Cognitive effects of nutritional manipulation using the amino acid tyrosine in healthy subjects with ADHD-symptoms

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The objective of this experiment is to establish the effects of tyrosine suppletion on cognitive symptoms seen in ADHD. Cognition will be assessed, while simultaneously recording brain activity.

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Cognitive and attention disorders and disturbances
Study type	Interventional

Summary

ID

NL-OMON43441

Source
ToetsingOnline

Brief title
Tyrosine suppletion and cognitive ADHD symptoms

Condition

- Cognitive and attention disorders and disturbances

Synonym
ADHD, attention deficit disorder

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Maastricht

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: ADHD symptoms, cognition, tyrosine

Outcome measures

Primary outcome

The main study parameter is the number of Commission errors derived from the continuous performance test (CPT).

Secondary outcome

The following secondary parameters will be tested in this study:

* performance on the stop-signal task as a measure of motor inhibition;

* performance on the verbal learning task as a measure for working memory and long-term memory;

* the task-switching task as a measure to assess switching attention;

* the Profile of Mood States and Bond & Lader as measures of mood and perceived alertness;

* blood biomarkers, from which the amount of tyrosine and prolactine will be analysed, as measure of the association between amount of uptake and cognitive performance.

Study description

Background summary

It is believed that the neurotransmitter Dopamine (DA) is largely involved in the cause of ADHD symptoms. For this reason, treatment for ADHD currently is mainly focused on the use of psychostimulants. It is also possible to increase DA by increasing the availability of DA precursor substance, namely tyrosine.

This method is particularly interesting for ADHD patients, because it resembles the enhancing effects of psychostimulants on the DA-availability in the brain. Additionally, since many patients discontinue the use of psychostimulants, tyrosine suppletion may be a good alternative.

Study objective

The objective of this experiment is to establish the effects of tyrosine suppletion on cognitive symptoms seen in ADHD. Cognition will be assessed, while simultaneously recording brain activity.

Study design

This study will be conducted according to an order-balanced, placebo-controlled, double-blind, 3-way cross-over design.

Intervention

Volunteers will be treated with the dietary supplement tyrosine or a placebo on three testing days. They will either receive 0, 50 mg/kg body weight, or 100 mg/kg tyrosine.

Study burden and risks

The time investment for the participants will be around 13 hours in total, spread over one intake session during which the ADHD interview is executed (1 hour), filling in the medical questionnaire (30 minutes) one training session (1 hour) and three subsequent sessions of testing on different days (3x 3.5 hours). During the three testing days, we will draw 5 ml blood twice. Additionally, the day before each testing day, the participants are not allowed to drink alcohol.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Between 18 and 35 years of age;
Willingness to sign an informed consent;
Showing ADHD symptoms, but not sufficient for the diagnosis;
BMI of 18.5-30.

Exclusion criteria

Use of recreational drugs in the past month;
Excessive drinking;
Pregnancy;
Use of ADHD medication in the past;
Allergy for tyrosine containing substances;

Study design

Design

Study type:	Interventional
Intervention model:	Crossover

Masking:	Double blinded (masking used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	22-02-2017
Enrollment:	26
Type:	Actual

Ethics review

Approved WMO Date:	28-12-2016
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

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	NL55624.068.15