

FlexBeam is a targeted, portable, and ergonomic red and near-infrared therapy device that harnesses the power of light to boost the body's innate healing system. By replicating the beneficial effects of sunlight during dawn and dusk, it offers numerous health advantages, revitalizing the body and optimizing athletic prowess.

Utilizing Light Emitting Diodes (LED), FlexBeam emits red light that primarily targets the skin's surface, while its near-infrared light penetrates up to 10 cm deep.

FlexBeam is intended for:

- muscle relaxation
- spasm relief
- temporary relief of minor muscle and joint issues
- temporary relief of minor pain and stiffness from strains and sprains
- temporary increase in local blood circulation



With these features, FlexBeam is a great tool to prepare football players for strenuous physical activities, improve their game, and reduce recovery time afterward. It is also a great tool to support recovery from injuries.

FlexBeam specifics:

- FlexBeam uses red light in the range of 625~635 nm.
- near-infrared light it emits ranges from 810~830 nm.
- achieves energy density up to 60 J/cm².
- covers a total of 81 cm² of the skin surface with a power density between 50 mW/cm² to 100 mW/cm².
- operates in 10-minute cycles with three levels of penetration depth (Programs 1, 2, and 3).
- programs range from superficial illumination (Program 1) to 10 cm penetration depth (Program 3).

FlexBeam is portable, and it has a rechargeable battery. This makes it an essential piece of equipment that should always be in your football bag, together with your other essentials.

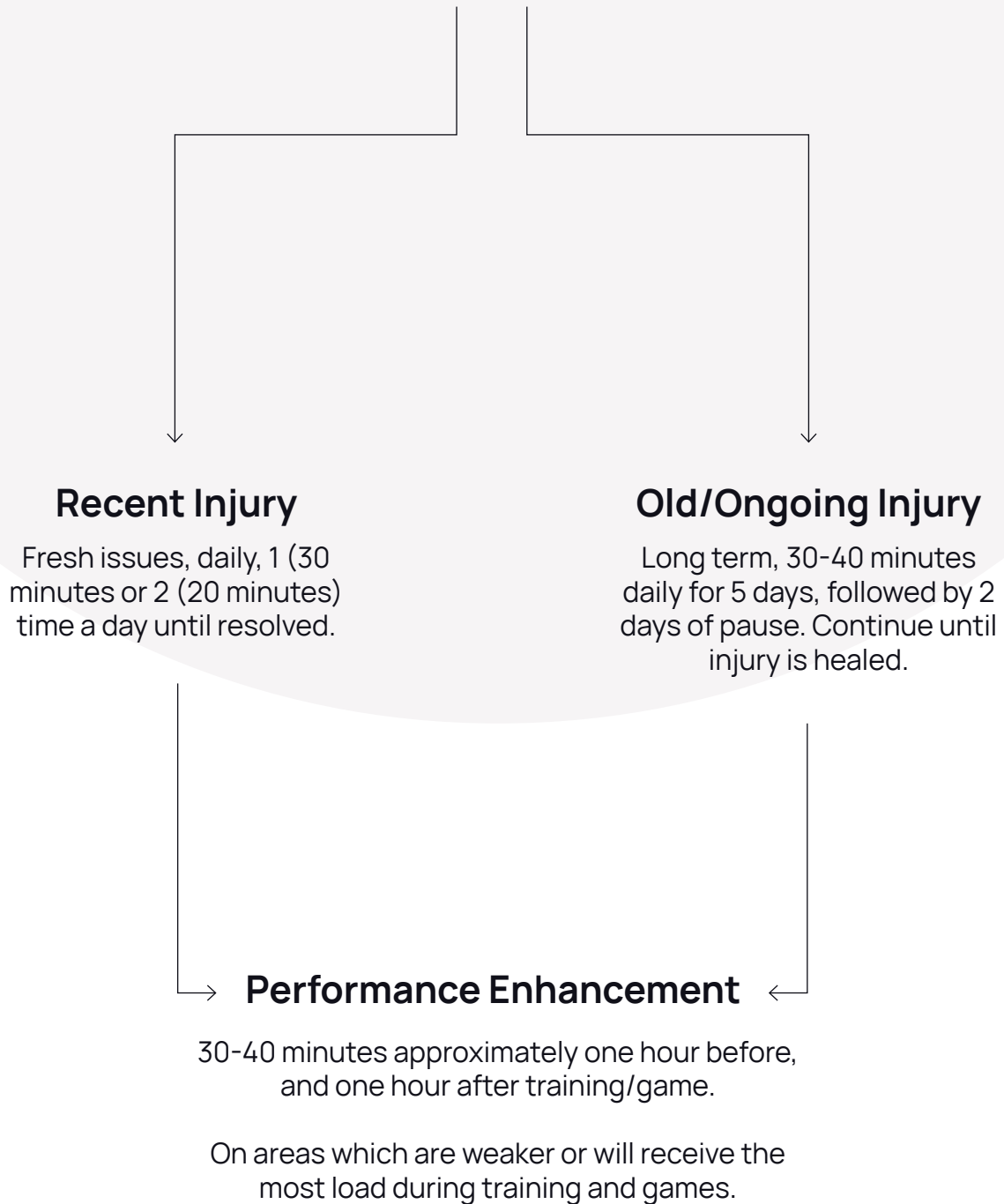
FlexBeam: The Game-Changer in Athletic Performance

One of the most amazing features of FlexBeam is the versatility of its use. When it comes to sports, it can be used as a performance enhancer but also to help the athlete's body heal recent and chronic injuries. Both of these features are precious for football players and essential for improving their game at a healthy yet fast pace.

Important: Using FlexBeam for more than 50 minutes daily may reduce its beneficial effects on your body. 20-30 minutes a day is usually enough.

Protocol for Injuries and Performance

Sessions





Pre and Post-Training Use

FlexBeam can be used to prepare for immediate exercises, training, and physical activity.

Red and near-infrared light is scientifically proven to reduce biochemical markers, like lactate, creatine, and C-reactive protein, which means it prevents muscular fatigue, and damage to muscle fibers. It also reduces inflammation, which happens due to muscle overexertion. Red and near-infrared light improves oxygen uptake kinetics, increasing cardiorespiratory fitness to help achieve peak performance.

- Start at least an hour before the training session or within an hour after the session for post-workout effects.
- Place your FlexBeam on the muscles that will do most of the work.
- Program: 3.
- Time: 10 minutes on each body part.
- You can use 3 – 4 placements if you use one device and 4 – 6 placements if you use two devices.

Avoid using FlexBeam before and after training on a daily basis without breaks. To remain effective, photobiomodulation requires occasional breaks.

Pre and Post-Training Support



Protocol

Where to Place?

Pre-training: Place FlexBeam on the muscles which will receive most load – quads, hamstrings, calves, knees, ankles, shoulders, and similar. Both left and right.

Which Program?

Program 3

For How Long?

10 minutes on each body part

Post-training/game: Place FlexBeam on the same muscle groups including the lower back.

Program 3

10 minutes on each body part

Place it along the hamstring to improve performance. Use as a recovery within 1 hour after intense exercises and within 1 hour for warming up. Can be worn while performing warm up exercises.

Program 3

10 minutes on each body part



Wellbeing Boost

FlexBeam can be used to prepare for intense games in more ways than one. Besides its amazing effects on the musculoskeletal system, red and near-infrared therapy also has tremendous effects on immunity and energy levels. Football is a game that requires endurance, focus, and mental preparedness.

Stress, anxiety, and, consequently, reduced energy levels and immunity are frequent occurrences in the lives of competitive football players. Deep relaxation and re-energizing are essential for improved performance.

Energy Boost Support:

Light is the most natural source of energy to the body. FlexBeam delivers the light we need, and should be used regularly to reach optimal state and combat fatigue. Everyone is different, which means reaching optimal energy levels can differ from athlete to athlete. The effect is cumulative, so be persistent.



Protocol A

Where to Place?	Which Program?	For How Long?
Over the upper part of the spine	Program 3	10 minutes
Over the lower part of the spine	Program 3	10 minutes
Horizontal or vertical over the spine	Program 3	10 minutes



Protocol B

Where to Place?	Which Program?	For How Long?
Vertically over the center of navel	Program 2	10 minutes
Horizontally over the waistline	Program 2	10 minutes
Above the waistline, over the kidneys	Program 2	10 minutes



Immunity Boost Support:

Stress can severely affect immunity. A lowered immune response increases the chances of illness dramatically. This is unacceptable during the league, championship, or even the preparation period. FlexBeam can help your body develop a stronger immune response. Use this protocol 3-4 times a week.



Protocol

Where to Place?	Which Program?	For How Long?
Horizontally over the chest	Program 3	10 minutes
Vertically over the center of the chest	Program 3	10 minutes
Horizontally over the navel and waistline	Program 2	10 minutes
Vertically across the navel	Program 2	10 minutes



The Specifics of Athletic Requirements for Football Players



“During a 90-minute game, elite-level players run about 10 km at an average intensity close to the anaerobic threshold (80-90% of maximal heart rate). Within this endurance context, numerous explosive bursts of activity are required, including jumping, kicking, tackling, turning, sprinting, changing pace, and sustaining forceful contractions to maintain balance and control of the ball against defensive pressure.”

Important: Using FlexBeam for more than 50 minutes daily may reduce its beneficial effects on your body. 20-30 minutes a day is usually enough.

Stølen, T., Chamari, K., Castagna, C., & Wisløff, U. (2005). Physiology of soccer: an update. Sports medicine (Auckland, N.Z.)

Elements to Factor in a Training Regimen

Football's non-stop, relentless motion across two 45-minute halves calls for agility and endurance. Agility isn't just about moving fast; it's a crucial ingredient that can significantly boost every aspect of a player's game on the field. Although there are some basic ways everyone moves, agility—or “game speed”—is about applying specific movements with the right blend of speed, accuracy, and control, all while responding to the game's unique demands and challenges.

Coaches, therefore, have a key role in breaking down the nuanced movement demands of football to craft a truly effective training program. Football involves intermittent movements, including 1,200-1,400 changes of direction and sprints of 5-15 meters happening every 30 seconds, plus varied speed and directional shifts. That is why a strategic and holistic training approach is essential. This kind of approach ensures players can seamlessly navigate through the diverse, rapid-paced scenarios encountered during play.¹ It also explains why holistic and systemic therapy, such as red light therapy, makes perfect sense for football players.

Besides agility, all football players need to have:

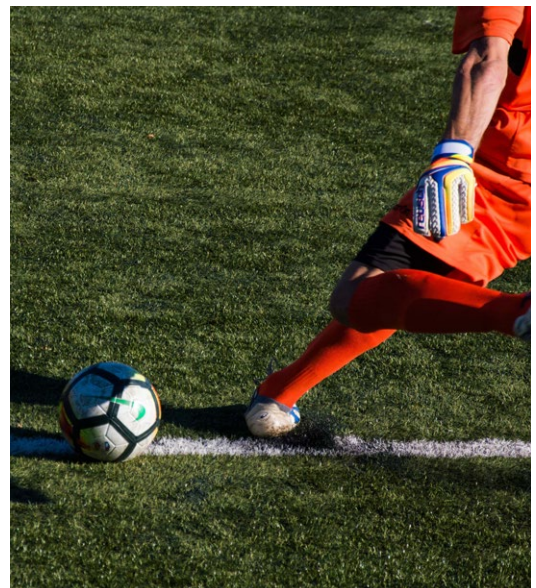
Strength: Boosting strength enhances a player's speed and power capabilities, providing a solid defense against physical pressure and challenges from opponents.

Speed: Rapid acceleration and peak speed are vital for players to secure the ball, strategically position themselves to receive passes, and establish a defense against opposing teams, especially considering that most sprints fall within the 10-30 m range.

Aerobic Fitness: Maintaining energy levels throughout the game and recovering from bursts of high-intensity activity requires robust aerobic capacity. Adequate aerobic fitness enables players to keep up with the game until the end.

Anaerobic Fitness: The ability to repeatedly engage in sprints demands formidable anaerobic capacity from players.

Flexibility & Mobility: Achieving high kicks and maneuvering into extended positions to defend or secure the ball requires players to have commendable lower body flexibility and mobility.²



¹<https://us.humankinetics.com/blogs/excerpt/sport-specific-agility-and-quickness-training-for-soccer>

²<https://journals.humankinetics.com/view/journals/jsr/29/2/article-p231.xml>



How to Use FlexBeam for the Most Common Football Injuries

How to Use FlexBeam for the Most Common Football Injuries

There are two major types of injury risks: intrinsic and extrinsic. Intrinsic injury risks are those that are related to the players themselves: age, strength, medical history, skill, and more). Extrinsic injury risks are related to outside factors: opponents, field surface, gear, equipment, and similar. While many of the extrinsic factors are hard to influence, it is important to eliminate as many intrinsic factors as possible to avoid football injury.³

If we look more closely at football injury occurrences, it is obvious that most of them are actually caused by a lack of skill or fitness. Naturally, a skilled, fit, well-rested, and energized football player has less chance of getting injured.

Another crucial factor of injury occurrence is fatigue. According to a study listed in Soccer Anatomy-2nd Edition by Donald T. Kirkendall & Adam L. Sayers., several facts prove this point:

- One-quarter of all injuries occur in the last third of the second half.
- Most injuries happen during the preseason, due to high-intensity training. Players are less fit and reach fatigue faster.
- A small training-to-match load ratio means more injuries. The congested schedule with fewer training days equals more fatigue, less fitness, and more injuries.



With all this in mind, it is obvious that football injury prevention needs to involve elevating fitness levels, reducing fatigue, shortening recovery time, and eliminating possible illnesses that would jeopardize the training schedule. Besides actually pre-conditioning the musculoskeletal system for intense football practice, red and near-infrared therapy help with each and every one of the listed factors. It is the convenient, holistic approach football players have been missing until now.

These are FlexBeam protocols for the most common football injuries.

Important: Using FlexBeam for more than 50 minutes daily may reduce its beneficial effects on your body. 20-30 minutes a day is usually enough.

³<https://us.humankinetics.com/blogs/excerpt/risk-factors-of-soccer-injury>



Knee: Fracture, Sprain, Tear, Dislocation

Knee injuries in football are a common concern due to the sport's high-intensity nature, involving constant changes of direction, speed, and often physical confrontations.

Knee: Fracture, Sprain, Tear, Dislocation

The most common injury context

Football involves motions such as sudden stops, changes in direction, or direct collisions. It's common for players to shift their weight rapidly, which can cause knee injuries. One of the most common scenarios is a rapid movement and twist of the knee while the foot is firmly planted. Football players suffer side tackles, blows to the knee, and similar situational injuries. However, they are prone to these injuries due to the overuse of the knee joints.

The most common signs of football knee injuries are:

Fracture	Sprain	Tear (ACL, MCL, meniscus, or other ligaments)	Dislocation
<ul style="list-style-type: none"> • Intense, sharp pain in the knee area • Inability to place weight on the affected leg • Inability or severe difficulty moving the knee • Swelling • Bruising, tenderness, or a cracking sound at the time of injury • Visible deformity of the knee in some cases 	<ul style="list-style-type: none"> • Pain around the knee • Tenderness to the touch • Swelling and stiffness in the knee joint • Difficulty in moving the knee, such as trouble straightening or bending it fully • A feeling of instability or weakness in the knee, as if it might give way under weight 	<ul style="list-style-type: none"> • Sudden and severe pain, often accompanied by a "popping" sensation during the injury • Rapid swelling within the first few hours due to internal bleeding • Limited range of motion and difficulty walking, or bearing weight on the knee • The knee feels unstable, like it's going to "give out" 	<ul style="list-style-type: none"> • Inability to walk due to the pain • Visible deformity, where the knee appears to be in an unnatural position • Swelling and stiffness • Severely restricted or no movement ability • Numbness or bluish discoloration, due to nerve or blood vessel damage

FlexBeam Protocol for Knee Injuries

FlexBeam should be placed on the front and back of the knee. This is followed by using it above and below the waistline, which helps circulate rich nutrient blood to the knee.

Important: Using FlexBeam for more than 50 minutes daily may reduce its beneficial effects on your body. 20-30 minutes a day is usually enough.

Knee Injury Support:



Protocol

Where to Place?	Which Program?	For How Long?
Over the area of injury and the back / front of the knee	Program 3	2x10 minutes (recent and ongoing injury)
Horizontally across the lower back	Program 3	2x10 minutes (recent and ongoing injury)
Across the ilio-tibial (IT) band, alternate with the lower-back position for persistent injury.	Program 3	2x10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Ankle Sprain and Achilles Rupture

Similar to knee injuries, ankles and Achilles tendons are common injury areas for football players. An ankle sprain involves the tearing of the ligaments in the ankle area. An Achilles rupture is a rupture in the tendon that connects the calf muscles to the heel bone.

Ankle Sprain and Achilles Rupture

The most common injury context

Ankle injuries in football often happen in situations such as colliding with another player, hitting the ball or goalpost, or getting caught in a slide tackle. Most of these injuries involve the ligaments inside and outside the ankle, leading to sprains.

There can also be harm to blood vessels, more severe high ankle sprains, and injuries where the muscle meets the tendon. But among the different types of damage that can happen to the ankle, sprains are by far the most common, making up around 80% (give or take 10%) of all ankle-related injuries on the football field.⁴

An Achilles rupture often occurs during intense movements during which a player's foot suddenly shoots upward with force or when they're making a high jump. This type of injury is typical in moments of explosive action – for example, when a football player makes a swift cut to dodge a rival or sprints to intercept the ball. Additionally, if a football player has been dealing with tendonitis, the accumulated micro-tears in the tendon can weaken it, increasing the chances of a rupture.⁵

Ankle Sprain	Achilles Rupture
<ul style="list-style-type: none"> • Pain, especially when you bear weight on the affected foot • Swelling and bruising • Restricted range of motion • A popping sensation or sound at the time of injury • Instability in the ankle (in more severe cases), where it may feel “wobbly” or unable to stand on 	<ul style="list-style-type: none"> • A sudden, sharp pain in the back of your ankle or calf, often described as a “kick” or a “stab” • Swelling near the heel • Inability to stand up on the toes of the affected foot or to push off the injured leg when walking • A snapping or popping sound during the injury • Significant difficulty or inability to walk

FlexBeam Protocol for the Ankle Sprain and Achilles Rupture:

As soon as the ankle sprain occurs, the FlexBeam should be used on the front and back of the ankle, and then behind the knee to help stimulate blood flow to the ankle. Another position is to wrap it so that it targets all parts of the ankle and bottom of the foot.

⁴<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8445148/>

⁵<https://sportmedbc.com/achilles-tendon-rupture-sportmed-soccer>

Ankle and Achilles Support:



Protocol

Where to Place?	Which Program?	For How Long?
Over the back and the front of the ankle	Alternate programs 3&2	2x10 minutes (recent and ongoing injury)
Behind the knee	Alternate programs 3&2	10 minutes (recent and ongoing injury)
Cover the area from the bottom of the heel and over the Achilles tendon	Alternate programs 3&2	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Thigh Strain

Muscle strains often occur when a muscle gets overstretched, and the fibers tear. These tears usually happen near where the muscle connects to the tendon, a spot that takes on a lot of stress. Something hitting the muscle directly can cause a similar kind of damage.

Thigh Strain

The most common injury context

In football, thigh strain usually happens due to muscle fatigue. As players get worn out – either within a game or over an exhausting season – their risk of straining a muscle increases. Two other occasions in which this type of injury occurs are:

Kicking motion: When a player gears up to kick the ball, their leg undergoes a specific motion – the hip extends, and the knee bends, putting stress on the muscles involved, particularly the Rectus Femoris. The actual kick involves a sharp, forceful muscle contraction. It's this intense “wind-up” and release mechanism that typically causes muscle strain.

Sprinting: A sudden, powerful contraction of the quadriceps, as seen during a sprint, can also cause muscle strain due to the rapid generation of force.

Quick directional changes: When players make fast turns or abrupt stops, they can overstretch their muscles, leading to strains. This rapid deceleration puts a lot of demand on the muscle, especially if it's already stretched to its limit.⁶

The most common signs of football knee injuries are:

- Popping or snapping sensation as the muscle tears
- Severe and sudden pain
- Injured area tender to the touch
- Visible bruising in case of damaged blood vessels
- Swelling and “black and blue” coloring may cover the area below the thigh, expanding into the calf and ankle. This may even occur 1 or 2 days after the injury.



FlexBeam Protocol for Thigh Strain:

Once a thigh strain occurs, the FlexBeam should be used along the quad and wrapped around the quad to target the precise area of pain. Other placements include applying FlexBeam on the hamstring and the lower back for complete coverage.

⁶<https://orthoinfo.aaos.org/en/diseases-conditions/muscle-strains-in-the-thigh/>

Thigh Strain Support:



Protocol

Where to Place?	Which Program?	For How Long?
Horizontally over the painful area of the thigh	Program 3	10 minutes (recent and ongoing injury)
Vertically over the front of the thigh	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (recent and ongoing injury)
Vertically over the hamstring	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Hamstring Strain and Tear

A hamstring strain or tear is an injury to the tendons or large muscles at the back of the thigh. The severity of the injury can range from a partial to complete muscle or tendon rupture and tear. A hamstring strain doesn't involve the rupture. It means that the muscle is stretched or strained beyond its limits.

Hamstring Strain and Tear

The most common injury context

According to the study [Mechanisms of Hamstring Injury in Professional Soccer Players: Video Analysis and Magnetic Resonance Imaging Findings](#) hamstring injury scenarios are:

- Mixed-type injuries (43%): These happen due to a combination of sprinting and stretching movements.
- Stretch-type injuries (36%): These occur when players overextend their muscles.
- Sprint-type injuries (21%): These are linked to high-speed running.

Common scenarios during these injuries include making a sudden turn (29%), striking the ball (29%), or running (21%). Most of these injuries happen when players are moving at high speeds (71%), with the upper part of the bicep's femoris muscle often taking the hit (36%).

The most common signs of hamstring strain and tear:

Both hamstring strain and tear have similar signs and symptoms. The difference is in the severity of pain and the fact that hamstring tears can sometimes be visible as a deformity resembling a gap or indentation due to the ruptured tissue. Other signs and symptoms include:

- Sudden and sharp pain usually located at the back of the thigh
- Popping or snapping sensation during injury
- Swelling and tenderness
- Bruising or discoloration on the back of your thigh a day or two after the injury
- Weakness and inability to bear weight
- Limited motion
- Muscle tightness or spasming



FlexBeam Protocols for Hamstring Strain and Tear:

Once a hamstring injury occurs, FlexBeam should be used along the hamstring and wrapped around it to target the precise area of pain. After this application, FlexBeam should be applied on the quad and then to the lower back.

Hamstring Strain and Tear Support:



Protocol

Where to Place?	Which Program?	For How Long?
Horizontally over painful area of hamstring	Program 3	10 minutes (recent and ongoing injury)
Vertically over the hamstring	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (recent and ongoing injury)
Vertically over the front of the thigh	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**





Calf Muscle Strain and Tear

Calf injuries can vary from minor pulls to serious tears. It's predominantly the gastrocnemius muscle, in the upper portion of the calf, that is susceptible to injury rather than the deeper-located soleus. Calf strains are categorized into three grades, reflecting the extent of the damage:

Grade 1: Minor tears within the muscle fibers.

Grade 2: This intermediate level indicates a partial rupture of the muscle fibers.

Grade 3: A full tear or rupture within the muscle.

Calf Muscle Strain and Tear

The most common injury context

Calf injuries happen during high-velocity motions like running and jumping. However, they are more likely to happen due to forceful or uncoordinated movement. During football practice and games, it is a common injury when sparring with opposing players. Poor running technique, lack of warm-up, and fatigue contribute to injury occurrence with football players.

The most common signs of calf injuries:

- Sharp pain in the calf area during injury
- A throbbing pain at rest when standing or walking
- Spasms in the calf muscle
- Possible popping sound during injury
- Limping when walking
- Inability to run or jump on the affected leg
- Bruising when muscles are torn

FlexBeam Protocols for Calf Muscle Strain and Tear:

FlexBeam should be placed along the calf, and behind the knee to help stimulate blood flow to the area. After that, place it down the side of the calf, either to the right or to the left to help tackle the root cause of the pain. In addition, place the FlexBeam across the lower back.



Calf Muscle Strain and Tear Support:



Protocol

Where to Place?	Which Program?	For How Long?
Vertically along the calf	Program 3	10 minutes (recent and ongoing injury)
Vertically behind the knee	Program 3	10 minutes (recent and ongoing injury)
Vertically along the left or the right side of the calf	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Glutes and Hip Pointer Injuries

A hip pointer refers to a bruise or pain that occurs on the upper part of your hip, specifically around the iliac crest or the greater trochanter area (protruding hip bone), usually due to a direct hit or bump. Injuries to the glutes can be strains, tears, or tendinopathies.

Glutes and Hip Pointer Injuries

The most common injury context

This part of the hip connects with various muscle tendons, and a strong impact can seriously damage these soft tissues. In football, these injuries often happen when a player falls onto their hip during a dive, tackle, or direct hit. Injuries to the glutes can happen from sudden movements or if the muscle isn't flexible enough. Injuries from accidents, overuse, or wear and tear can also cause the glutes to tear or strain.

The most common signs of glutes and hip pointer injuries:

Injuries to the glutes ⁷	Hip pointer injuries ⁸
<ul style="list-style-type: none"> • Pain and tenderness over the outer part of the hip • Increased discomfort with certain activities: <ul style="list-style-type: none"> • Running • Climbing stairs • Prolonged periods of sitting or walking • Lying on the affected hip • Presence of Trendelenburg sign, identified by: <ul style="list-style-type: none"> • Dropping of the pelvis toward the unaffected side when walking • Difficulty bearing weight on the affected side, impacting balance and gait 	<ul style="list-style-type: none"> • Tenderness at the top of the hip • Reduced mobility or function • Visible bruising • Pain during activities, particularly: <ul style="list-style-type: none"> • Walking • Running

FlexBeam Protocol for Glutes and Hip Pointer Injuries

For any injuries to the glutes, wrap the FlexBeam around the top of the thigh to target the gluteal region. Your next application should be along the hamstring and across the lower back. For a hip injury, wrap the FlexBeam around the affected hip, followed by the applications across, below, and above the waistline.



⁷ <https://sportmedbc.com/article/hip-pointers-soccer/>

⁸ https://health.usf.edu/medicine/orthopaedic/patientcare/~/_media/2EB55495B0B243309EE086924E0DFDC0.ashx

Glutes and Hip Pointer Support:



Protocol A

Where to Place?	Which Program?	For How Long?
Wrapped around the top of the leg, targeting the glutes	Program 3	10 minutes (recent and ongoing injury)
Vertically along the hamstring	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (recent and ongoing injury)



Protocol B

Where to Place?	Which Program?	For How Long?
Wrapped around the top of the hip	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (recent and ongoing injury)
Horizontally above the waistline	Program 3	10 minutes (recent and ongoing injury)



***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**

Back Injuries

Back pain is a rather common occurrence among all athletes. The causes of such injuries can range from externally caused trauma to overuse injuries that happen due to overtraining and repetitive motions. From pulled muscles to serious spinal injuries, back pain is common and often debilitating.

Typical back injuries are mostly due to:

- Overuse
- Poor posture
- Shortening or weakening of muscles
- Vertebrae joint dysfunction, and even instability

On rare occasions, the athlete develops a fracture or stress fracture, disc herniation, sciatica, or pain during the post-surgery recovery.

Back Injuries

The most common injury context

Among football players, the most common types of back pain are low back pain and spine injuries⁹¹⁰. There are different causes for such injuries. Aside from direct hits, spine and lower back pain can result from the constant and intense kicking motions. Following the kinetic chain of a kick, it is obvious that the lower back and muscles along the spine suffer a great deal of pressure.



FlexBeam Protocols for Back Pain

FlexBeam positively impacts muscles, improving local circulation and helping muscle relaxation. Red and near-infrared light helps to speed up healing from injuries. FlexBeam should be used as soon as an injury occurs.

FlexBeam use for different back injuries is all fairly similar. For upper back pain, it is ideal to use it across the top and middle of the back. For the lower back, applications above and below the waist-line are the most beneficial. Additionally, the placement along the spine is crucial for both upper and lower back pain and should be included in any recovery regime.

⁹ <https://pubmed.ncbi.nlm.nih.gov/31596753/>

¹⁰ <https://www.dovepress.com/factors-associated-with-ball-velocity-and-low-back-pain-during-kicking-peer-reviewed-fulltext-article-OAJSM#cit0007>

Back Support:



Upper Back

Where to Place?	Which Program?	For How Long?
Horizontally over the back of the neck	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the upper back	Program 3	10 minutes (recent and ongoing injury)
Vertically along the spine	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back	Program 3	10 minutes (ongoing injury)



Back Support Continued:



Lower Back

Where to Place?	Which Program?	For How Long?
Horizontally over the lower back, above the waistline	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the lower back, below the waistline	Program 3	10 minutes (recent and ongoing injury)
Vertically along the spine	Program 3	10 minutes (recent and ongoing injury)
Horizontally over the back of the neck	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Shoulder Injuries

In football, players often encounter injuries affecting the upper body, particularly in the shoulder area. Among these, three stand out due to their frequency:

- **Clavicle Fractures:** the collarbone breaks, often due to falls or direct impacts to the shoulder.
- **AC Joint Separations:** These injuries happen when the ligaments tear, usually due to falling on an outstretched arm or a direct hit.
- **Shoulder Dislocations:** This injury occurs when the ball of the shoulder joint comes out of its socket, typically resulting from a hard fall or intense collision.

Specifically, clavicle fractures are prevalent among football players. These fractures happen because the collarbone, a critical bone in the upper body's mobility, is vulnerable to the kinds of impacts commonly experienced during football games.¹¹ The most commonly affected football players are the goalkeepers.¹²

¹¹<https://www.kcoi.com/shoulder-injuries-for-soccer-athletes/>

¹²<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4984832/>

Shoulder Injuries

The most common injury context

Most severe shoulder traumas happen during high-energy events, especially when extreme external rotation and abduction are involved. A past shoulder injury flags an increased risk factor. According to [Serious shoulder injuries in professional soccer: return to participation after surgery](#), occurrences of shoulder injuries in football include:

- High-energy trauma, particularly during actions combining abduction and external rotation, which is responsible for 56% of injuries.
- Low-energy trauma in various positions accounted for 24% of injuries.
- Injuries without a specific traumatic event comprised 20%.



FlexBeam Protocol for Shoulder Injuries

Start by placing the FlexBeam over the front and back of the shoulder. After that, bend the FlexBeam to fit into the shoulder/neck area, and then strap the device across the upper back. As an addition, place the FlexBeam down the side of the injured shoulder/arm.

Shoulder Injuries



Protocol A

Where to Place?	Which Program?	For How Long?
Wrapped around the front and back of the shoulder	Program 3	2x10 minutes (recent and ongoing injury)
Inverted FlexBeam along the side of the neck. Alternate left and right	Program 2	10 minutes (recent and ongoing injury)
Horizontally across the upper back	Program 3	10 minutes (recent and ongoing injury)
Vertically down the front or back of the shoulder and arm	Program 3	10 minutes (ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



Wrist Injuries

Given that football is a high-intensity, high-contact sport, direct contact and falls are frequent. As a result, different wrist injuries occur. They can range from sprains to wrist fractures.



Wrist Injuries

The most common injury context

One of the most common wrist injury scenarios in football is when a player falls on their hand, trying to buffer the fall. Most common injuries that occur in that situation are:

- **Wrist Sprains:** ligaments that hold the wrist bones together are stretched beyond their normal limits or torn.
- **Wrist Fractures:** A break in the bone. In the wrist, the most common are colles fractures (a break in the radius bone) and scaphoid fractures (a break in the small bone on the thumb side of the wrist).
- **TFCC Tears:** Injury to the triangular fibrocartilage complex, which is crucial for the wrist's stability and smooth movements.
- **Dislocated Joints:** The bones in the wrist shift out of their normal position.

The most common signs of wrist injuries:

- Severe pain
- Swelling
- Bruising
- Limited range of motion
- Possible deformities when fracture is involved

FlexBeam Protocol for Wrist Injuries

To begin with, wrap the FlexBeam around the affected wrist. After that, do the same with the elbow of the same arm. Continue with treating the shoulder, as well. FlexBeam should be evenly placed over the front and back for maximum stimulation.



Wrist Support:



Protocol A

Where to Place?	Which Program?	For How Long?
Wrapped around the wrist(s)	Program 2 & 3	2x10 minutes (recent and ongoing injury)
Wrap around the arm below the elbow	Program 2 & 3	10 minutes (recent and ongoing injury)
Strap across the shoulder - front and back or along the neck.	Program 2 & 3	10 minutes (recent and ongoing injury)

***for persistent injuries, use FlexBeam 30 - 40 minutes daily for five days and then pause for 2 days. Continue until the injury is healed.**



General Recommendations for Using Your FlexBeam



Here are some general recommendations when it comes to using FlexBeam. Follow them to be able to get the most out of your portable red light therapy device:

- Before using FlexBeam, ice your injury until the bruise is formed. After that, you can use FlexBeam instead of ice.
- Always use FlexBeam directly on the skin. Clothes will block the effects of red and near-infrared light.
- Don't use FlexBeam on areas above the neck.

Introduce FlexBeam into your journey toward better health, faster recovery, and improved athletic performance. This portable device can have massive effects on how you heal, train, and even relax. Make the most of it now that such a powerful red and near-infrared therapy device is finally here and available to everyone.

Sometimes less is more when it comes to FlexBeam

You can have too much of a good thing. Luckily, in the case of red and near-infrared therapy, it doesn't mean you would have any negative effects if you overuse your device. However - using FlexBeam for more than 50 minutes daily may reduce its beneficial effects.

Your body gets used to the red and near-infrared light, which means it will not respond as well to your sessions. To emphasize it again - this does NOT mean you would have any negative effects. You would just have little to no effects. For example, if you are using your FlexBeam to help your body deal with an injury, 20-30-minute sessions twice a day is optimal.

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