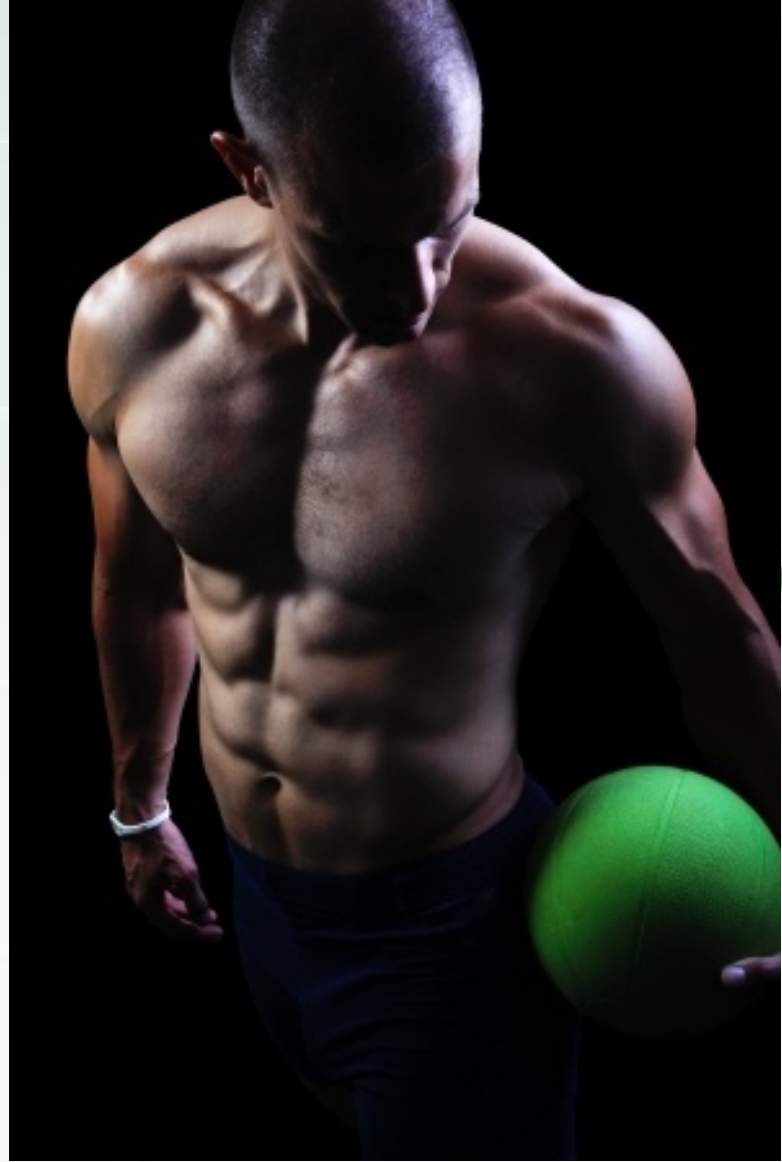


THE  
PERFORMANCE  
ATHLETE'S  
GUIDE TO  
MUSCLE  
RECOVERY



*Learn the scientific process behind muscle recovery and the three most critical things to keep in mind when you are looking to facilitate efficient muscle recovery.*

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# Summary

**T**he human body contains hundreds of different muscles: [according to the Library of Congress](#), the exact number of muscles in the body is between 650 and 840. Muscles are an essential part of our physical makeup; they are what allow people to do physical activities and move in the way they want. It is the goal of many people, whether for cosmetic reasons, health purposes or athletic competition, to improve the condition of their muscles so they can perform better at a variety of physical tasks.

In order to train muscles to become stronger and grow larger, it is necessary to initiate a process called hypertrophy. [MedicineNet.com describes hypertrophy](#) as what happens when microscopic tears take place in muscle fibers, stimulating the body to send nutrients to the area so the muscle fibers can rebuild themselves and grow stronger, thanks to an increasing number of smaller fibers known as myofibrils. As this process is repeated, the muscles grow stronger.

Many athletes, and people who are looking to improve their muscular conditioning, focus on strength or endurance training as the key to progress. While it is true that this training is important, many athletes and fitness enthusiasts forget to incorporate muscle recovery as an important component of getting healthier. There are several critical things to keep in mind when it comes to muscle recovery. In this guide, you will learn the scientific process behind muscle recovery and the three most critical things to keep in mind when you are looking to facilitate efficient muscle recovery.

*“Muscles are an essential part of our physical makeup.”*

# What is Muscle Recovery?

In a nutshell, muscle recovery is the period when your muscles recover from the strain they are put under when you workout or engage in athletic competition. [A paper published by Dr. Len Kravitz and Young sub Kwon](#) at the University of New Mexico provides an in-depth explanation of what happens when muscles recover. The trauma experienced by the muscle fibers leads to the activation of satellite cells on the outside of the muscle fibers. These satellite fibers then fuse together with the old muscle fibers, making the muscle stronger. As the satellite cells fuse together, they become a source of new nuclei that muscle fibers can use to synthesize more proteins, which help promote efficient muscle growth.

The reason that many athletes or exercise enthusiasts don't pay close attention to muscle recovery is because it simply is not as interesting a process as when a person is training or engaging in athletic competition. Use of muscles occurs during exciting times like sports games, boxing matches, or training sessions in the gym. On the other hand, muscle recovery happens while a person is physically inactive, such as when they are sleeping or sitting down at a sedentary day job.

*“In a nutshell, muscle recovery is the period when your muscles recover from the strain they are put under when you workout or engage in athletic competition..”*



Despite the relative lack of excitement that muscle recovery comes with, it is just as important as weight training if you want your body to stay in excellent condition. If you neglect your muscle recovery periods, you will compromise the binding of satellite fibers to your muscle fibers, which will slow down the growth of muscles that you need to help increase your strength and athletic performance. When it comes to your muscle recovery, there are three critical elements to keep in mind: your diet, getting sufficient rest and using the right recovery techniques. With the proper attention paid to these three areas of muscle recovery, it will be much easier for you to grow your muscles efficiently.

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# Dieting for Muscle Recovery

**Y**ou already know that the foods you eat have a distinct impact on the way that your body works. Proteins, for example, are very important substances for people who are looking to facilitate muscle growth. This is because of a specific type of amino acid called a BCAA or branched-chain amino acid. BCAAs can help prevent the deterioration of muscle tissues during exercise, since they are the only kinds of amino acids that are oxidized for energy.

When it comes to muscle recovery, the best foods to eat are the ones that help your muscles go through the scientific recovery process more effectively. There are several kinds of nutrients that help the muscles recover after intense activity. Some of the most common foods recommended for people who want to improve their muscle recovery include:



1. Cherries, blueberries, and other healthy fruits
2. Hot chocolate and chocolate milk
3. Whole-wheat rice and pasta



Above all, it is important that you keep a balanced diet and eat the types of foods that will give you the nutrients your body needs to promote muscle recovery. If you have more in-depth questions about how to create a balanced diet to promote muscle recovery, get in touch with a nutritionist or physician who can help make suggestions about what exact kind of diet is best for your needs.



# Getting Sufficient Rest

**T**he second of the three critical elements to muscle recovery for athletes is allowing yourself to get enough rest. Being rested is important because the process of muscle recovery cannot begin while there is still strain being placed on the muscles. They need to be resting in order for the satellite muscle fibers to get to work binding with the muscle fibers to create stronger muscles in your body.

Exactly how much rest do you need between workouts? [Personal trainer William R. Sukala says](#) that while moderate and low-intensity aerobic exercises like walking and swimming can be performed on a daily basis, when it comes to weight lifting and other activities that can leave your muscles sore, you should give yourself at least 48 hours between workouts. If you are new to weight lifting or are getting severe soreness after a workout, you may even want to give yourself a full 72 hours of rest. This will give your muscles plenty of time to recover so that you can be sure that you go into your next workout or competition ready to perform at your highest possible level.





Another key aspect of getting proper rest for muscle recovery is getting enough rest every night. You have to make sure that your body is sleeping sufficiently so that you are able to physically and mentally perform. The amount of sleep you need depends on how old you are and what kind of lifestyle you lead, but [most experts estimate that around 7-8 hours](#) should be sufficient for an average adult.

For athletes who train and compete very often, more sleep may be necessary. [ESPN reports that](#) high-level professional athletes like LeBron James and Roger Federer sleep about 12 hours a day, including naps, to help them perform at the highest possible level. If you are required to train or compete physically almost every day, more sleep may be necessary in order for you to keep your body in the best possible shape through adequate muscle recovery.



# Using the Right Recovery Techniques

**T**he third aspect of muscle recovery involves making sure you use the proper techniques to help your muscles recover. What are some of the recommended techniques for muscle recovery? There are several common ones:

1. **Massage therapy:** massage therapy has been considered a valuable method of muscle recovery for many years because of the way that muscles respond when they are massaged. Through massage, a person can relax their muscles and potentially move some nourishment and waste in the area, which in turn helps muscle fibers get the nutrients they need to keep growing and strengthening during the muscle recovery process.
2. **Rolling your muscles:** this is similar to massage therapy but has its own specific techniques and equipment. Muscle rolling is also known as self-myofascial release. It helps your muscles maintain sufficient motion so that they can contract and expand properly when you are working out.
3. **Over the counter medicines:** these are usually taken on an as-needed basis by people who have trouble with particular parts of their body. Medicines for pain and inflammation may help cut down on soreness; however, side-effects are also possible. Some [research has shown](#) that acetaminophen will suppress the protein synthesis response that naturally happens in skeletal muscles after a workout.



Another very cutting edge modern technique for promoting muscle recovery is using electric pulses to stimulate muscle contractions. The Marc Pro and Marc Pro Plus are great examples of how a device for muscle stimulation can be applied to help with muscle recovery.

On its most basic level, the Marc Pro is used as a way to activate nitric oxide, which serves to dilate blood vessels in your muscles and allow them to more easily transport nutrients into the muscles and waste out of the muscles to expedite the recovery process. Best of all, the Marc Pro is totally customizable, which means you can decide exactly what type of treatment you want depending on how much stimulation you need and what feels good for your body.

# Final Thoughts on Muscle Recovery

**M**uscle recovery isn't glamorous; and you will rarely see highlight reels of muscle recovery when you are watching television. However, recovering from strain placed on your muscles during competition or exercise you partake in is just as important as the training you do to get better at your sport or activity or to increase your strength and endurance.

If you aren't already paying attention to your muscle recovery, you should start by incorporating these three critical elements into your regular workout regimen. Once you get more familiar with ways that you can enhance your muscle recovery, you can then begin to alter your recovery strategy to make sure that the recovery tactics you use are cut out for your body. Trying new things and experimenting with different types of muscle recovery tactics are great ways to improve your recovery. It will require a bit of extra time and thought, but you will find that this effort is well worth it when you are enjoying greater gains in the gym and better performance on the court or field.





Marc Pro®, Inc. is a privately held firm based in Huntington Beach, CA. The founders have over 30 years of experience researching, designing, manufacturing and selling electrical stimulation devices in the medical field. All of that research was used to develop the Marc Pro and Marc Pro Plus. We work with some of the most elite organizations in the country and have sold our devices to players and trainers from over 100 professional and amateur teams. We've patented our technologies and processes, and we've developed a reputation as having the most unique and effective electrical stimulation devices available. We designed and manufacture the Marc Pro device ourselves, right here in Huntington Beach California where our corporate and manufacturing headquarters reside. We are dedicated to helping athletes at all levels Do More, Recover Faster, and Feel Better!

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