

## Overtraining

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When participating in sport, junior and elite athletes must put their bodies under a certain amount of stress to increase their physical capabilities. Where the stress loads are appropriate the athlete's performance will improve. But if they are inappropriate, a state of over-training could affect the athlete and reduce performance. How much training is too much is a question all coaches have to deal with, and often this depends on the individual athlete. In junior athletes' programs, fitness and skill development have to be balanced with the need to avoid overtraining. Overtraining is when the athlete is required to do too much either physically or mentally, or both.

Increasing the frequency, duration, or intensity of training too quickly can cause serious injuries. To prevent injuries caused by rapid increases in training, no more than an overload of 10% per week should be used, for both elite and junior athletes. For example, if one week the athlete has to run 20 minutes, the next they can run 22 minutes, and this would allow the athlete's body to become adjusted for the increased load, reducing risk of injury.

Concerning frequency, children shouldn't train for more than 18-20 hours a week. Anytime a child trains for longer than this length of time they should be monitored closely, and any joint pain lasting more than two weeks means the training load should be lowered. Excessive bias on particular training methods can also result in overtraining. Especially concerning junior athletes, focusing on only one aspect of training can cause muscle imbalances, and lead to fatigue. For example, young baseball pitchers in America are not allowed to pitch more than seven innings a week, as any more would dramatically increase the risk of injury due to muscle overuse.

After a long break from activity, high intensity training can put high levels of stress on athletes. Rapid increases in intensity or loading after forced breaks from injuries or illness would overload the body excessively, and lead to injuries. For example, if a rugby player had 2 months off exercise due to a leg injury; high intensity fitness work everyday after he had recovered could cause further injuries.

In identifying an overtrained athlete, the various physical and mental symptoms that indicate over-exertion must be looked at. Concerning general health; increased susceptibility to illness, injuries and infections, weight loss, elevated resting heart rate, chronic muscle soreness, and lethargy can all be seen as factors that would indicate an overtrained athlete. Aside from health, there are 3 different categories of factors that indicate overtraining which are: movement coordination, condition and psychological symptoms. Movement coordination symptoms include: increased incidence of disturbances in movement, such as cramp, disturbances in the general rhythm and flow of movement, lack of ability to concentrate on a task and reduced power of differentiation and correction.

Condition symptoms refer to performance factors and include: diminished powers of endurance, strength and speed. For example, an overtrained swimmer may experience a 5-15% increase in their 100 m freestyle times. Competition factors such as loss of competitive qualities, fear of competition, and a deviation from usual tactics also indicate that an athlete is overtrained. Psychological symptoms are concerned with negative emotional and behavioural changes in the athlete and include: increased irritability, insomnia, decreased self confidence, an increased sensitivity to criticism, poor motivation, and anxiety.

If an athlete is identified as being overtrained, it is vital that they are managed properly. The first step would be to identify the particular symptoms that the athlete showed, and treat these. If the athlete was suffering from severe health problems, such as weight loss and chronic fatigue, immediate medical help should be arranged to limit long term damage.

The next step would be to ensure the athlete has adequate rest. Depending on how severely overtrained the athlete had been, recovery can take from 3 weeks to 6 months. Recovery consists of two types: physical recovery to ensure fatigue has vanished and psychological recovery to prepare the athlete mentally. Using a variety of physical regenerative methods may also help in the rehabilitation process. These include massage, physiotherapy, and hydrotherapy- including spas and flotation tanks. The aim of these methods is to help the athletes body recover from the stress that overtraining placed on it.

In order for athletes to recover mentally, relaxation techniques, such as yoga and listening to soothing music can be utilised. Motivation for the athlete's sport can also be improved in the process, and specific goals can be set, to give the athlete something to work towards, such as making an Olympic games. The athlete's health can be monitored by methods such as blood tests, and when they are healthy, low intensity training can be started. Over the next few months training loads and intensity can be slowly increased, with emphasis on a personalised training program, and continual monitoring of progress to full fitness.

Overtraining can be avoided by prevention strategies. The 3 main prevention strategies include: careful planning of training schedules and seasons, optimal training programs with effective recovery, and effective nutrition strategies. Training schedules should be created to allow for adequate rest periods between sessions and seasons, so that athletes can recover properly. For example, after a 9 month season of elite soccer, professional athletes should be given at least 1 month off to recover physically and mentally from the season.

Making small and gradual increases to an exercise program over a period of time, such as the 10% overload per week principle can reduce the onset of over-training. Athletes should also take care in listening to their bodies, as they are the ones who can feel if they're overtrained, and good communication with coaches is vital in regulating training. In the training sessions, recovery methods such as ice baths and warm downs should be used, to reduce muscle soreness. Other contributing factors which can prevent the onset of overtraining are: eating a balanced nutritious diet, ensuring sufficient sleep, monitoring other stresses, and not exercising during an illness. If all these conditions are adhered to, overtraining can be avoided successfully.