

# **Regeneration: Recovery through stretching and massage**

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## **Introduction**

Athletes exert their body to their maximum capabilities during competitions, where every millisecond and/or match point makes or breaks a podium finish. After all the work that is done, athletes need a sound strategy for recuperating from the stress of the competition, to come back ready for the next game, match or stage.

Regeneration is the process of planned activities to assist an athlete to return to a state of performance readiness. This involves a restoration of energy stores, a return to normal physiological function, a reduction of muscle soreness, and disappearance of psychological symptoms associated to fatigue (irritability, disorientation and loss of concentration). Such recovery modalities\* include nutrition replenishment, relaxation training, hot-and-cold contrast baths, swimming pool work, massage, light rhythmic exercise, static stretching, sleep etc.

This article will focus on the recovery of muscle soreness as part of the regeneration process. Stretch-shortening cycles of muscle actions occur frequently during match-play and training, the eccentric components of which lead to the phenomenon of delayed-onset muscle soreness. This type of soreness may be compounded by bruises and contusions due to physical contact in competition. Such soft tissue microtrauma may be countered by utilizing recovery techniques such as, static stretching and self-massage. These techniques will be highlighted in this article as they can be easily implemented by athletes in between events, without the need of bulky equipment.

## **Stretching**

Static stretching of most, if not all muscle groups are important to athletic performance as it aids to increase muscle and joint flexibility. In addition to improving range of motion, stretching is extremely relaxing and most athletes use stretching exercises to maintain a balance in body mechanics. The best time to perform the static stretching routine is after an event. This is when the muscle is the warmest and also a great time to use for relaxation. Focus on stretching the muscles utilized the most during the specific sport.

### **General guidelines for static stretching**

- Avoid over-stretching. Never stretch to the point of pain or discomfort. There should be a slight tension or a pull on the muscle at the peak of the stretch.
- Always stretch slowly and evenly. Hold the stretch for about 15-30 seconds and release slowly as well.
- Never bounce or jerk while stretching. This may cause injury as a muscle is stretched beyond its elongated length.
- Never hold your breath while you stretch. Flexibility exercises should be relaxing. Deep easy, even breathing is key to relaxation.

Below are examples of stretching techniques.

1. Iliotibial band (Figure 1.)
  - Begin by lying on the back with knees bent at the side.
  - Use the lower-limb of the non-involved leg to press the knee of the involved leg down.
  - Be careful not to use excessive force to cause undue pressure on the knee joint.
2. Upperback (Figure 2.)
  - Camel stretch to elongate the upperback muscles (trapezius and rhomboids)
  - Kneel on mat or floor. Place hands shoulder width apart.
  - Flex spine by hunching the back up
3. Lowerback (Figure 3.)
  - Worship stretch to elongate the lowerback muscles (erector spinae)
  - Kneel on mat or floor. Extend arms well beyond knees and place forearms on floor.
  - Lower torso as far down as possible and sit back. Hold stretch

## **Massage**

Self-massage is another method of recovery that assists in relieving muscle and joint pains, as well as improving flexibility and range of movement. One such technique is termed myofascial release and is used for the purpose of relieving soft tissue adhesions (knots) that develop in the fascia under the skin. These knots may arise because of various reasons (injury, over-repetitive activity). With myofascial release, one is able to soften and lengthen (release) the tight fascia, thus limiting muscle restriction and improving functional movement.

Various tools (Figure 4.) can be used to perform self- myofascial release; the two common ones being the foam roller and trigger ball. These are available in various densities, are inexpensive and can be used on all major muscle groups. Your body weight creates the pressure that massages and releases tight spots in the fascia. You control the pressure by applying more or less body weight on the foam roller and using your hands and feet to offset your weight as needed.

## **General guidelines for self- myofascial release**

- Perform self- myofascial release when your muscles are warm or after a workout.
- Position the roller under the soft tissue area you want to release or loosen.
- Gently roll your body weight back and forth across the roller while targeting the affected muscle.
- Glide slowly and work from the center of the body out toward your extremities.
- If you find a particularly painful area (trigger point), hold that position for 10-30 seconds until the area softens.
- Focus on areas that are tight or have reduced range of motion.
- Roll over each area a few times until you feel it relax. Expect some discomfort. It may feel very tender or bruised at first.
- Stay on soft tissue and avoid rolling directly over bone or joints.

- Tightness in these areas will tend to soften and release in response to gentle pressure over a period of time. As the extensibility is improved in the myofascia, elongation and stretching of the musculotendinous unit should be incorporated.

Below are examples of self- myofascial release techniques.

1. Iliotibial band (Figure 5.)
  - Lie on the foam roller on your side, with the roller positioned just below the hip. Your top leg is bend in front to adjust the pressure and provide better balance.
  - Use your hands for support and roll from below the hip down to above the knee, pausing on any tight or sore spots.
  - Repeat on the other side.
2. Upperback (Figure 6.)
  - Position the trigger ball beneath your shoulder blades to release the muscles of the upper back (trapezius and rhomboids).
  - Support your head with your hands and keep your knees bent and feet flat on the floor.
  - Alternate arm flexion and extension, pausing on any tight or sore spots.
3. Lowerback (Figure 7.)
  - Position the trigger ball just above the back of the hips to release the muscles of the lower back (erector spinae).
  - Crunch at the waist while keeping the knees bent and feet flat on the floor.
  - Relax. Glide along the tight or sore spots of the lower back and repeat.

Athletes would benefit from such strategies with less degree of soreness and cumulative fatigue. Regeneration must be an active process consisting of a planned routine to help the body recover from competition and to return to previous performance levels. This is particularly important if competition schedules are congested.

#### References:

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Figure 1. Iliotibial band stretch



Figure 2. Camel Stretch



Figure 3. Worship stretch

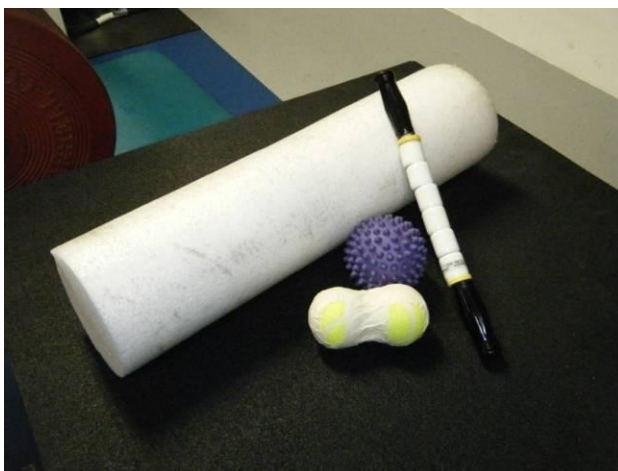


Figure 4. Various tools for myofascial release



Figure 5. Iliotibial band myofascial release



Figure 6. Upperback myofascial release



Figure 7. Lowerback myofascial release



\* These exercises have been considered by the Performance Conditioning Unit coaching staff to be suitable if all safety measures are observed and correct technique is used. However, readers are advised to seek professional advice on their personal condition before attempting these exercises. The authors will not be held liable for any injuries sustained as a result of following any of the training methods and techniques shown in any articles.