

OA/UNE Human Performance Lab

Overtraining Syndrome

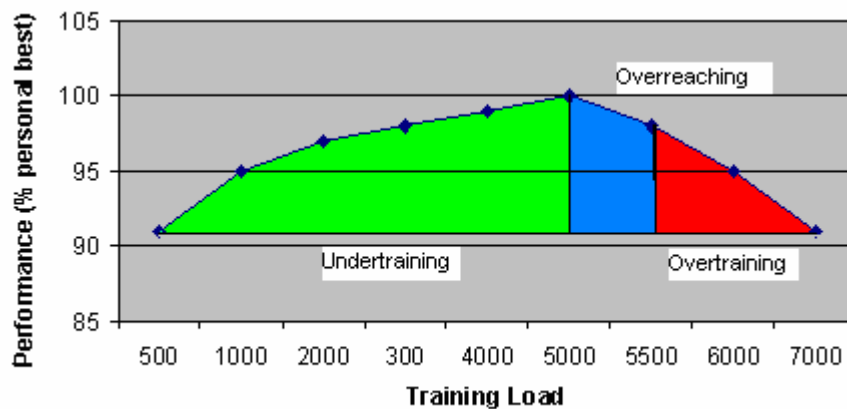
DEFINITION

“Neuroendocrine disorder characterized by poor performance in competition, inability to maintain training loads, persistent fatigue, reduced catecholamine excretion, frequent illness, disturbed sleep and/or alterations in mood state”

MacKinnon 2000

THE LOAD PERFORMANCE RELATIONSHIP

- Training gains are maximized up to a critical point where training becomes excessive.



CAUSES

- Excessive exercise with insufficient recovery
- Monotony of training load and schedule
- Sudden increase in training volume or intensity
- Frequent competition requiring high-intensity performance
- Medical illnesses
- Inadequate nutrition
- Increased psychological stressors

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SIGNS AND SYMPTOMS

- Unexplained underperformance
- Prolonged recovery
- Increased need for sleep
- Mood disturbances (depression, irritability, anxiety)
- Excessive fatigue
- “Heavy” legs
- Frequent infections
- Decreased concentration

DETECTING OVERTRAINING

“Overtraining remains more easily detected by decreases in physical performance and alterations in mood state than by changes in immune or physiological functions”

Shephard 1998

- Decreased urinary norepinephrine
- Impaired maximal Lactate production
- Impaired performance at 110% of individual anaerobic threshold
- Reduced Maximal Heart Rate
- Increased resting heart rate
- Self-analysis of well being (DALDA Questionnaire)

TREATMENT

REST !

Overreaching

- Take 3 days off
- Reduce training intensity and volume 30-40% for two weeks.

Overtraining

- Rest for 1-2 weeks until self-analysis of well being scores improve
- Start 2-3 very easy session (10-20 min at easy intensity) in first week.
- If above tolerated, SLOWLY progress to longer sessions, increased intensity over 6-12 week period.

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PREVENTION

- Self-analysis of well being
- Training diary
- Nutrition
- Avoid training when ill
- Performance monitoring
- Training Periodization

NUTRITION

Energy Requirements for Adults Involved in Intensive Training

	<u>Male</u>	<u>Female</u>
Total Energy	>52 kcal/kg/day	44-52 kcal/kg/day
Carbohydrates	8-10 g/kg/day	6-8 g/kg/day
Protein	1-1.8 g/kg/day	1-1.8 g/kg/day
Lipids	0.8-2.1 g/kg/day	0.8-2.1 g/kg/day

TRAINING DIARY

1. Record items below and total score. If increasing then you are overreaching.
 - Training Perceived Difficulty (Easy =1, Hard =10)
 - Mood State (happy,content =1, anxious, depressed =10)
 - Resting Heart Rate
 - Sleep (Excellent =1, Poor = 10)

2. Record Daily Training Load

Training Load = Workout Duration (min) x Rate of Perceived Exertion (RPE) for workout (1=easy, 10=hard)

3. Measure Weekly Monotony Index and keep below 1.0

Monotony Index = Average Daily Load/Standard Deviation of Daily Load

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TRAINING TIPS

- If monotony score goes above 1 then decrease level of difficulty (training load) for several sessions and add a recovery day.
- Don't perform more than 2-3 "hard" sessions per week (including competition).
- Build in "easy" training days where training load is low.
- Be sure training volume and intensity is increased gradually.

PERIODIZATION

Tudor Bompa revolutionized western training methods when he introduced periodization in Romania in 1963. Today, it is the basis of every serious athlete's training. Periodization is a scientifically based method for structuring short- and long-term training plans. Periodization varies the intensity and volume of training to optimize the body's ability to recover and rebuild. This results in better performance and less risk of injury. Variables of training such as the volume, intensity, or focus are purposefully altered over periods, reducing an athlete's chance of overtraining. Each period has a training focus that is achieved by altering several variables including volume, intensity, rest and recovery, and mode of training.

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