



# Effects of different mental training techniques on fine motor performance.

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## Main Information

**Primary registry identifying number**

LBCTR2021054816

**Protocol number**

CEHDF 1787

**MOH registration number**

**Study registered at the country of origin**

Yes

**Study registered at the country of origin: Specify**

**Type of registration**

Prospective

**Type of registration: Justify**

N/A

**Date of registration in national regulatory agency**

28/05/2021

**Primary sponsor**

Saint Joseph University of Beirut

**Primary sponsor: Country of origin**

Lebanon

**Date of registration in primary registry**

18/06/2021

**Date of registration in national regulatory agency**

28/05/2021

**Public title**

Effects of different mental training techniques on fine motor performance.

**Acronym**

**Scientific title**

Comparison between the effects of Neurofeedback training and Motor imagery training on motor performance in a finger tapping task.

**Acronym**

**Brief summary of the study: English**

Motor Imagery (MI) refers to the act of imagining a specific action without actually executing it (Decety et al., 1994). This ability for humans to mentally rehearse a movement has been extensively documented due to its benefits in both sport and clinical contexts (Schuster et al. 2011; Guillot, 2019).

EEG-Neurofeedback (EEG-NF), is also a type of mental training that teaches self-control of brain activity by measuring brain waves and providing a feedback signal. Through the EEG-NF process, a person can learn to modulate its own neuronal activity. Ros et al. (2010) observed an increase in corticospinal excitability in the primary motor cortex following a 30-minute session of mu wave desynchronization training with EEG-NF. Moreover, Ros et al. (2014), showed that an EEG-NF training of 30 minutes aiming to induce desynchronization of mu brain wave leads to better implicit motor learning of a sequential motor task.

The main aim of this study is to elucidate the effect of desynchronization of mu brain wave in the primary motor cortex through EEG-NF training on explicit sequential motor performance in healthy humans. We will also compare the effects of EEG-NF training to those of MI training which has already proven its efficiency. Finally, we aim to see if the association of those two trainings would be more beneficial.







<b>Name of IMP</b>	<b>Year of authorization</b>	<b>Month of authorization</b>
<b>Type of IMP</b>		
<b>Pharmaceutical class</b>		
NA		
<b>Therapeutic indication</b>		
The training suggested, if proved to be beneficial, could be eventually applied in the context of motor rehabilitation.		
<b>Therapeutic benefit</b>		
The suggested trainings could lead to the improvement of motor skills		
<b>Study model</b>	<b>Study model: Explain model</b>	
N/A	N/A	
<b>Study model: Specify model</b>		
N/A		
<b>Time perspective</b>	<b>Time perspective: Explain time perspective</b>	
N/A	N/A	
<b>Time perspective: Specify perspective</b>		
N/A		
<b>Target follow-up duration</b>	<b>Target follow-up duration: Unit</b>	
<b>Number of groups/cohorts</b>		
<b>Biospecimen retention</b>	<b>Biospecimen description</b>	
None retained	NA	
<b>Target sample size</b>	<b>Actual enrollment target size</b>	
60	60	
<b>Date of first enrollment: Type</b>	<b>Date of first enrollment: Date</b>	
Anticipated	01/06/2021	
<b>Date of study closure: Type</b>	<b>Date of study closure: Date</b>	
Anticipated	01/07/2022	
<b>Recruitment status</b>	<b>Recruitment status: Specify</b>	
Recruiting		

**Date of completion**

01/07/2022

**IPD sharing statement plan**

Yes

**IPD sharing statement description**

1. Individual participant data will be available.  
2. Individual participant data that underlie the results reported in the article, will be shared after deidentification.  
3. Study protocol, Statistical Analysis Plan, Informed Consent Form, Clinical Study Report, Analytic Code will be available.  
4. The above data will be shared with researchers who provide a methodologically sound proposal.  
5. Sharing data could be done for any purpose of analyses.  
6. Proposals should be directed to [sandra.kobaitermaarrawi@usj.edu.lb](mailto:sandra.kobaitermaarrawi@usj.edu.lb). To gain access, data requestors will need to sign a data access agreement. Proposals may be submitted up to 36 months following article publication. After that time, data will be available in our university Lab database.

**Additional data URL****Admin comments****Trial status**

Approved

## Secondary Identifying Numbers

Full name of issuing authority	Secondary identifying number
Not Applicable	Not Applicable

## Sources of Monetary or Material Support

Name
Saint Joseph University of Beirut - Faculty of Medicine - Research council

## Secondary Sponsors

Name
Not Applicable



## Contact for Public/Scientific Queries

Contact type	Contact full name	Address	Country	Telephone	Email	Affiliation
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Scientific	Sandra Kobaiter Maarrawi	USJ	Lebanon	01421677	sandra.kobaitemaarrawi@usj.edu.lb	USJ - FM

## Centers/Hospitals Involved in the Study

Center/Hospital name	Name of principles investigator	Principles investigator speciality	Ethical approval
Laboratory of Research in Neuroscience	Sandra Kobaiter Maarrawi	Neuroscience	Approved

## Ethics Review

Ethics approval obtained	Approval date	Contact name	Contact email	Contact phone
Hotel Dieu de France	08/03/2021	Pr Michel Scheuer	michel.scheuer@usj.edu.lb	01421000 ext 2228

## Countries of Recruitment

Name
Lebanon

## Health Conditions or Problems Studied

Condition	Code	Keyword
Motor skills	2-Propanol (T51.2)	Motor skills

## Interventions

Intervention	Description	Keyword
Mental (motor) imagery	the act of imagining a specific action without actually executing it	Motor imagery
Neurofeedback	mental training that teaches self-control of brain activity by measuring brain waves and providing a feedback signal	Neurofeedback
Placebo	sham condition	Placebo



## Primary Outcomes

Name	Time Points	Measure
The number of sequences correctly executed throughout training blocks	Immediately after training	keyboard press task
The average time needed to complete a correct sequence throughout training blocks	Immediately after training	keyboard press task

## Key Secondary Outcomes

Name	Time Points	Measure
Motor Performance	20 minutes after training/24h after training	keyboard press task
Percentage of Event related desynchronization	during training	Procomp infiniti EEG-Neurofeedback machine

## Trial Results

Summary results

Study results globally

Date of posting of results summaries

Date of first journal publication of results

Results URL link

Baseline characteristics

Participant flow

Adverse events

Outcome measures

URL to protocol files