

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	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 13/05/2024	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 13/05/2024	Condition category Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> 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?
Prof. Patrick Drid, patrikdrid@gmail.com

Contact information

Type(s)
Public, Scientific

Contact name
Prof Sergej Ostojic

ORCID ID
<https://orcid.org/0000-0002-7270-2541>

Contact details
Lovcenska 16
Novi Sad
Serbia
21000
+381 (0)21/450-188
sergej.ostojic@uns.ac.rs

Type(s)
Principal investigator

Contact name
Dr Carlo Rossi

ORCID ID
<https://orcid.org/0000-0002-1208-1034>

Contact details
Via Giovanni Pascoli 6
Palermo
Italy

90144
+39 (0)3886311467
carlo.rossi@unipa.it

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

Novi Sad

Serbia

21000

Sponsor information

Organisation

University of Novi Sad

ROR

<https://ror.org/00xa57a59>

Funder(s)

Funder type

Government

Funder Name

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