

# Overtraining



**Overtraining** occurs when there is a failure to adapt to overload training due to inadequate rest and recovery. It is accompanied by a loss of form, fatigue, feeling stale, persistent muscle soreness, and mood and sleep disturbance. The recovery period for overtraining syndrome can take months to years. Overtraining can occur in both power and endurance athletes and the most susceptible are the very experienced athlete and the young and inexperienced, where both are striving to achieve a higher level of performance.

Many theories have been put forward as to the pathophysiology leading to overtraining. These range from:

1. **Depression.** Excessive training leading to altered brain serotonin and neurotransmitter levels
2. **Altered immune state.** A decrease in immunity has been noted in athletes suffering from overtraining
3. **Autonomic nervous system dysfunction.** Over stimulation in the sympathetic nervous system leading to a chronic stress symptom. This type is most common in the power and young inexperienced athlete. Over stimulation of the parasympathetic nervous system leads to the 'burnt out' and exhausted athlete. This type is most common in the endurance athlete.
4. **Endocrine factors.** Inadequate recovery and inadequate nutrition, particularly carbohydrate leads to a catabolic (breakdown) state.
5. **Post viral syndrome.**
6. **A disorder of amino acid metabolism** particularly branched chain amino acids, tryptophan and glutamine.

**Symptoms** of overtraining include altered mood such as irritability, depression, feeling stale or burnt out.

Fatigue is common along with an increase rate of infection and injury.

Persistent muscle soreness, sleep disturbance and loss of appetite are common. There is an objective loss of form. Signs of overtraining include an increase in early morning and resting heart rate, a postural (standing) BP drop, decreased heart rate recovery post recovery and increased perceived rate of exertion with training.

There is no one laboratory test that will diagnose overtraining.

Tests are done to exclude other illness such as anaemia, viral illness, asthma, thyroid disease, Addison's disease, allergies and cardiac disease.

Both increase in intensity and volume of training lead to the overtraining syndrome. The two main contributing factors are training monotony without adequate rest and increase in training volume.

**Prevention** is always better than cure. Adequate recovery is essential for adaptation to a training stimulus to occur.

Periodisation of training is a major prevention strategy for overtraining. Treatment for overtraining is essentially a slow process and a period of complete rest for several weeks is usually necessary until symptoms improve. A gradual exercise regime is instigated, where maximal exertion is avoided and adequate recovery periods are put in place. A focus on regeneration techniques such as relaxation and stress management are helpful. A planned training regime with access to appropriate coaching is necessary. **Attention to nutrition is important.** Treatment of depression may be necessary.

