Submaximal exercise testing to assess the anaerobic threshold in neuromuscular diseases

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON27717

Source Nationaal Trial Register

Brief title SMARTER

Health condition

Slowly progressive neuromuscular diseases

Sponsors and support

Primary sponsor: Amsterdam UMC Source(s) of monetary or material Support: Amsterdam Movement Sciences

Intervention

Outcome measures

Primary outcome

Validity of statistical model to determine the anaerobic threshold out of easy to measure indirect variables (heart rate variability, rating of perceived exertion, Talk Test, age, gender, resting heart rate)

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Secondary outcome

- The percentage of times that the AT can be determined through submaximal exercise testing with respiratory gas analysis

- The test-retest reliability of the heart rate at the anaerobic threshold determined through submaximal exercise testing with respiratory gas analysis

Study description

Background summary

The anaerobic threshold (AT), a submaximal direct marker of aerobic fitness, is used for exercise intensity prescription in the healthy population and other chronic diseases, and may also be useful in NMD. The AT is used as an intensity target which distinguishes between lowand high intensity exercise zones, enabling individuals to exercise in tailored heart rate zones. However, the feasibility and reliability of the AT assessment through submaximal exercise testing in slowly progressive NMDs is not yet known. Further, a major disadvantage of conventional assessment of the AT is that it is a complex and lengthy procedure requiring expensive respiratory gas analysis equipment, and is not readily available in all healthcare settings. Therefore, the next innovative step is to develop a predictive model to easily determine the AT in NMD, i.e. without the use of expensive gas analysis equipment.

The study objective is (1) to determine whether the AT can be identified in individuals with slowly progressive NMD through submaximal exercise testing with respiratory gas analysis, (2) to determine the reliability of the AT assessment in individuals with slowly progressive NMD through submaximal exercise testing with respiratory gas analysis, and (3) to develop a predictive model using easy to measure variables to indirectly assess the AT through submaximal exercise testing without respiratory gas analysis in individuals with slowly progressive NMD.

Study objective

We hypothesize that the assessment of the anaerobic threshold through submaximal exercise testing is feasible and reliable in NMD. Furthermore, we hypothesize that we will be able to develop a valid predictive model to determine the anaerobic threshold using indirect, easy to measure variables.

Study design

Participants will complete three testing days, separated by a minimum of three days. On the first and second testing day, two submaximal exercise tests will be performed, one with and one without respiratory gas analysis. On the third testing day, a maximal exercise test with respiratory gas analysis will be performed.

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Intervention

None

Contacts

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Eligibility criteria

Inclusion criteria

In order to be eligible to participate in this study, a subject must meet all of the following criteria:

- presence of slowly progressive NMD.
- ability to perform a maximal exercise test on an arm or bicycle ergometer.
- minimum age of 18 years.

Exclusion criteria

A potential subject who meets any of the following criteria will be excluded from participation in this study:

- absolute contraindication for exercise (based on the guidelines by the American College of Sports Medicine)

- unable to follow verbal or written instructions.
- insufficient mastery of the Dutch or English language.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	24-03-2021
Enrollment:	50
Туре:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Plan description Not applicable

Ethics review

Positive opinionDate:24-03-2021Application type:First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

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

No registrations found.

In other registers

Register	ID
NTR-new	NL9362
Other	METC AMC : METC 2020_236

Study results

Summary results Not applicable