# Innate immune response to anaeroob and aeroob exercise in rowing athletes

Published: 18-03-2013 Last updated: 24-04-2024

Primary Objective: To objectify the innate immune response to acute and prolonged exercise and get insight in this response over time (hours). Secondary Objective(s):- Investigate the nature of the post-exercise leukocytosis- Which leukocytes appear...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Immune disorders NEC
Study type	Observational invasive

# Summary

#### ID

**NL-OMON39585** 

**Source** ToetsingOnline

Brief title INcREAsE-study

# Condition

• Immune disorders NEC

# **Synonym** host defence, immune response

**Research involving** Human

## **Sponsors and support**

Primary sponsor: Universitair Medisch Centrum Utrecht Source(s) of monetary or material Support: Ministerie van OC&W

## Intervention

Keyword: exercise, immunological, inflammatory, neutrophil

### **Outcome measures**

#### **Primary outcome**

Detailed description of the innate immune response to both maximal and

endurance exercise.

#### Secondary outcome

- cell receptor profiles (flowcytometry)
- cell characteristics (functional essays)
- innate immune profiling over time

# **Study description**

#### **Background summary**

The most important change in immune response to exercise is the development of leukocytosis with altered receptorexpression and a cytokine storm. The functional characteristics of the leukocytosis is not yet understood. We designed this study to gain insight in the innate immune response to exercise. To test the response we use two very different forms of exercise (anaerobic vs. aerobic) to objectify differences.

The hypothesis is that the human body reacts to damage after exercise (mainly ini anaerobic exercise) with a similar response as seen in trauma patients. The validation of this innate immune activation has implication for diagnosing inflammatory conditions in athletes such as exercise-induced asthma or tendinitis. Moreover, the innate immune response could provide a read-out for recovery after training.

#### **Study objective**

**Primary Objective:** 

To objectify the innate immune response to acute and prolonged exercise and get insight in this response over time (hours).

Secondary Objective(s):

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- Investigate the nature of the post-exercise leukocytosis
- Which leukocytes appear in blood and what are their characteristics?
- To test the inter-individual differences of response to exercise
- To test the difference in response to the acute and the endurance test

#### Study design

Observational pilot study

#### Study burden and risks

The exercised performed by these athletes does not differ from their daily routine. The burden associated with this study is directly caused by the amount of venipunctures (2x4). There is no direct benefit of participation for the athletes, however progressive insight in immune activation leads to future insight in 'normal/physiological' processes in contrast to pathophysiological processes associated with disease.

# Contacts

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# **Trial sites**

# Listed location countries

Netherlands

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# **Eligibility criteria**

#### Age

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

### **Inclusion criteria**

Rower, weekly training >6x Aged 18-25 years Pretested: 75% of maximum heart rate set by performing a power test\*. Visiting Utrecht Rowing club Triton/Orca/Viking Performed a medical exercise test as requested by the Royal Dutch Rowing Association \*Power step-test to test maximum heart rate.

## **Exclusion criteria**

Asthmatic Current respiratory infection, sinusitis, otitis or any other sign of acute/ chronic inflammatory disease Cardiac Dysrhythmia Immune mediated diseases, such as infections and auto-immune diseases Current allergic reaction Note: criteria are effective on both testing days

# Study design

## Design

Study type: Observational invasive	
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

### Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	15-05-2013

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Enrollment:	16
Туре:	Actual

# **Ethics review**

Approved WMO	
Date:	18-03-2013
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

# **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 ССМО

ID NL42272.041.12