

Recharge for Peak Performance

ARE YOU SMASHING OUT TRAINING SESSIONS HARDER THAN EVER, BUT YOUR TIMES ARE NOT IMPROVING. IF THIS IS YOU, THEN MAYBE IT'S TIME TO RETHINK YOUR STRATEGY.

IMPROVED PERFORMANCE IS achieved through training periodisation, where gradually increased training loads are interspersed with periods of rest and recovery. The body tolerates and adapts to the increased training intensity during the rest periods. If your training load leads to reduced performance that require days to weeks for recovery, you are likely 'overreaching,' a precursor to overtraining syndrome. Overreaching followed by appropriate rest can result in increased performance. However, extreme overreaching combined with an additional stressor can cause overtraining syndrome (OTS).

Overtraining syndrome (OTS) is the name given to the clinical diagnosis of a maladaptive response to excessive exercise without enough rest. It has also been known as burnout, training stress syndrome, failure adaptation, under-recovery and staleness. It can be difficult to distinguish between overreaching and OTS, and some researchers consider them to be on a continuum. The difference between them is based on the time for recovery rather than the intensity or type of symptoms.

The main symptom of overreaching and OTS is reduced performance. You may also feel chronically tired, lethargic, drained, and experience general aches and pains. Some people will suffer headaches, insomnia,

mood changes and decreased immunity, leading to frequent colds. These symptoms happen because the training imbalance affects numerous body systems, including the hormonal, nervous and immune systems.

While the cause of OTS is not fully understood, researchers have a number of theories about it. These theories blame everything from low muscle glycogen to excessive oxidative stress to imbalances in the autonomic nervous system (the system that controls automatic functions like digestion and heart rate).

Although the reason some athletes develop OTS is unclear, the mechanisms behind

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improved performance are well understood. As training intensity is increased, the cardiovascular and muscular systems make changes that allow the body to use oxygen and energy more efficiently. Endurance training causes changes in heart size, heart rate, blood flow, blood pressure, blood volume and stroke volume (the amount of blood your heart pumps with each beat). These changes can increase your maximal oxygen



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uptake, or VO2 max, which means your body is using oxygen more efficiently during exercise.

Skeletal muscle is the most adaptable tissue in the body, and is capable of incredible remodelling in response to exercise. Intense exercise, or overload, causes trauma to the muscle fibres. This triggers a series of cellular events leading to muscle repair and regeneration, causing the muscles to grow (hypertrophy). Numerous cells and hormones are involved in this process, including insulin, testosterone and human growth factor. Although these physiological responses are triggered within hours of exercise, it takes several weeks to months for the changes to become evident.

Muscle growth occurs whenever the rate of muscle protein synthesis is greater than the rate of breakdown. Excessive muscle overload without adequate time for recovery and repair means that the rate of synthesis can't keep up with the breakdown. It is during rest and recovery that positive adaptive changes take place.

To get maximum bang for your training bucks, be sure to allow for adequate rest. When it comes to overreaching and OTS, prevention is definitely better than cure. Rest and recovery don't have to mean sitting around navel-gazing. Here are some ideas to rev up your recharge time and help you to get the most from your maxed out training days.

LEFT: Are you getting enough rest?

MANAGE STRESS

You'll never achieve peak performance if you're stress levels are through the roof. Recent reports have shown the importance of psychological and social stressors in the development of overreaching and OTS.

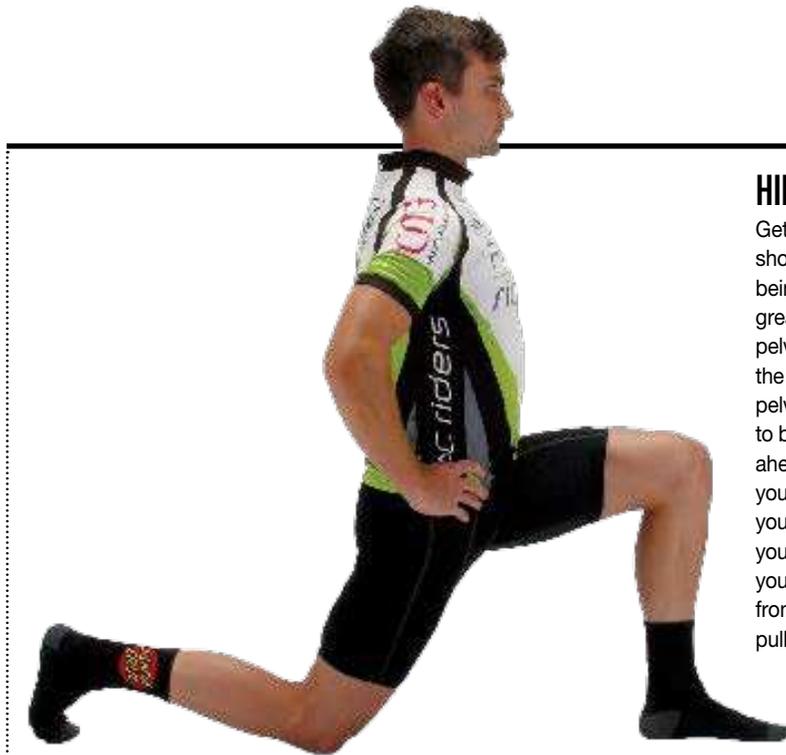
Excessive stress makes you prone to injury and sickness. Elite athletes have access to sports psychologists to help deal with stress, and you can learn from some of their relaxation techniques. Try progressive muscle relaxation, where you sit or lie quietly, and progressively tense then relax every part of your body. Relaxed diaphragmatic breathing is another well-recognised relaxation technique. For more advice on high-performance stress management strategies, talk to a professional.

DO YOUR MUSCLES A FAVOUR

Instead of pushing yourself on the bike 'till your legs are screaming, do something your muscles will thank you for, that will also help your performance. Stiff, tight muscles are more prone to injury, and can negatively impact your technique, potentially causing joint problems and reduced performance. One great option is to get a massage. A sports or remedial massage will help release any tension or trigger points, and improve blood flow to hard working muscles.

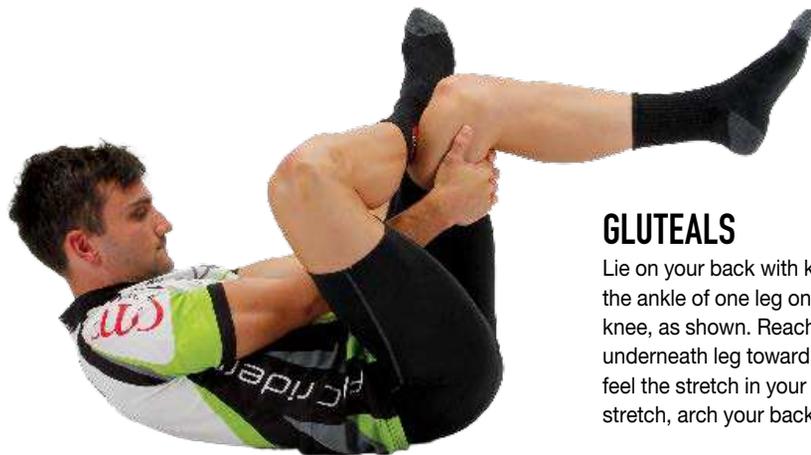
Cyclists are prone to tightness in several muscle groups. We've looked into stretches for problem necks in a previous issue. Here we'll focus on the lower limbs.

Hold all stretches for 20 to 60 seconds, and do five for each leg. Never bounce, or force into pain. If a stretch causes sharp or grabbing pain, it could indicate an underlying problem, so consult your health professional for assessment and advice.



HIP FLEXORS

Get onto the floor in the position shown. The back leg is the one being stretched. The key to a great stretch is getting your pelvic position right. Imagine the bones at the front of your pelvis are headlights. They need to be level and pointing straight ahead. Next, tuck your butt in (if you were a dog, you'd be pulling your tail between your legs). If you don't feel a stretch yet, shift your weight forward over your front foot. You should feel the pull at the front of your hip



GLUTEALS

Lie on your back with knees bent. Place the ankle of one leg onto the opposite knee, as shown. Reach through to pull the underneath leg towards your chest until you feel the stretch in your butt. To increase the stretch, arch your back.



HAMSTRINGS

Still lying on your back, bring one knee halfway towards your chest. Holding the thigh in this position, slowly extend your knee until you feel the stretch behind your leg.



QUADS

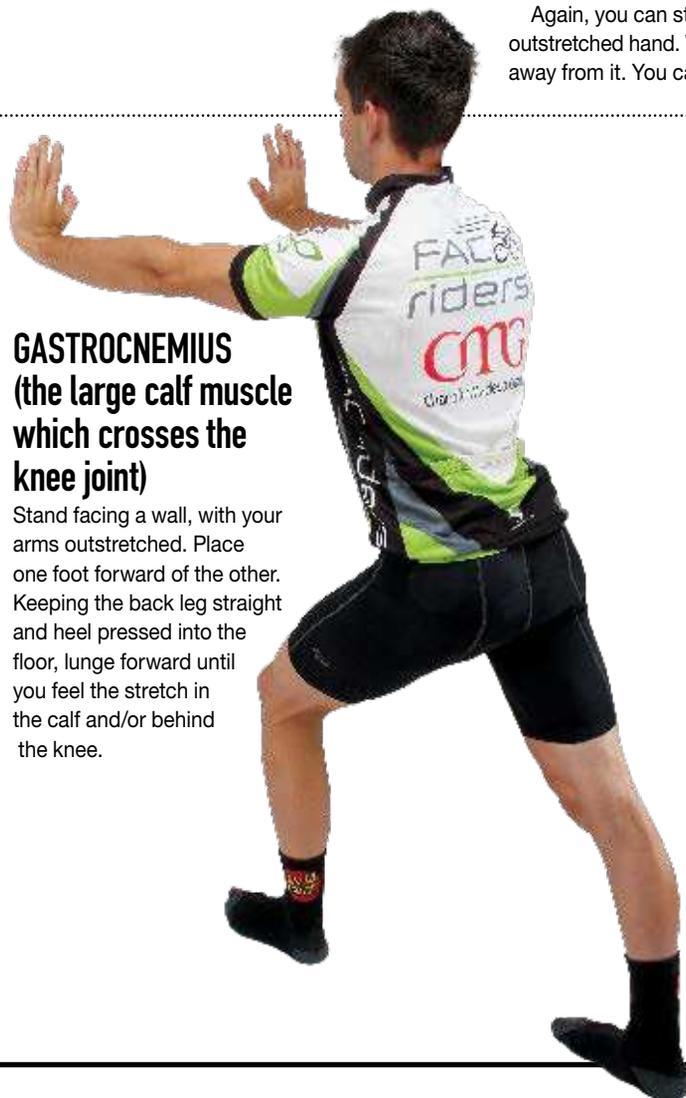
Roll onto your side, and make sure your pelvis is square (as described above). Grab the ankle of the top leg, and pull it towards your butt. Don't let your back arch. This stretch can also be done in standing. Steady yourself with a wall or chair if needed to get your balance on one leg. Pull the ankle of the other leg towards your backside.



ITB

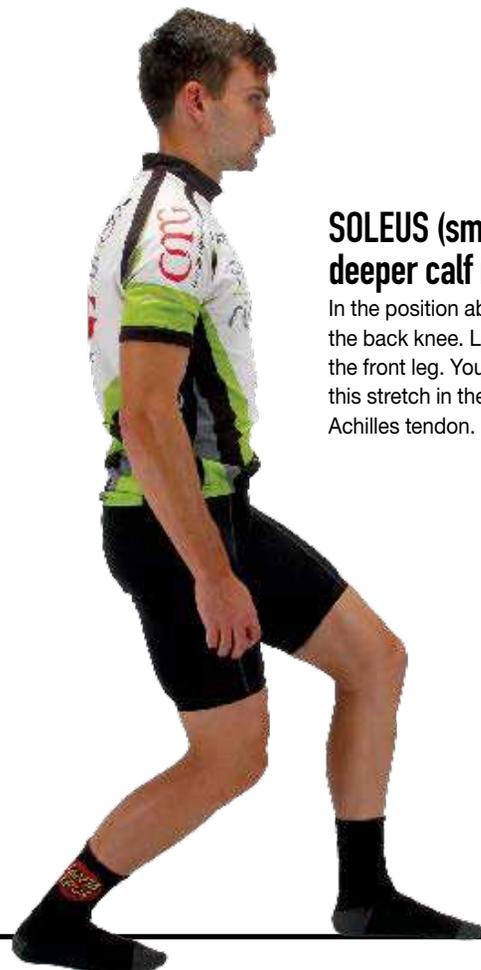
Lying on your side in the position for the quads stretch above, use the ankle of the bottom leg to push the knee of the top leg towards the floor. You should feel a stretch on the outside of the upper hip. Key to getting this one right is keeping your back straight and making sure your pelvis doesn't roll or twist.

Again, you can stretch this muscle in standing. Face side on to a wall, and lean onto your outstretched hand. Without twisting your pelvis, push your hips towards the wall and your shoulders away from it. You can cross the leg furthest from the wall over the other one if you want.



GASTROCNEMIUS (the large calf muscle which crosses the knee joint)

Stand facing a wall, with your arms outstretched. Place one foot forward of the other. Keeping the back leg straight and heel pressed into the floor, lunge forward until you feel the stretch in the calf and/or behind the knee.



SOLEUS (smaller and deeper calf muscle)

In the position above, bend the back knee. Lunge onto the front leg. You should feel this stretch in the calf or the Achilles tendon. 