

**Aim:** Analysis of the relation between the training load and the race performance of elite world-class triathletes. Evaluation of the effect of other factors on the race performance.

**Method:** A case study of a Czech elite triathlete VF, who trained for several years in three different training environments including two top international groups DS and JF.

**Results:** Training volume of VF was about 28 hours per week in the initial and DS environment and decreased to 23 hours per week in JF environment.

The standard periodization scheme was used in none of the training environments. Instead, the annual training cycles had no distinct culminations; training load oscillated in a sequence of microcycles. Specific tempering was not applied prior to competitions, rather the affected microcycle had been adjusted.

Competitive performance of VF expressed as so called ITU equivalent was comparable in the three environments. Long-term performance markedly deteriorated in the DS environment but improved in the environment JF.

**Discussion:** Two reasons are proposed for the deterioration of the long-term performance in the environment DS: (i) long-term major injuries; (ii) a several month long high-altitude stays during competitive seasons, leading to negative mood and motivational changes and other overtraining symptoms. A slight decrease of the training volume in the environment JF combined with adequate physiotherapy improved VF mood and health in general and consequently VF become one of the top female triathletes in the world.

**Conclusions:** As expected, no straightforward relation between the training load and the competitive performance has been corroborated for elite athletes. Especially, it is not true that the higher the training load the better the competitive performance. Slightly submaximal load gives better prospective for top long-term performance. Other factors strongly affect the relation between the training load and the competitive performance.