Learning to preserve: foreign language training as a cognitive ‘vaccine’ to prevent old-age disorders?

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON24412

Source
NTR

Brief title
FlexLang

Health condition

subjective cognitive decline, depression,

Sponsors and support

Primary sponsor: University Medical Center Groningen
Source(s) of monetary or material Support: University of Groningen

Intervention

Outcome measures

Primary outcome

Changes in cognitive flexibility and its neural underpinnings as a result of the foreign language training

Secondary outcome

health outcomes (depressive symptomatology, emotion regulation, rumination, cognitive decline, quality of life)

Study description

Background summary

Bilinguals constantly need to mentally juggle multiple languages. This is thought to increase cognitive flexibility, a skill needed to separate numerous languages in one mind but also to, among other things, adaptively respond to environmental demands. Learning a new language impacts first language processing and storage. It is for this unique interfering effect that foreign language training is expected to boost cognitive flexibility more than other cognitive training programs. Although there is a wealth of observational studies into bilingual advantages, experimental studies remain scarce. The primary objective of this study is to determine whether a bilingual experience affects cognitive flexibility and its neural underpinnings in elderly with subjective, but not objective, cognitive decline. We assess the unique role of foreign language training (n=66) compared to a music training (n=66) and social intervention (n=66). For three to six months, participants practise the language or musical skills at home five days a week for 45 minutes, and attend real-life classes every fortnight. Participants in the social intervention group will only meet every fortnight for some creative activities. Cognitive flexibility is assessed using, amongst others, a colour-shape switching task while measuring brain activity using combined fNIRS/EEG methods. We expect an increase in cognitive flexibility and positive effects on health (i.e. vulnerability for depression, subjective cognitive decline and quality of life) as a result of both language and music training, but more for the language training. In addition, we expect increased power in the theta band network and less hypo-activity in the lateral and medial PFC during switching measured through EEG and fNIRS, respectively. If effective, foreign language learning could serve as an important tool towards healthy aging: it could slow down cognitive aging and reduce vulnerability for depression.

Amendments 12-jan-2019:
- Additional questions are asked about family history of dementia.
- The ‘auditory elevator task (ANT subtest) will not be performed.
- The International English Language Testing System (IELTS) is used to measure English language proficiency in the language group after the training.

Addendum May 2021:
Due to the changing measures surrounding the corona crisis, it will not always be possible to receive research participants in the lab. Because we work with elderly people, who, according to the RIVM, fall into a risk category for the COVID-19 virus, receiving participants in the lab at the UMCG will be even more risky and often impossible. If the measures do not permit a visit to the lab, the research is conducted online where possible.

Amendments 1-7-2021:
- 113 participants instead of 198

This means that measurements that would take place in the lab are done online. Questionnaires will be completed online, interventions will be offered online and interviews will be conducted via an online video connection. Classes for the intervention are also online via video connection.

Study objective

the foreign language training boosts cognitive flexibility and affects its neural underpinnings, which adds to cognitive reserve. The increase in cognitive flexibility is hypothesized to influence the experience of subjective cognitive decline. Besides that, the boost in cognitive flexibility is hypothesized to positively influence emotion regulation and thereby reduce depressive symptomatology.

Study design

T0: baseline (0 months): Geriatric Depression Scale (GDS), emotion regulation questionnaire (ERQ), Leuven Adaptation of Rumination on Sadness Scale (LARSS), Apathy Evaluation Scale (AES), Cognitive Failures Questionnaire (CFQ), Montreal Cognitive Assessment (MoCA), Cognitive Reserve Index questionnaire (CRIq), Ten Item personality Questionnaire (TIPI), World Health Organisation Quality of Life – abbreviated (WHOQOL-bref), loneliness scale, Trail Making Test (TMT), Digit Symbol Substitution Test (DSST), Digit span, verbal fluency tasks in L1 and L2, Peabody Picture Vocabulary Test (PPVT), colour-shape switching task, modified Wisconsin Card Sorting Task (mWCST), fNIRS/EEG measures.

T1: post-intervention (3 months): Geriatric Depression Scale (GDS), emotion regulation questionnaire (ERQ), Leuven Adaptation of Rumination on Sadness Scale (LARSS), Apathy Evaluation Scale (AES), Cognitive Failures Questionnaire (CFQ), Montreal Cognitive Assessment (MoCA), Ten Item personality Questionnaire (TIPI), World Health Organisation Quality of Life – abbreviated (WHOQOL-bref), loneliness scale, Trail Making Test (TMT), Digit Symbol Substitution Test (DSST), Digit span, verbal fluency tasks in L1 and L2, Peabody Picture Vocabulary Test (PPVT), colour-shape switching task, modified Wisconsin Card Sorting Task (mWCST), fNIRS/EEG measures.

T2: Geriatric Depression Scale (GDS), emotion regulation questionnaire (ERQ), Leuven Adaptation of Rumination on Sadness Scale (LARSS), Apathy Evaluation Scale (AES), Cognitive Failures Questionnaire (CFQ), Montreal Cognitive Assessment (MoCA), Ten Item personality Questionnaire (TIPI), World Health Organisation Quality of Life – abbreviated (WHOQOL-bref), loneliness scale, Trail Making Test (TMT), Digit Symbol Substitution Test (DSST), Digit span, verbal fluency tasks in L1 and L2, Peabody Picture Vocabulary Test (PPVT), colour-shape switching task, modified Wisconsin Card Sorting Task (mWCST), fNIRS/EEG measures.

T3: follow-up (12 months): Geriatric Depression Scale (GDS), emotion regulation questionnaire (ERQ), Leuven Adaptation of Rumination on Sadness Scale (LARSS), Apathy

Evaluation Scale (AES), Cognitive Failures Questionnaire (CFQ), Montreal Cognitive Assessment (MoCA), Cognitive Reserve Index questionnaire (CRIq), World Health Organisation Quality of Life – abbreviated (WHOQOL-bref), loneliness scale, Trail Making Test (TMT), Digit Symbol Substitution Test (DSST), Digit span, verbal fluency tasks in L1 and L2, Peabody Picture Vocabulary Test (PPVT), colour-shape switching task, modified Wisconsin Card Sorting Task (mWCST).

Intervention

foreign language training

Contacts

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Eligibility criteria

Inclusion criteria

1) between 65 years and 85 years of age;

2) a current experience of self-perceived persistent decline in cognitive capacity in comparison to his/her previously normal cognitive status which is unrelated to an acute event;

3) They should show normal age-, sex-, and education-adjusted performance (>= 23) on the

Montreal Cognitive Assessment (MoCA);

4) participants should be native Dutch speakers and functionally monolingual. That is, they should not use any language other than Dutch in their daily lives. They may have learned additional (foreign) languages in their lives, but they cannot be fluent in them ;

5) participants should display normal intelligence (IQ>85);

6) they should be able to read;

7) they should have access to a computer or tablet and have basic internet skills for both interventions that take place using an online format.

Exclusion criteria

1) a diagnosis of MCI, prodromal AD or dementia according to DMS-V criteria;

2) having extensive experience playing a musical instrument for the last 20 years;

3) a psychiatric or neurologic disease (apart from AD), medical disorder, medication, or substance use;

4) any current DSM-V disorders according to the SCID-I interview or a past diagnosis in the last 10 years;

5) any current or past alcohol or drug dependency or abuse;

6) daily use of benzodiazepines or antidepressiva;

7) neurological problem (including epilepsy, dementia, neuromuscular disorders);

8) hearing or visual impairments other than correctable to normal by hearing devices or glasses.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel

Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	30-10-2018
Enrollment:	113
Type:	Actual

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	02-05-2018
Application type:	First submission

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
NTR-new	NL7137
NTR-old	NTR7336

Register	ID
Other	METC UMCG : 2018/375

Study results