Pilot study: Training load in athletes

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Ethical review	Not approved
Status	Will not start
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON43348

Source
ToetsingOnline

Brief title
Pilot Training load

Condition

- Other condition

Synonym
extreme fatigue in athletes, overtraining

Health condition

overtraining

Research involving
Human

Sponsors and support

Primary sponsor: Wageningen Universiteit
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: overreaching, super compensation, time trials, training program

Outcome measures

Primary outcome

The main study parameters is sport performance on the time trial tests and mood

state with the POMS questionnaire.

Secondary outcome

Mood state (answered with POMS and logbooks)

And training data (heart rate, distance, duration)

Study description

Background summary

To improve sport performance, regular exercise or training is required, together with a gradual increase in training load. This increase in training load leads to *functional overreaching* (F-OR). And with sufficient rest, this F-OR leads to adaptations and improved sport performance, sometimes referred to as *super compensations*. Athletes should, however, be aware to avoid *non-functional overreaching* (NF-OR). Non-functional overreaching leads to temporary under performance and with insufficient it can even lead to overtraining (OT) and long lasting underperformance. Overtraining is long-lasting underperformance with additional mood swings and physical problems. About 60% of all athletes has been overtrained at one time in his/her sport career.
Monitoring training load allows athletes to determine whether functional adaptation takes place, whilst minimizing the risk of non-functional overreaching. This can be done by either assessing performance on a certain task (like a time trial), or monitoring physiological stress via changes in heart rate (variability), lactate or hormone levels.
Many researchers try to find markers that can distinguish functional from non-functional overreaching. This is done in practice (for example during a training camp) or in a controlled setting (for example wit adjusted training protocols and lab measurements). The protocols used for these kinds of studies differ between the different researchers. While a more standardized approach would be advised. The advantage of a standardized protocol is that the

different studies can be compared. And a standardized protocol would help future researchers to induce overreaching in athletes in a controlled and safe way. Therefore, it is important to design a protocol that induces overreaching in athletes in a controlled and safe way. With this protocol, athletes will experience underperformance for a while, but after recovery they will be fine again.

Study objective

The main objective of this study is to evaluate whether our protocol results in non-functional overreaching in athletes in a controlled and safe way

Study design

A randomized, parallel design with a training period with increased volume and intensity of 4 weeks. Time trials directly before and after this training period and a recovery period and another time trial after the training period. The overreaching or control intervention will be randomly divided between the participants.

Intervention

The intervention consists of a 4 week training period with increased volume/intensity. Logbooks are filled in during this period. Training data (heart rate, distance, duration) will be monitored using watches. Participants will be tested prior to this period and after this period with time trials. Before the time trial they answer a POMS questionnaire and after the time trial they will grade the exercise intensity on a Borg scale.

Study burden and risks

Each participant has to visit the University four times (one time for information and 3 times for a time trial). Logbooks are handed out at information day. These logbooks are filled in during the 4 weeks of training. Risks and discomfort are small. Athletes are used to perform maximal exercise, which makes the time trials an additional average intensive training workout. The overreaching period consists of a higher training volume and intensity then athletes* average training program, this probably leads to fatigue and temporary underperformance. But with sufficient recovery afterwards, this should not cause long-lasting problems.
Because there is a risk (though very small) of overtraining, athletes will be monitored. After every week of training, athletes will be called and a few points will be checked: morning heart rate, (quality of) sleep, accomplishment of the training protocol, and POMS questionnaire. If these data suggest that the athlete is at risk for overtraining, he or she will be adviced to stop with the study.

When there is doubt, the medical supervisor will contact the athlete.

Contacts

Public
Wageningen Universiteit

Stippeneng 4
Wageningen 6708 WE
NL
Scientific
Wageningen Universiteit

Stippeneng 4
Wageningen 6708 WE
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

age between 18 and 45 years old
BMI between 18 and 25 kg/m2
At least 5 hours of sport per week and less than 13 hours
Regular cycling training
Able to be present and participate at all test days
Willing and able to increase *normal* training program with given %.
VO2max between 45 and 65 ml/kg/min (will be estimated at screening visit)

Exclusion criteria

Chronic illness
Blood donation during study
Working at *Human Nutrition* Wageningen University
Msc thesis or internship at *Human Nutrition*
Participating in other scientific research (with the exception of EetMeetWeet)

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	15
Type:	Anticipated

Ethics review

Not approved

Date:	15-12-2016
Application type:	First submission
Review commission:	METC Wageningen Universiteit (Wageningen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL59669.081.16