



Recovery

Recommendations for athletes

Recovery – Key points

- Recovery is becoming increasingly important to the high-performing athlete in a bid to reduce fatigue and enhance performance.
- Some of the more common recovery techniques utilised by athletes include hydrotherapy, active recovery, stretching, compression garments and massage.
- In the previous 5–10 years, there has been a significant increase in research examining both the effects of recovery on performance and potential mechanisms.
- Recent research suggests that hydrotherapy, compression and massage can enhance acute performance when utilised appropriately.
- As recovery is a relatively new area of scientific research, athletes are encouraged to experiment with various recovery techniques to identify useful individualized recovery strategies.

Recovery

- Some of the most popular recovery techniques for athletes include:
- hydrotherapy,
- active recovery,
- stretching,
- compression garments,
- massage,
- sleep and nutrition

Hydrotherapy

- Although hydrotherapy is incorporated widely into post-exercise recovery regimes, information regarding these interventions is largely anecdotal. The human body responds to water immersion with changes in the heart, peripheral resistance and blood flow, as well as alterations in skin, core and muscle temperature (Wilcock et al., 2006). The changes in blood flow and temperature may have an effect on inflammation, immune function, muscle soreness and perception of fatigue.
- Example might be an ice bath

Active recovery

- An active recovery workout involves performing low-intensity exercise following a strenuous workout. Examples include walking, yoga, and swimming.
- Active recovery is often considered more beneficial than inactivity, resting completely, or sitting. It can keep blood flowing and help muscles recover and rebuild from intense physical activity.
- Avoid active recovery if you're injured or in a lot of pain, though. Symptoms of an [injury](#) may need to be evaluated by a doctor.

Examples of active recovery exercises include

- Swimming.
- Tai chi or yoga. Practicing tai chi or yoga can be beneficial for active recovery. ...
- Walking or jogging. Walking is one of the best forms of active recovery. ...
- Cycling. ...
- Myofascial release with a foam roller

Stretching



POST-EXERCISE STRETCHING

SCIENCE
SPORT



Stretching

"The application of force to musculotendinous structures in order to achieve a change in their length, usually for the purposes of improving joint range of motion, reducing stiffness or soreness, or preparing for an activity."



Stretching types

Stretching has been used for centuries, and can be split into various categories; static, dynamic, and pre-contraction.



Recovery

Recovery from exercise is typically seen as a 2-stage model: returning what was lost (e.g. reducing fatigue and re-establishing range of motion), and adapting (i.e. supercompensation) to the imposed training demands.



Our Summary

Post exercise stretching is a popular recovery modality used by high performance practitioners. Due to the specific effects of stretching on flexibility, its use is likely to continue. Post exercise stretching is likely best used in combination with other modalities in order to optimise athlete recovery.



Static stretching

Static stretching may influence recovery through a range of mechanisms:

Blood Flow

Despite being reduced during static stretching, blood flow increases significantly post-stretch.



Muscle Soreness

Post-exercise stretching appears to have a little effect on reducing muscle soreness 1-7 days after exercise.



Parasympathetic modulation

Static stretching increases parasympathetic nervous system activity, and therefore may improve relaxation.



Range of movement

Static stretching appears to be an effective means for improving flexibility.



Compression Garments

- Compression garments are worn to improve ongoing recovery (between training sessions), but also as a way to improve intense recovery (during training sessions). A 2013 meta-analysis concluded that they can improve ongoing recovery of muscle strength and power between training sessions

Massage for sports recovery

- A post event massage helps aid recovery after exercise. Massage can help prevent post exercise soreness, restore range of movement and encourage blood flow to tight muscles. Receiving a post event massage immediately after exercise will significantly reduce soreness, fatigue and tightness within the next 72 hours

Sleep

- For both athletes and non-athletes, [sleep is essential](#) for overall health and wellbeing. Everyone needs sleep in order to feel restored and [function their best](#) the next day. Other physical benefits include:
- Allowing your [heart to rest](#) and cells and tissue to repair. This can help your body recover after physical exertion. Also, as you progress through the stages of sleep, the changes in your heart rate and breathing throughout the night [promote cardiovascular health](#).
- Preventing illness or helping you recover from illness. During sleep, your body produces cytokines, which are hormones that help the immune system fight off infections.
- All of these restorative effects are important for athletes' recovery and performance.

Nutrition

- Nutrition is essential for supporting an athlete's general health and their training needs. Having a suitable diet provides a person with enough energy and nutrients to meet the demands of training and exercise. In addition to helping a person perform optimally, it facilitates recovery.
- Timing your nutrition for recovery should include ensuring pre-exercise meal(s) adequately fuel your activity and that you optimize your macronutrients, as mentioned above, to maintain glycogen stores and protein balance.
- While there is some debate with respect to the post-exercise "optimum window," one should consider that it is likely that glycogen replenishment and protein consumption soon after exercise or an event can help optimize adaptations and recovery and minimize adrenal stress and catabolism.

PRACTICAL APPLICATIONS

- Current evidence as well as anecdotal evidence from athletes suggests that completing appropriate recovery can aid in enhancing performance.
- Consideration should be given to the amount of time until the next training session or competition.
- Use appropriate temperatures and duration for water immersion. Research has found positive effects of water immersion at temperatures of 10-15°C for cold water and 38-40°C for hot water.
- Cold water immersion or contrast water therapy for a duration of 14-15 min has been shown to improve performance in selected studies.
- The ratio of hot-cold water immersion during contrast-water therapy should be 1:1. Research that has reported positive performance effects used seven rotations of 1 min hot and 1 min cold.
- Compression garments and active recovery may be beneficial for recovery in endurance-trained athletes.
- Sleep and a healthy diet underpins all recovery methods

Summary

It is important that athletes experiment with a variety of strategies and approaches to identify the recovery options that work best for each individual.