

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

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<b>Registration date</b> 13/05/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 13/05/2024	<b>Condition category</b> 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

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Public, Scientific

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## **Additional identifiers**

### **EudraCT/CTIS number**

Nil known

### **IRAS number**

### **ClinicalTrials.gov number**

Nil known

### **Secondary identifying numbers**

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

### **Secondary study design**

Randomised controlled trial

### **Study setting(s)**

Laboratory

### **Study type(s)**

Treatment

### **Participant information sheet**

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

## **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 measure**

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

## **Secondary outcome measures**

There are no secondary outcome measures

## **Overall study start date**

12/10/2022

## **Completion date**

05/12/2022

## **Eligibility**

### **Key inclusion criteria**

University sports science students without neuropsychological diseases

### **Participant type(s)**

Healthy volunteer

**Age group**

Adult

**Lower age limit**

18 Years

**Upper age limit**

25 Years

**Sex**

Both

**Target number of participants**

16

**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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Serbia

21000

## **Sponsor information**

**Organisation**

University of Novi Sad

**Sponsor details**

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**Sponsor type**

University/education

**Website**

<https://www.fsfvns.rs/>

**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

**Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed journal

**Intention to publish date**

01/09/2024

**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