

A man, Casper Ruud, is shown in profile, looking down at a white FlexBeam device he is holding against his chest. The device has a red strap and a control panel with several buttons and a circular logo. The background is a dark, gradient grey.

Casper Ruud
Norway's Top Tennis Player

 recharge.health

The Player's Guide to Better Tennis and Better Health

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

WRITTEN BY WWW.RECHARGE.HEALTH



Contents

Introduction

Recovery: The Key To Better Performance	3
Near Infrared Light Therapy: Boosting Your Health	4
What Is Photobiomodulation?	5
The New Essential Piece Of Equipment: Flexbeam	7

Upping Your Game with FlexBeam

Warm Up & Recovery From Muscular Fatigue	8
Performance Enhancement	12
Working Smarter on Your Tennis Strokes	14

Using FlexBeam to Treat the Most Common Tennis Injuries

Rotator Cuff Tears, Bursitis, Tendonitis	18
Tennis Elbow And Golfer's Elbow	21
Wrist Strain	22
Back Pain	25
Abdominal Muscle Strain	29
Stress Fracture: Foot	33
Stress Fracture: Back	36
Knee Injuries	39
Ankle Sprains	43
Tennis Leg & Achilles Tendon Rupture	46
Tennis Toe	49
Blisters	51
General Recommendations For Using Your Flexbeam	53

Recovery: The Key to Better Performance

The power of recovery is not to be underestimated, especially if you enjoy such a high-impact sport as tennis. Recovery is more than healing injuries. It is also an essential part of the training process. Without a rest day, good sleep, or time off, there will not be progress in your athletic results either.

Exercise puts stress on your muscles, and their fibers break down. That is only a part of the equation. During the rest phase, the muscle fiber fuses together and grows stronger muscle tissue. Additionally, during recovery, the waste products due to muscle breakdown are removed from the system. In other words, this is when the real results happen.

Being one of the top tennis players on the planet, Casper Ruud understands the importance of recovery all too well. Every serve, forehand, and backhand stroke cause stress on his muscles. Given that his training cannot suffer, he is always on the lookout for ways to speed up recovery and make his training more efficient. It was only a matter of time before he would find red and near-infrared therapy and use it to his advantage. His device of choice is FlexBeam – a targeted red and near-infrared therapy device that packs amazing power into a portable, wearable device.

Red and near-infrared therapy: designed for the pros, but now available to you.





Near Infrared Light Therapy: Boosting Your Game and Your Health

Red light therapy is a form of therapy that uses light of red and near-infrared wavelengths. An umbrella term for red light therapy, as well as other ways of modulating light for therapeutic purposes, is Photobiomodulation (PBM). While the terminology might be new, the technology has existed for quite a while.


What is Photobiomodulation (PBM)?

PBM has been explored for around 50 years, and there are over 100,000 studies dedicated to understanding it better. All this extensive research indicates that photonic energy is an effective and safe way to stimulate the body. Red light therapy is one of the safest and, thus, most commonly used PBM methods to utilize the healing power of light. The general conclusion about the effects of PBM includes:

- When red and near-infrared light gets in contact with your cells, they energize your mitochondria - the powerhouse of your cells. Mitochondria starts producing Adenosine Triphosphate (ATP), the energy currency necessary for all the processes in your body. Yes - near-infrared light energizes your body like a battery.
- Another amazing reaction that your body has to near-infrared light is that it starts releasing Nitric Oxide (NO) into the bloodstream. NO makes your blood vessels wider, so more blood can go through them faster. This means better blood circulation, more relaxed muscles, faster recovery, and so much more.
- Arguably, the most important effect of red and near-infrared therapy is melatonin regulation. Melatonin is the hormone responsible for our circadian rhythm. It regulates our sleep patterns but also the hormonal balance within our bodies. Athletic performance is directly associated with regular sleeping patterns and quality recovery periods. None of these are possible without proper melatonin secretion.

All the effects are achieved without heating tissues, compared to other sources of light, which means they are non-damaging. There are no known side effects of red light exposure. The key to efficient red light therapy is in the proper wavelength, energy density, and irradiation from your device. These might sound like abstract concepts, but that is why there is a team of experts at Recharge Health to pre-calculate, prepare, and pack into a single-click device - FlexBeam.





“I’m surprised at how effective FlexBeam has been to kickstart my recovery between matches. It’s an ingenious device to improve recovery that could be helpful for a lot of people.”

Casper Ruud, ranked #3 in ATP Tennis 2022

The New Essential Piece of Equipment: FlexBeam

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.

All these effects make FlexBeam an excellent choice for preparing the body for physical activity, enhancing the effects of such activity, and shortening the time necessary to recover from it.

Moreover, it helps recover and bounce back from possible injuries. In other words, FlexBeam uses near-infrared therapy to boost your health and your athletic performance.



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 57 mW/cm² to 113 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 tennis bag, together with your other essentials.

How to Use FlexBeam for Upping Your Game: Warm Up & Recovery From Muscular Fatigue

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

It is best to start using FlexBeam approximately 1 hour before your training/game. Cover muscles that will be most used or where you are experiencing weakness. Approximately 3 - 4 placements (cycles) will be needed. This will take you 40 minutes if you use one Flexbeam or 20 minutes if you're using two. It is possible to prepare more muscles in 30 minutes using two FlexBeams with 6 placements.

Important: Using FlexBeam for more than 50 minutes daily may significantly reduce its beneficial effects on your body. 10-20 minutes a day is usually enough.

Warm Up & Recovery From Intense Training: Upper Body

The same protocol can be used to combat post-training or post-tournament muscular fatigue. Approximately 1 hour after finishing the intense physical load, place FlexBeam over aching/sore muscles. You can use 3 – 4 placements if you use one device and 4 – 6 placements if you use two devices. You can use FlexBeam before and after training, but not on a regular basis, as photobiomodulation requires occasional breaks so FlexBeam is continuing to be effective.



Protocol

Where to Place?	Which Program?	For How Long?
Over left top shoulder	Program 3	1st cycle - 10 min
Over right top shoulder	Program 3	2nd cycle - 10 min
Over back of the neck (C7)	Program 3	3rd cycle - 10 min
Across thoracic	Program 3	4th cycle - 10 min

Use as a warm up 1 hour prior to intense training to improve performance

Use for recovery within 1 hour after intense exercise to improve recovery rate



Warm Up & Recovery From Intense Training: Lower Body

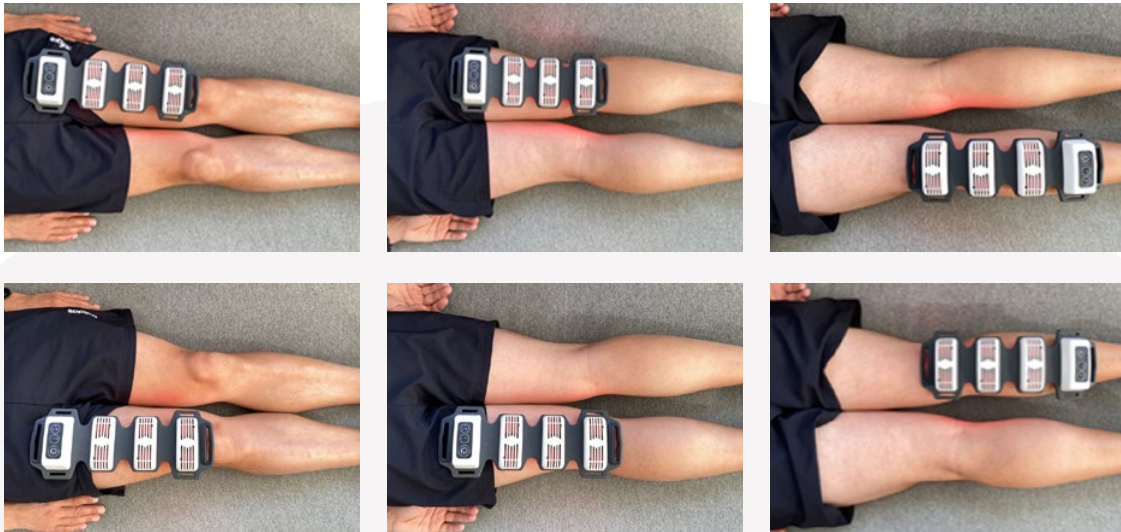


Protocol

Where to Place?	Which Program?	For How Long?
Over quads left/right	Program 3	1st, 2nd cycle - 10 min each
Over hamstrings	Program 3	3rd, 4th cycle - 10 min each
Over both calves	Program 3	5th, 6th cycle - 10 min each

Use as a warm up 1 hour prior to intense training to improve performance

Use for recovery within 1 hour after intense exercise to improve recovery rate



Optional Protocol: Two-Device FlexBeam Applications



Protocol

Info & Where to Place?

Place over the muscles that receive the most load, ex. runner, place over both hamstrings.

Which Program?

Program 3

For How Long?

1st cycle - 10 min

Muscles that receive the most load with focus on the back of the knee, placing it over both calves.

Program 3

2nd cycle - 10 min

Muscles that receive the most load, ex. boxer, place over both arms.

Program 3

3rd cycle - 10 min

Use as a warm up 1 hour prior to intense training to improve performance

Use for recovery within 1 hour after intense exercise to improve recovery rate





Performance Enhancement

FlexBeam can be used to prepare for intense training, games, or tournaments. If a tennis player needs to relax, reduce anxiety levels, and improve energy at the cellular level, it is recommended to use this protocol 24 hours before the tournament. The same protocol can be used during de-training to prevent dramatic fitness losses.

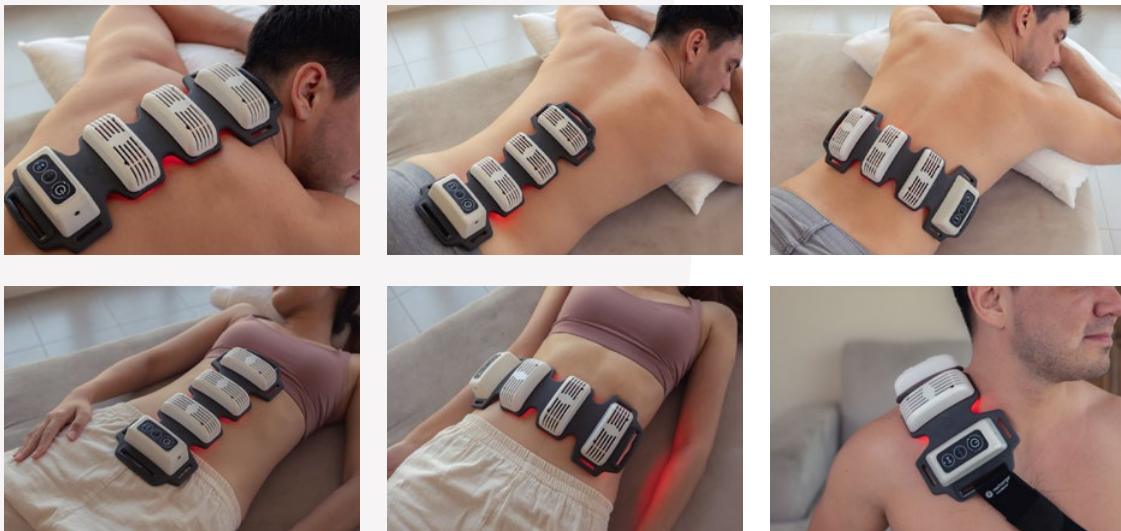
Tournament Preparation



Protocol

Where to Place?	Which Program?	For How Long?
Vertical over the spine top/mid/lower	Program 3	1st, 2nd, 3rd cycle - 10 min each
Horizontal across above waistline L2	Program 3	4th cycle - 10 min
Alternate with stomach, hor/vert	Program 3	1st, 2nd cycle - 10 min each
Vertical over chest	Program 3	3rd cycle - 10 min

24 hours or de-training period



Working Smarter on Your Tennis Strokes

There is no way around drilling exercises when it comes to improving your technique. Your tennis moves and strokes must be accurate to bring your game to the next level. Constantly repeating the moves in the best way possible will help fortify your muscle memory.

However, if some of the muscles necessary for certain movements aren't as strong as they should be, you'll have trouble performing the correct moves accurately. That is where specific strength training comes in. While red and near-infrared therapy cannot directly help you with the movement accurately, it can help prepare all the right muscles for the drilling and rest them after a demanding workout. Consequently, your muscles will be more efficient, and your strokes will be better.

Important: Using FlexBeam for more than 50 minutes daily may significantly reduce its beneficial effects on your body. 10-20 minutes a day is usually enough.

The Kinetic Chain in Tennis

A kinetic chain is a concept that involves the coordination of movement and transfer of energy throughout the body during complex movements. It supports the transfer of the movement force through muscles, bones, and joints and results in a well-orchestrated movement.

In a kinetic chain, each muscle and joint influences the movement of the other chain elements. This means that the motion and function of one part of the body can impact and rely on other parts' stability, mobility, and performance.



The kinetic chain in tennis is very obvious, especially in serves and volleys. It starts with the feet and ankles, transfers through the calves and quads, stabilizes the core muscles, and gains momentum in the shoulders, arms, the wrists. As a result, the force is generated, amplified, and transferred to the racquet and the ball.

The Kinetic Chain in Tennis Continued..

Unstable kinetic chains can lead to excessive force use with minimal results. In worst-case scenarios, it can result in injuries. This is why you need to pinpoint the weakest link in your kinetic chain and try to work on them.



Ankles: They are your grounding point and the first major joints that suffer the stress of the force you're generating.

Calves: These muscles need special care because they forcefully contract to generate the energy and power you're about to push through your entire body.

Knees: They need to suffer sudden rotation and stress and support every tennis move.

Quadriceps: They generate power, transfer it to the core, and are responsible for the explosiveness necessary for proper tennis play.

Core Muscles: Essential to maintain stability and endure the redirection of the generated force to the strokes. They need to endure rotating movements, stretches, flexing, and more. They are the leverage point in your body.

Shoulders: Another stability point that suffers a lot of stress with every stroke. They need extra care given that the shoulder joint can frequently be a weak spot.

Lats: Essential for the serve. This is where the arm motion begins, and it is also used to control the end of the serve motion.

Triceps: Critical for controlling the racquet head speed and generating the topspin and the kick serves.

Kinetic Chain Link Support



Protocol

Where to Place?

Which Program?

For How Long?

Day 1

Left & Right Ankle
Left & Right Calves

Program 3
Program 3

1st cycle - 10 min, 2nd cycle - 10 min
3rd cycle - 10 min, 4th cycle - 10 min

Day 2

Left & Right Knee
Left & Right Quads

Program 3
Program 3

1st cycle - 10 min, 2nd cycle - 10 min
3rd cycle - 10 min, 4th cycle - 10 min

Day 3

Abdomen Cross
Left 7 Right Lats

Program 3
Program 3

1st cycle - 10 min, 2nd cycle - 10 min
3rd cycle - 10 min, 4th cycle - 10 min


Day 4

Shoulder
Triceps
Back of Neck

Program 3
Program 3
Program 3

1st cycle - 10 min, 2nd cycle - 10 min
3rd cycle - 10 min, 4th cycle - 10 min
5th cycle - 10 min





How to Use FlexBeam for the Most Common Tennis Injuries

Rotator Cuff Tears, Bursitis, Tendonitis

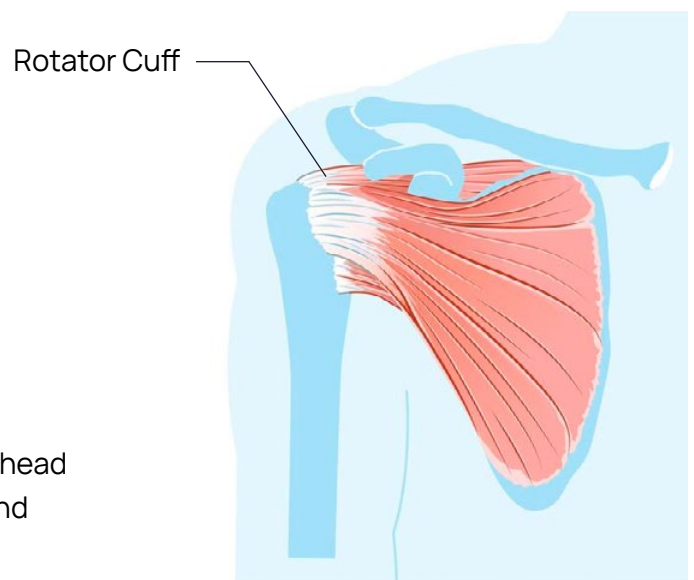
The most common injury context

Tennis players are predisposed to overuse injuries of the shoulder, including rotator cuff tears and associated tendon injuries, and bursitis. These injuries are caused because of the repetitive overhead movement that are necessary for many of the tennis strokes.

The main purpose of the muscles around your shoulder is to keep it stable. Therefore, when you put such constant, forceful pressure on them, they are more likely to get injured. That is why the rotator cuff tear is one of the common injuries in tennis.

The most common signs of rotator cuff injuries are:

- Pain at the front or side of the shoulder, combined with pain down the upper arm
- Painful range of motion
- Painful arch
- Painful external or internal rotation
- Muscle weakness in the shoulder joint
- Difficulty lifting and pushing, challenging overhead movements and movements with a hand behind one's back



FlexBeam Protocol for Rotator Cuff Injuries

FlexBeam should be used to assist in natural recovery by reducing spasm and strain of the muscles around the shoulder joint. This helps alleviate pain and promotes injury recovery. The sooner you start the FlexBeam application, the faster it can heal.

Important: Using FlexBeam for more than 50 minutes daily may significantly reduce its beneficial effects on your body. 10-20 minutes a day is usually enough.

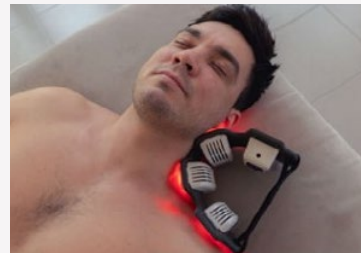
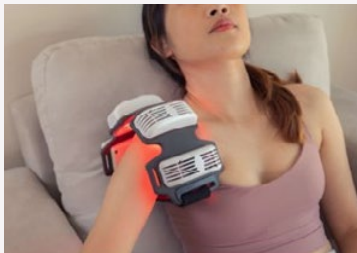
Rotator Cuff Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



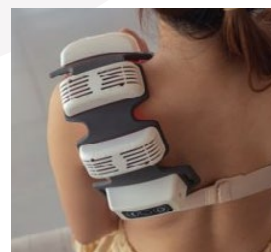
Protocol A

Where to Place?	Which Program?	For How Long?
Shoulder - front and back	Program 3 Program 3	1st cycle - 10 min 2nd cycle - 10 min
Over the side of the neck, alternate left/right	Program 2 Program 2	3rd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Over top of shoulder	Program 3	1st cycle - 10 min
Over the m.pectoralis	Program 3	2nd cycle - 10 min
Over back shoulder	Program 3	3rd cycle - 10 min
Over back of neck	Program 3	4th cycle - 10 min

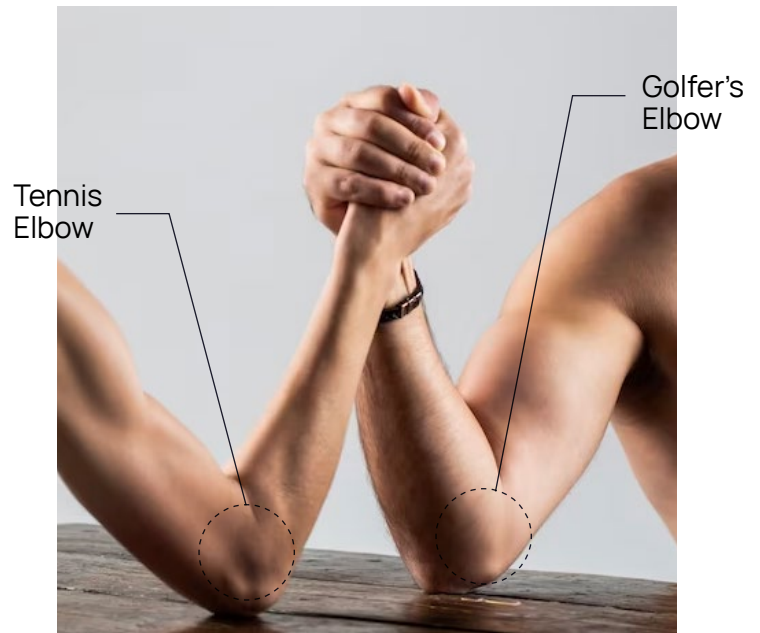


Tennis Elbow and Golfer's Elbow

Both tennis elbow and golfer's elbow are overuse injuries to the tendons in the forearm

Tennis elbow (lateral epicondylitis) is an inflammation of the tendons that are attached to the elbow. Pain feels on the outside of the upper forearm, especially on pressure or rotation outwards, and it could shoot down to the wrist.

Golfer's elbow (medial epicondylitis) is an inflammation of the tendons that are attached to the bone on the inside of the elbow. Overuse or forceful golf swing often causes this type of pain.



The most common injury context

Both of these injuries are overuse injuries, which means they are caused by repetitive movements of a certain kind. Tennis elbow injury happens due to repeated motions that resemble tennis down-stroke motion. While tennis players are most likely to be affected, this same issue happens with cooks, painters, plumbers, and similar occupations.

Golfer's elbow has a very similar context and pathology as the tennis elbow, it's just their anatomy that's different. The most common signs of golfer's elbow and tennis elbow are:

Tennis Elbow

- Weakness in the wrist or pain when lifting a heavy object
- Tingling/numbness in the patient's fingers
- A dull, vague ache even at rest

Golfer's Elbow

- Pain on the inner elbow when gripping or lifting
- Pain with twisting wrist movements
- Pain inside the elbow

FlexBeam Protocol for Tennis Elbow and Golfer's Elbow Injuries

FlexBeam should be used as soon as you get injured. It may help to assist in natural recovery by reducing spasms and strain of the muscles around the elbow joint, helping to alleviate pain and assist the injury recovery. The sooner you start the FlexBeam application, the faster it can heal.

Tennis/Golfers Elbow Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



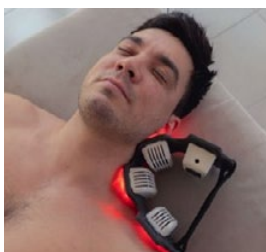
Protocol A

Where to Place?	Which Program?	For How Long?
Elbow - front and back	Program 3/2 Program 3/2	1st cycle - 10 min 2nd cycle - 10 min
Around the forearm, outer/inner	Program 3 Program 3	3rd cycle - 10 min 4th cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Side of the neck, left/right	Program 2 Program 2	1st cycle - 10 min 2nd cycle - 10 min
Back of the neck	Program 3	3rd cycle - 10 min
Over scapula, adjust muscles	Program 3	4th cycle - 10 min



Wrist Strain

Wrist injuries are such common tennis injuries, whether caused by a traumatic experience or simply wrist overuse, are a part of players' everyday lives¹. One such injury is a wrist strain. The combination of repetitive movement and the fact that the wrists are burdened with the weight of the racket and the force of hitting the ball - it is not surprising that strains occur regularly.

¹<https://pubmed.ncbi.nlm.nih.gov/22923462/>

Wrist Strains

The most common injury context

One of the causes of wrist strain is the weight of the racket. After hitting tens of thousands of ball strokes, even the slightest changes in the racket weight and hitting force translate into a radical increase in wrist wear-and-tear. Good form and hitting technique can somewhat eliminate this type of injury.

Shock is best absorbed when the ball is hit with the racket's sweet spot—usually the point in the middle of the racket head. When the stroke misses the sweet spot, the shock is considerably greater—which causes stress on the wrist. In addition, not hitting the ball with the center of the racket also causes the racket to spin, introducing additional stress in the arm.

In a similar fashion, popular forehand grips require players to dramatically extend the dominant hand, which causes a maximal stretch in the muscles and ligaments in the arm. When a ball is hit with significant force under that kind of tension, injury is more likely.

The grip size of the handle is another frequent culprit in tennis-related wrist injuries, mostly due to overuse. If the grip is too large for a player's hand, the racket handle is held more firmly, which, once again, causes unnecessary strain on the arm's ligaments. It is important to test different grip sizes and find the fit that requires the least effort when holding the racket.

The most common signs of wrist strain:

- Sharp wrist pain
- Muscle spasms
- Swelling
- Wrist mobility issues

Wrist Strains Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?

Wrist - front and back

Which Program?

Program 3/2
 Program 3/2

For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Around the forearm,
 alternate outer/inner

Program 3

3rd cycle - 10 min



Protocol B

Where to Place?

Side of the neck, left/right

Which Program?

Program 2
 Program 2

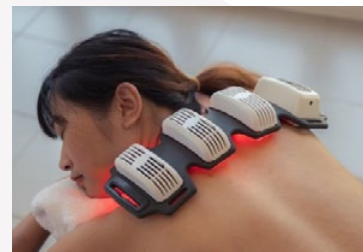
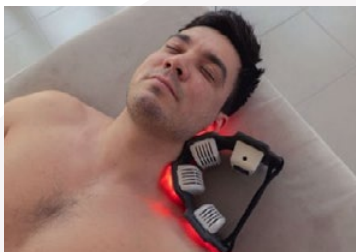
For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Back of the neck

Program 3

3rd cycle - 10 min



Back Pain

Back pain is rather common in tennis athletes. According to one 1988 study, 38% of tennis players surveyed missed at least one tournament due to low back problems².

Typical back injuries are mostly due to:

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

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

²<https://pubmed.ncbi.nlm.nih.gov/2968850/>

Upper Back Support

The most common injury context

When power behind the serves and volleys isn't evenly dispersed in the body, it can cause strains and sprains. In extreme cases, during a kick serve, a player hits the ball upward, and they repeatedly stretch out the spine. This can cause stress fractures of the spine.

It is important to address the cause of pain and attend to the injury as soon as the first symptoms appear.

FlexBeam Protocols for Back Pain

FlexBeam has a positive impact on the muscles, improving local circulation and helping muscle relaxation. Red and near-infrared light helps to speed up the healing of injuries. FlexBeam should be used as soon as the injury occurs.

Red and near-infrared light can help back pain by speeding up the healing of injuries.



Upper Back Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?	Which Program?	For How Long?
Across neck/upper back horizontally Across mid-thoracic horizontally	Program 3/2 Program 3/2	1st cycle - 10 min 2nd cycle - 10 min
Across lower back (Sacrum)	Program 3/2	3rd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Or center of the spine vertically	Program 3/2	1st cycle - 10 min
Or one side of the spine	Program 3/2	2nd cycle - 10 min
Or the other side of the spine	Program 3	3rd cycle - 10 min



Lower Back Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?	Which Program?	For How Long?
Above waistline horizontally Across sacrum horizontally	Program 3/2 Program 3/2	1st cycle - 10 min 2nd cycle - 10 min
Across neck-upper back	Program 3/2	3rd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Mid spine vertically	Program 3/2	1st cycle - 10 min
Lower end of the spine vertically	Program 3/2	2nd cycle - 10 min
Or across the sacrum horizontally	Program 3	3rd cycle - 10 min



Abdominal Muscle Strain

Tennis players frequently strain abdominal muscles. Two sets of muscles suffer injuries the most: “the six-pack muscle” and the oblique muscles.

Abdominal Muscle Strain

The most common injury context

Both abdominal and oblique muscles are used heavily in the tennis service action, both to stop the trunk from going backward and also to help the trunk while flexing. Sometimes due to inappropriate serving techniques, the muscle gets strained and even torn.

The most common signs of abdominal and oblique muscle injuries

Symptoms of an abdominal muscle strain are sudden stabbing pain upon contraction of the injured muscle. Similar clinical features can be seen in tennis players where the left or right side muscles of the trunk can be affected by serving. This injury is rather common and debilitating if untreated.

Placing FlexBeam over the injured area immediately will help to speed up healing.



FlexBeam Protocol for Abdominal and Oblique Muscle Injuries

It is recommended to place FlexBeam over the injured area immediately. However, in the case of a muscular tear, you need to wait until the bleeding has stopped and haematoma has formed. In that situation, icing is recommended first. Once the damaged blood vessels are sealed, you can start using FlexBeam.

Use Flexbeam until full recovery at all stages of healing. Combine gentle stretching exercises when the pain subsides and address the serving technique. Consult a medical practitioner if the pain persists.

Abdominal Muscle Strain Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?	Which Program?	For How Long?
Upper abdomen horizontally	Program 3/2	1st cycle - 10 min
Mid-abdomen horizontally	Program 3/2	2nd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Abdomen vertical	Program 3/2	1st cycle - 10 min
Lower abdomen horizontally	Program 3/2	2nd cycle - 10 min



Oblique Muscle Strain Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?

Right side abdomen following oblique muscle

Which Program?

Program 3/2

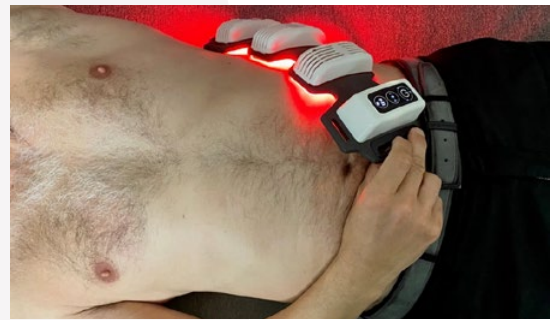
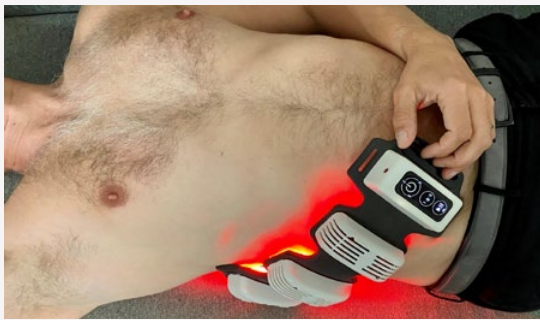
For How Long?

1st cycle - 10 min

Right side abdomen following oblique muscle

Program 3/2

2nd cycle - 10 min



Protocol B

Where to Place?

Affected side of the body horizontal

Which Program?

Program 3/2

For How Long?

1st cycle - 10 min

Affected side of the body vertical

Program 3/2

2nd cycle - 10 min



Stress Fracture: Foot

Stress fractures are common in tennis due to the repetitive nature of the actions involved and the repeated landing of the foot on a hard surface.

Pain over the site of the fracture, often with swelling and tenderness around the affected bone, are the main symptoms, no matter where the fracture occurs.

Stress Fracture: Foot

The most common injury context

Repeated injury, overuse, or a sudden increase in the intensity of training can cause an appearance of a crack in the bone of the foot. It typically happens in the metatarsal bones. Ice and rest are the key actions requiring healing. Many professional sports players use crutches to allow the foot to rest completely.

FlexBeam Protocol for Stress Fracture of the Foot

FlexBeam should be used immediately after the initial icing. FlexBeam supports natural healing, enabling the body to heal faster, with less pain and scarring. It is recommended to use FlexBeam during all stages of healing.



FlexBeam supports natural healing, enabling the body to heal faster, with less pain and scarring.

Stress Fracture Support: Foot

If the injury is recent; treat monday to friday, weekends off. 2 to 3 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day.



Protocol

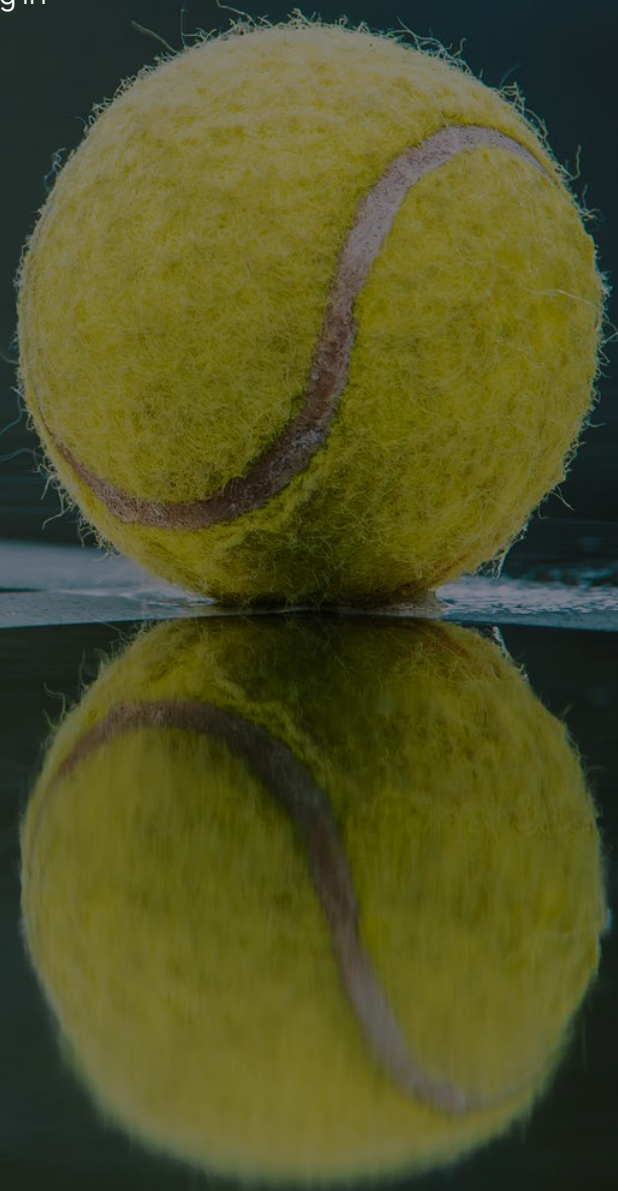
Where to Place?	Which Program?	Recent Injury	Ongoing Injury
Around fracture - top and bottom If chronic , add the opposite side	Program 2/3	1st cycle - 10 min	1st cycle - 10 min 2nd cycle - 10 min
Lower leg corresponding to fracture If chronic , add the sacrum spine	Program 3 Program 3	2nd cycle - 10 min	3rd cycle - 10 min 4th cycle - 10 min



Stress Fracture: Back

Stress fractures of the back are common in the lower lumbar region vertebrae of the back. Stress fractures take the form of subtle cracks in the vertebrae structure and typically happen due to overuse.

Another cause of such fractures is considerable pressure applied on the lower spine resulting in building pressure in the bone.



Stress Fracture: Back

The most common injury context

Tennis is a sport which puts a lot of pressure on the back. The spine suffers many twists and torsions that occur suddenly and repeatedly. Serve, hits in difficult positions, and other situations that put more strain on the back.

The most common signs of a back stress fracture

Pain in the affected area increases when the back bends to lean forwards or backwards or could be felt just as a dull ache for prolonged periods of time.



FlexBeam should be used at every stage of healing.

FlexBeam Protocol for Stress Fracture of the Back

Initial icing and rest are important in stress fracture management. FlexBeam should be used at every stage of healing. More serious stress fractures may require the back to be immobilized, which will involve wearing a cast for a period of time. In such cases, FlexBeam can be used as soon as the injury occurs.

To prevent stress fractures, introduce sufficient rest periods between physical activity, build up gradually the intensity of training sessions, and combine training with swimming or light cycling.

Stress Fracture Support: Back

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?	Which Program?	For How Long?
Above waistline horizontally Across sacrum horizontally	Program 3/2 Program 3/2	1st cycle - 10 min 2nd cycle - 10 min
Across neck-upper back	Program 3/2	3rd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Mid spine vertically	Program 3/2	1st cycle - 10 min
Lower end of the spine vertically	Program 3/2	2nd cycle - 10 min
Or across the sacrum horizontally	Program 3	3rd cycle - 10 min



Knee Injuries

Knee injuries are rather common in tennis and occur typically due to a combination of a couple of factors. Sudden changes in movement and playing on hard surfaces are major contributing factors to knee injuries.

In the case of tennis players, this often results in tendonitis and damage to the ligaments and cartilage. Two leading knee injuries in tennis players are called tennis or jumper's knee, and meniscus cartilage tear.

Knee Injuries

Tennis knee

- Patella tendonitis (also known as jumper's knee) occurs when the cartilage surrounding the kneecap becomes inflamed. This is usually due to overuse and continuous jumping and landing. Spasm in the quads promotes stress on the knee and contributes to this injury.
- Pain and swelling around the kneecap are typical symptoms. The pain exacerbates when the pressure is applied to the kneecap or when the leg is bending at the knee.



Common causes of cartilage tears include quick changes of direction and action involving the body reaching or twisting, putting excessive pressure on the cartilage.

Meniscus cartilage tear

The knee is supported by the lateral and medial menisci, which protect the knee and absorb pressure and shock during physical activity. Some actions can cause the menisci to be stretched beyond their limits, which may contribute to sprains or tears.

The most common injury context

Common causes of cartilage tears include quick changes of direction and action involving the body reaching or twisting. It is a common occurrence in tennis for a player to twist and reach for a shot and for their feet to stay in the same position. This puts excessive pressure on the cartilage, and it can easily tear.

Knee Injuries cont.

The most common injury signs

- Severe localized pain.
- Swelling.
- Restricted movement.
- Pain increases if the knee is moved.

FlexBeam for Knee Injuries

- Cartilage tears take a long time to heal because they are poorly vascularised.
- Initial icing and rest are important.
- Use the Flexbeam from the beginning frequently and at all stages of healing. Red light therapy may help avoid surgery.
- Use crutches to stop weight-bearing.
- Physiotherapy will also help to condition the knee and strengthen the tissue surrounding the joint.
- The knee should be rested for a long period of time following a cartilage tear.



Larger tears may require surgery, although only certain injuries may be treated surgically. Surgery is usually carried out by means of arthroscopy (keyhole surgery).

Adequate warmups and cool-downs will be helpful in preventing injury. Wearing knee support and doing specific stretches to improve flexibility in the knee joint will also help reduce the possibility of an injury. Using FlexBeam an hour before strenuous exercises can improve body preconditioning.

Jumper's Knee/Meniscus Tear Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?

Front of the knee
 IT band (side of thigh)

Which Program?

Program 3/2
 Program 3

For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Sacrum

Program 3

3rd cycle - 10 min



Protocol B

Where to Place?

Lumbar
 Over the gluts

Which Program?

Program 3
 Program 3

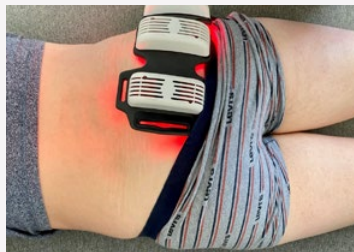
For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Front of the thigh horizontal/vertical

Program 3

3rd cycle - 10 min





Ankle Sprains

Almost 30% of all sprains and strains in tennis players involved ankles. This is one of the most common injuries.³

³<https://pubmed.ncbi.nlm.nih.gov/29315449/>

Ankle Sprains

The most common injury context

The majority of sprains affect the lateral ligaments⁴⁵. It is caused when the athlete lands on the outside of their foot and then the foot rolls inwards. Another scenario involves the player taking a serve or jumping up to reach the ball to return the shot. The ligament becomes overstretched or torn depending on the severity of the sprain.

Sprains occur due to a weakness of the anterior talofibular ligament. Following the injury, a ligament weakens and causes instability within the whole ankle, promoting re-injury.

The most common injury signs

- immediate severe pain
- Swelling
- Bruising
- Redness
- Inability to bear weight on the affected foot
- Swelling occurs in the sight of injury due to damaged tissues

Treatment strategies for acute and recurrent sprains slightly differ. In the case of an acute ankle sprain, go for the usual, usual routine that involves, icing, compression, and elevation. Wait until the bruise is formed, and apply FlexBeam immediately.

When dealing with chronic injury and rehabilitation, add FlexBeam to the routine. Use your device locally at first, every day. Continue to add applications around adjacent muscles, behind the knee, and even the sacrum.

⁴<https://pubmed.ncbi.nlm.nih.gov/33362991/>

⁵<https://journals.humankinetics.com/view/journals/jsr/29/2/article-p231.xml>

Ankle Sprain Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A


Where to Place?	Which Program?	For How Long?
Front of the ankle Back of the ankle	Program 3/2 Program 3/2	1st cycle - 10 min 2nd cycle - 10 min
Side of the lower leg	Program 3	3rd cycle - 10 min



Protocol B

Where to Place?	Which Program?	For How Long?
Sacrum Upper calf	Program 3 Program 3	1st cycle - 10 min 2nd cycle - 10 min
Lower calf	Program 3	3rd cycle - 10 min





Tennis Leg & Achilles Tendon Rupture

Tennis leg refers to acute mid-calf pain, which is a common tennis injury, usually experienced by middle-aged players, incurred with extension of the knee and forced dorsiflexion of the ankle.⁷

Common cause of tennis leg is a rupture of the medial head of the gastrocnemius muscle. Often, a “snapping” sensation is both felt and heard by the patient. An Achilles tendon rupture is a complete or partial tear that occurs when the tendon is stretched beyond its capacity.

⁷<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5310238/>

Tennis Leg & Achilles Tendon Rupture

The most common injury context

Forceful jumping or pivoting, or sudden accelerations of running, can overstretch the tendon and cause a tear.

An injury to the tendon can also result from falling or tripping. It is typically seen in middle-aged people participating in sports in their spare time.

Less commonly, illness or medications, such as steroids or certain antibiotics, may weaken the tendon and contribute to ruptures.

The most common injury signs

- Sudden pain (which feels like a kick or a stab) in the back of the ankle or calf—often subsiding into a dull ache
- A popping or snapping sensation
- Immediate swelling on the back of the leg between the heel and the calf, accompanied by difficulty in walking



These symptoms require prompt medical attention to prevent further damage. Until the patient is able to see a doctor, the RICE method should be used.

Diagnosis and rehabilitation should be done professionally. It is important to be diagnosed correctly because the treatment strategy is different for these two injuries. However, FlexBeam should be used in both types of injuries. In case of a tennis leg injury, use it under supervision. According to Joelle R. Harwin research, 10% of patients presenting with Tennis Leg may actually have deep vein thrombosis, a potentially life-threatening condition.

Achilles Injury Support

If the injury is recent; treat monday to friday, weekends off. 2 times a day.
 If it is ongoing; treat monday to friday, weekends off. Once a day, alternate two protocols (A&B). For sensitive individuals; every other day for 4 weeks and then a week break.



Protocol A

Where to Place?

Front of the ankle
 Back of the ankle

Which Program?

Program 3/2
 Program 3/2

For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Over Achilles vertical

Program 3

3rd cycle - 10 min



Protocol B

Where to Place?

Over Achilles
 Sacrum

Which Program?

Program 3
 Program 3

For How Long?

1st cycle - 10 min
 2nd cycle - 10 min

Upper calf

Program 3

3rd cycle - 10 min



Tip: If you own two FlexBeam's, you can simultaneously use them on both Achilles.



Tennis Toe

Tennis toe is blood bruising under the toenail and it is formed due to repeated pressure or injury to a toe. In most cases, it is the big toe and it can be extremely painful.

In serious cases, blood needs to be drained to release this pressure. It is generally due to wearing either too small or too big shoes.

Prevention of tennis toe is simple:

- Keep toenails clipped short so they do not extend past the end of the toe. This will reduce pressure and friction to the toe.
- Tape the big toe and second toe together.
- Make sure your shoes fit properly and are not too big or too small.

Tennis Toe Support

You can try using the FlexBeam if the condition is not too advanced before the stage when it can only be drained to relieve pain.



Protocol

Where to Place?

Directly over the toe(s)

Which Program?

Program 1/2
Program 3/2

For How Long?

1st cycle - 10 min

How Often?

2 x 3 times a day



Blisters

Blisters are common for tennis players on both their hands and feet. Before considering any medication, try to use your FlexBeam. It can be very helpful in clearing these wounds, even if blisters are open. The nature of Red light therapy is in assisting in natural recovery. In the case of these types of injuries, that can be very helpful.

Blisters



Protocol

Where to Place?

Directly over the blister

Which Program?

Program 1/2

For How Long?

1st cycle - 10 min

How Often?

2 x 3 times a day



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:

- Ice your injury only for several hours until the bruise is formed. From that point on, 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.

Loved this content? Follow us on social media for more!



Sources:

- <https://www.itftennis.com/en/news-and-media/articles/itf-global-tennis-report-now-available-on-itf-academy/>
- <http://itf.uberflip.com/i/1169625-itf-global-tennis-report-2019-overview/5?>
- <https://www.frontiersin.org/articles/10.3389/fpubh.2022.835119/full>
- <https://activesafe.ca/tennis/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2577485/>
- http://www.playerdevelopment.usta.com/Improve-Your-Game/Sport-Science/114390_Technique_The_Kinetic_Chain/
- <https://www.aspetar.com/journal/viewarticle.aspx?id=198>
- <http://tennisopolis.com/profiles/blogs/how-to-develop-bone-crushing>

No Medical or Personal Advice

The information in any of our handouts, e-books, written material, whether provided in hardcopy or digitally (together 'Material') is for general information purposes and nothing contained in it is, or is intended to be construed as advice. It does not take into account your individual health, medical, physical or emotional situation or needs. It is not a substitute for medical attention, treatment, examination, advice, treatment of existing conditions or diagnosis and is not intended to provide a clinical diagnosis nor take the place of proper medical advice from a fully qualified medical practitioner. You should, before you act or use any of this information, consider the appropriateness of this information having regard to your own personal situation and needs. You are responsible for consulting a suitable medical professional before using any of the information or materials contained in our Material or accessed through our website, before trying any treatment or taking any course of action that may directly or indirectly affect your health or well being.

Copyright Disclaimer

You may not share, copy or redistribute this Material in any medium or format at any time. Our materials are for your individual personal use only and may not be used for commercial purposes. You are not permitted to make any derivative material, including but not limited to copying, reproducing, transforming, sharing or building upon the material in whole or any part thereof. For any other use or distribution, you must have express written consent from Recharge Health, www.recharge.health to be used as a tool for diagnostics.