

## Overtraining – Causes, Recognition and Prevention

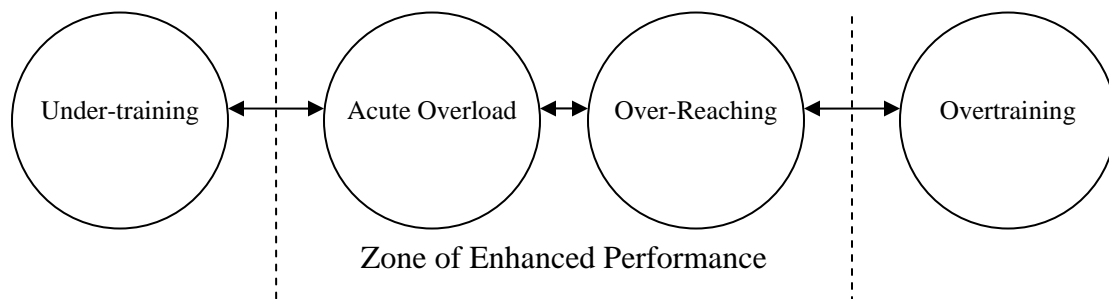
A Presentation by Randall L. Wilbur, Ph.D. - Head of the Athlete Performance Lab, Olympic Training Center – Colorado Springs, CO.

Notes by: Coach Peter Cummings

Randy Wilbur is not only highly educated in the field of athletic performance he has years of hands on experience with many of the country's top athletes. His presentation Overtraining was highly entertaining and informative. To keep this brief I will mention his key points and recommendations.

After defining Over-reaching versus Overtraining he moved onto outlining the symptoms of overtraining, describing in detail the physiological models of overtraining and outlined strategies for preventing overtraining.

He defined four different "Stress Phases". Over-reaching is the "desired Stress Phase." Over-reaching produces optimal adaptation and optimal performance improvements. It is also the state that pushes athletes close to the red line of another Stress Phase, Overtraining. The "Acute Overload" phase produces positive adaptations while eliciting only minor improvements in performance. Also mentioned is the Stress Phase of Under-Training which produces only minor physiological adaptation and no performance improvements. With the Stress Phases defined, Wilbur suggested how important it is for elite athletes to try to stay in the "Zone of enhanced performance," which he defined as the Acute Overload and Over-reaching Phases. The trick is staying in this zone without crossing over into the Overtraining Phase.



At this point the discussion turned to the identification of the MANY signs or symptoms that would suggest an athlete is in a state of or moving towards Overtraining. Dr. Wilbur proceeded to give the audience a laundry list of symptoms ranging from changes in performance, physiological responses, and immunological responses, biochemical markers of overtraining and psychological changes that point to overtraining. As you can see, the categories of the symptoms that suggest overtraining are numerous. Each of these categories has many factors. It is the combination of a few of these symptoms that suggest the onset of overtraining. This gives great weight and importance to the practice of monitoring daily metrics such as weight, fatigue, stress, quality of sleep, hours of sleep, resting morning pulse and others. It is the monitoring of metrics and changes from certain recommended base line blood tests, which can catch an athlete that might be heading towards overtraining early enough to make appropriate changes and save a season. Yes, a season. That is one of the major attributes of Overtraining compared to Over-reaching. Overtraining involves an irreversible, through recovery alone, condition that takes many weeks and months to rebound from. This is not a place an athlete likes to be.

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Defining the causes of overtraining is a difficult if not impossible undertaking since there is no single cause or even physiological marker that points to a cause. With this fact in mind and the knowledge that "at some point or at some training stress load over-reaching turns into overtraining" the importance of monitoring athletes is highlighted.

With monitoring of athletes highlighted, Dr. Wilbur then discussed five distinct Physiological Models of Overtraining. The first was Glycogen depletion. The second was Immunosuppression. Third was Autonomic Nervous System imbalance. Fourth was Central or Overall Fatigue and last was an elevated Cytokine level. It is beyond the scope of this short article to go into depth what Dr. Wilbur discussed regarding these issues. It is far more important to discuss with athletes the next part of his presentation which had to do with the Prevention of Overtraining.

In this final chapter of his presentation Dr. Wilbur outlined his recommendations to help athletes avoid the pitfalls of overtraining. He started by explaining that for an athlete to reach their highest performance level they must push hard, hard enough to over-reach while not crossing the line. To do so means balancing training volume, intensity, technique, competition, lifestyle, sleep, living conditions, nutrition, leisure activities, health, family obligations, team commitments and others stressors WITH Recovery!

So, how is this done? Here are his recommendations:

- 1.) Follow a Scientifically Sound Periodized Training Program with properly timed and structured tapering strategies for key competitions.
- 2.) Keep detailed records and monitor your Training Response (Daily Metrics).
- 3.) Follow a detailed and strict Nutrition Plan including a diet that is high enough in carbohydrates to meet your reloading needs, has adequate protein, and take a therapeutic dose Multi Vitamin that includes antioxidants, B-complex, trace minerals and iron. Many of the Physiological Models of Overtraining Wilbur discussed included or started with inadequate levels and/or timing of carbohydrates.
- 4.) Pay attention to Biochemical Markers with baseline and periodic blood tests. Please discuss this with me for more information.
- 5.) Follow practical guidelines for training while ill. When you are ill, if the symptoms are non-systemic, submaximal exercise is not out of the question (contraindicated). During bouts of systemic illness such as fever, muscle aches, swollen lymph glands and extreme fatigue, submaximal and maximal exercise is out of the question (contraindicated).
- 6.) Improve and add recovery techniques to your program. Passive rest (sleep) is the number one ally in recovery. Add hydrotherapies such as water running, cold water immersion, contrast temperature baths and sauna. Add massage and monitor body weight and urine color to avoid dehydration.

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*Peter Cummings was certified by the American College of Sports Medicine in 1993 and is the founder of One on One Health and Fitness Center. He is also a Certified and Licensed USA Cycling Level II (Expert) Coach, and Certified USA Cycling Skills Instructor. He has directed and overseen the programming of over 10,000 individual and has been racing bicycles since 1991. His many athletes have stood on podiums at Nationals, State and Local championships. He is available for consultations, testing, programming or coaching. Those interested can contact him at [Peter@Plan2Peak.com](mailto:Peter@Plan2Peak.com). For more articles on training, racing and other cycling specific topics by Coach Cummings visit [www.Plan2Peak.com](http://www.Plan2Peak.com).*