

## Intense endurance performance in athletes: Effects of seasonal variations in training load and strategies to cope with fatigue

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### Projekt-resume

In elite sport societies, coaches and athletes are naturally striving to achieve new limits in athletic performance by constantly manipulating the training load. This is typically done through periodization models in which the training intensity and volume are distributed differently. Additionally, training methods also include strategies for optimization of nutrition and restitution, illustrating the complexity of human athletic performance. Traditionally, best practices for achieving new limits in performance rarely originate with science, but has rather evolved by trial-and-error observations of pioneering coaches and athletes.

It is well known that some training overload (overreaching) is needed for athletes to improve exercise capacity and performance, and that the edge between overreaching and too much overload (non-functional overreaching and even overtraining syndrome) is narrow. For some athletes performance may stagnate, while performance for others may even decrease during a year of training. Undesirable training adaptations may be due to inappropriate distribution of training intensity, inappropriate training volume or recovery. Therefore, it is essential for coaches and athletes to have evidence-based guidelines to navigate in this continuum in their strive to achieve optimal performance.

The aim of the present PhD-project is to get closer to understanding predictors of athletic performance and the interplay between these predictors by monitoring and testing elite athletes throughout an entire season (Study I), as well as to develop performance enhancing strategies based on the aforementioned findings by manipulating training load or recovery (Study II).