ISRCTN15263884 https://doi.org/10.1186/ISRCTN15263884

Improving the mental performance of sports science students in 2 weeks: a controlled experiment on the strength of bioacoustic correction

Submission date
04/02/2024

Recruitment status
No longer recruiting

Registration date
13/05/2024

Overall study status
Completed

Last Edited
13/05/2024

Condition category
Other

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

Plain English summary of protocol

Background and study aims
The aim of this study was to assess the effectiveness of a bioacoustic correction (BAC) program in increasing the concentration and attention parameters of sports science and physical education students.

Who can participate?
Sports science students aged 18 to 25 years who do not have acoustic problems can participate in this study

What does the study involve?
The study involves a daily bioacoustic program to reduce stress levels and increase attention and concentration. The lessons involve participation in 20-minute sessions 6 days a week, without additional treatments outside the laboratory. Before and after the experiment, a series of tests are selected and implemented to determine parameters related to attention and concentration.

What are the possible benefits and risks of participating?
The bioacoustic correction (BAC) program could improve the stability of attention, concentration and other cognitive abilities in participants. This could translate into a better ability to concentrate while studying and improvements in academic performance.
Stress reduction is an important benefit that could come from participating in the BAC program. By reducing stress levels, participants can experience a better quality of life and greater psychological well-being.
Bioacoustic correction could have positive effects on mental health, reducing anxiety and improving mood. This could be especially helpful for college students facing academic pressure and stress.
The BAC program is non-invasive and does not require taking drugs or using medical devices. This makes it a safe and accessible option for improving cognitive performance and reducing stress.

Although the BAC program is generally considered safe, unwanted side effects, such as headache, dizziness, or fatigue, may occur in some individuals. It is important that participants are aware of these potential risks.

Where is the study run from?
University of Novi Sad (Serbia)

When is the study starting and how long is it expected to run for?
October 2022 to December 2022

Who is funding the study?
Provincial Secretariat for Higher Education and Scientific Research, Ministry of Science, Technological Development and Innovation (Serbia)

Who is the main contact?
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Public, Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
Nil known

Study information

Scientific Title
Effects of a 14-day bioacoustic correction program on neuropsychological parameters in sports science students: a randomized controlled clinical trial

Study objectives
The hypothesis was that the bioacoustic intervention program provides positive effects regarding neuropsychological parameters in sport science students.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 12/10/2022, Ethics committee of the University of Novi Sad (Lovcenska 16, Novi Sad, 21000, Serbia; +381 (0)21 450 188; sergej.ostojic@uns.ac.rs), ref: 48-10-2022-1

Study design
Interventional randomized controlled clinical trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Neuropsychological parameters in sports science students

Interventions
The randomization was carried out by choosing a group using a number. The control group did not receive any intervention. The experimental group received a bioacoustic correction program (a method of EEG-dependent biofeedback) for 2 weeks. The classes involved attending sessions for 20 minutes 6 days a week. During the lesson, the participants had to listen to a music session while simultaneously registering EEG potentials in four leads (two frontal and two occipital). EEG

recording was performed using four channels at points Fp1, Fp2, O1, and O2 as unipolar recordings relative to combined ear electrodes. Furthermore, the participants were asked to follow and concentrate on the flow of the musical pattern. An important factor was the volume level, which should have been loud enough but not annoying.

Intervention Type
Other

Primary outcome(s)
1. Attention stability measured using the Bourdon test at baseline and after 2 weeks
2. Concentration measured using the Bourdon test at baseline and after 2 weeks
3. Mistakes measured using the Bourdon test at baseline and after 2 weeks
4. Signs measured using the Bourdon test at baseline and after 2 weeks
5. Concentration measured using the Landolt test at baseline and after 2 weeks
6. Switch ability measured using the Landolt test at baseline and after 2 weeks
7. Temp measured using the Landolt test at baseline and after 2 weeks
8. Mistakes measured using the Landolt test at baseline and after 2 weeks
9. Signs measured using the Landolt test at baseline and after 2 weeks
10. Effects of the bioacoustic correction program measured using the Toulouse-Pieron test at baseline and after 2 weeks
11. Effects of the bioacoustic correction program measured using the Schulte-table test at baseline and after 2 weeks

Key secondary outcome(s))
There are no secondary outcome measures

Completion date
05/12/2022

Eligibility

Key inclusion criteria
University sports science students without neuropsychological diseases

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
25 years

Sex

All

Total final enrolment
20

Key exclusion criteria
Did not attend every session of the bioacoustic intervention

Date of first enrolment
01/11/2022

Date of final enrolment
15/11/2022

Locations

Countries of recruitment
Serbia

Study participating centre
University of Novi Sad
Faculty of Sport and Physical Education
Lovcenska 16
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Sponsor information

Organisation
University of Novi Sad

ROR
https://ror.org/00xa57a59

Funder(s)

Funder type
Government

Funder Name

Provincial Secretariat for Higher Education and Scientific Research, Ministry of Science, Technological Development and Innovation, Serbia (142-451-3098)

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available upon request from Carlo Rossi (carlo.rossi@unipa.it). Upon request, the main Excel document is shared where the data from which the statistical analysis was carried out and the conclusions reached are found. The data will be available from the publication of the study onwards. Data is provided upon request, but the full names and surnames of the participants and other private information will not be present.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes