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MoCog - influence of physical activity and training on motor and cognitive performance in older people [MoKog - Einfluss von körperlich-sportlicher Aktivität und Training auf die motorische und geistige Leistungsfähigkeit bei älteren Personen]

Submission date
08/12/2008

Recruitment status
No longer recruiting

Registration date
05/02/2009

Overall study status
Completed

Last Edited
05/02/2009

Condition category
Nervous System Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol
Not provided at time of registration

Study website
http://www.ibusg.de/index.php?page=mokog

Contact information

Type(s)
Scientific

Contact name
Prof Heinz Mechling

Contact details
Institute of Sport Gerontology
German Sport University Cologne
Am Sportpark Muengersdorf 6
Cologne
Germany
50933
+49 (0)221 4982 6148
mechling@dshs-koeln.de

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
N/A

Study information

Scientific Title
MoCog - Intervention study on motor and cognitive performance of older adults with and without Alzheimers disease [MoKog - Eine Interventionsstudie zur körperlichen und geistigen Leistungsfähigkeit bei älteren Personen mit und ohne Alzheimer Demenz]

Acronym
MoCog [MoKog]

Study objectives
The aims of the study are:
1. To analyse the differences in motor and cognitive performance between:
1.1. Healthy and demented persons
1.2. Physically active and inactive persons
2. To show whether increased physical activity reduces the progression of Alzheimer's disease
3. To examine the relationship between physical activity across life span and cognitive performance
4. To examine:
4.1. The correlation of motor and cognitive performance
4.2. The influence of Alzheimer's disease on motor performance
4.3. The effect of the genetic risk factor APOE4 on cognitive performance and health-related fitness
5. To improve motor and cognitive performance through exercise training
6. To compare the effectiveness of different exercise programs (endurance and strength training)
7. To evaluate the feasibility and acceptance of the exercise training program

Ethics approval required
Old ethics approval format

Ethics approval(s)
Ethics-Committee of the Institute of Pharmacology and Toxicology, Rheinische Friedrich-Wilhelm University of Bonn, gave approval on the 21st November 2003 (ref: 156/03). Amendment on 23rd January 2006 (ref: 179/03).

Study design
Interventional randomised controlled trial nested within a cross-sectional, longitudinal study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Other

Study type(s)
Quality of life

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Alzheimer's disease

Interventions
1. Intervention group:
Participants exercise two times per week for three months. Every session comprises 60 minutes (5 - 10 minute warm-up and 5 - 10 minute cool-down on an ergometer). Participants were divided into either a strength training group or an endurance training group:

1.1. Strength training group:
Weight training of the major muscle groups for 60 minutes per session. Starting with strength-endurance and intramuscular coordination training (40 - 60% of one repetition maximum [RM], three sets of 20 repetitions) in the initial starting program (first 4 weeks), followed by hypertrophy training (80% of one RM, three sets of 8 - 12 repetitions) for 8 weeks. The intensity of loading was gradually increased, adapted on subjectively perceived exertion (16 to 18 points on the Borg scale).

1.2. Endurance training group:
The endurance training on an ergometer was in accordance with the American College of Sports Medicine's (ACSM's) guidelines for exercise prescription. Volume and intensity of effort were gradually increased every week, starting at 20 minutes and 50 - 60% heart rate (HR) and ending at 60 minutes and 75 - 80% HR max.

2. Control group:
The participants of the control group received no intervention. Possible changes in physical activities in the intervention group and control group were controlled by a questionnaire.

Total duration of treatment: 24 training sessions
Total duration of follow-up: 2 - 5 days

Scientific Contact details:
Dr Sabine Eichberg
Institute of Sport Gerontology
German Sport University Cologne
Am Sportpark Muengersdorf 6

Cologne 50933
Germany
Email: eichberg@dshs-koeln.de

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
1. Health status: genotype testing (Presilin-1-Gen, Presilin-2-Gen, Apolipoprotein E2, 3, 4), measured pre-test only
2. Health-related fitness, measured pre-test and post-test:
2.1. Endurance via ergometer (World Health Organization [WHO] protocol, lactate analysis)
2.2. Maximal isometric strength (knee flexion, knee extension, hip adduction, hip abduction, forearm extension, forearm flexion, hand grip)
2.3. Strength-endurance (chair rising, arm-curl)
2.4. Flexibility (trunk and head rotation, back scratch, sit and reach)
2.5. Reaction and movement time (simple/choice reaction)
2.6. Fine motor movement (hand-eye coordination)
2.7. Balance (Romberg Test with and without visual control, Tandem and Semi-Tandem Stand)
3. Cognitive function, measured pre-test and post-test:
3.1. Cognitive screening (Mini Mental Status Test [MMST])
3.2. Vocabulary (Multiple-Choice Word Test [MWT-B])
3.3. Immediate verbal and visual-spatial memory span (Corsi Block Tapping Test)
3.4. Digits forward/backward (Wechsler Adult Intelligence Scale [WAIS])
3.5. Information processing speed and attention (d2, Trail-Making Test Parts A and B [TMT A/B])
3.6. Perceptual speed and response inhibition (cerebraler Insutfizienz Test [c.I.Test])
3.7. Word fluency and mental rotation (Leistungsprufsystem [LPS])
3.8. Anticipation and planning (Maze Test)
3.9. Verbal learning (Verbaler Lern- und Merkfähigkeitstest [VLMT])

Secondary outcome measures
1. Health status, measured pre-test and post-test:
1.1. Body composition
1.2. Chronic diseases
1.3. Functional limitations
1.4. Pain
1.5. Rate of falls
1.6. Medication
1.7. Geriatric assessment
1.8. Self-related health (5-point-Likert scale)
1.9. Depression rating scale
1.10. Locus of control
2. Activities, measured pre-test and post-test:
2.1. Leisure time and social activities
2.2. Physical activities (manner, duration, frequency, intensity, last 12 months and across life span)
3. Feedback (from Alzheimer patients and caregiver/family member) on exercise program, measured post-test only

Overall study start date
01/04/2006

Completion date
13/08/2007

Eligibility

Key inclusion criteria
1. Men and women, aged 49 to 93 years
2. Participants must be able to understand, read, and speak German
3. The patients sample is diagnosed with Alzheimer's disease (light or moderate) which was assessed with the Consortium to establish a Registry for Alzheimer's Disease (CERAD) neuropsychological test battery
4. Participants must have an mini-mental state examination (MMSE) score greater than or equal to 10 points
5. Participants without Alzheimer's disease have to be older than 60 years and must have an MMSE score greater than or equal to 24

Participant type(s)
Patient

Age group
Adult

Sex
Both

Target number of participants
240

Key exclusion criteria
1. Patients with one of the following diseases:
1.1. Acute coronary heart diseases
1.2. Thrombophlebitis
1.3. Acute lung diseases
1.4. Infections
1.5. Osteoporosis
2. Patients who are not able to sit or stand without aid

Date of first enrolment
01/04/2006

Date of final enrolment
13/08/2007

Locations

Countries of recruitment

Germany

Study participating centre
Institute of Sport Gerontology
Cologne
Germany
50933

Sponsor information

Organisation
Institute of Sport Science (Germany)

Sponsor details
University of Bonn
Nachtigallenweg 86
Bonn
Germany
53127
mechling@uni-bonn.de

Sponsor type
Research organisation

Website
http://www1.uni-bonn.de/startseite/jsp/index.jsp

ROR
https://ror.org/041nas322

Funder(s)

Funder type
University/education

Funder Name
University of Bonn (Germany)

Funder Name
German Sport University Cologne (Germany)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration