

## CASE STUDY

### **Balance in young female ballet students suffering from chronic knee pain: The effect of physiotherapy with and without a mirror.**

#### **CATEGORISING**

##### **Kind**

Research project involving living people

##### **Type**

##### **Subtype**

Clinical trials with interventions that are neither a therapeutic product nor a transplant product, nor a transplant ("other clinical trial")

#### **BACKGROUND**

In literature there is general consensus that using a mirror improves proprioception. During rehabilitation, a mirror is very useful for improving stability. In some sports, such as dancing, mirrors are widely used in training. This study evaluated the effectiveness of physiotherapy with mirror on balance in young dancers.

#### **METHODS**

This study included young dancers (aged 19-25) suffering from chronic knee pain. They were randomly assigned to receive physiotherapy, one to one, with a mirror (mirror- group) or without a mirror (non-mirror group). Their balance was evaluated by BESS (Balance Error Scoring System), which consists of three stances (double limb, single limb, and tandem) on two surfaces (firm and foam). Errors were assessed at each stance and summed to create the two subtotal scores (firm and foam surface) and the final total score (BESS). The BESS was measured at recruitment (T0) and again after 6 months of dance lessons (T1). Primary outcome was difference in total BESS between the groups.

#### **QUESTIONS OF THE CATEGORISER**

##### **Does the research project come under the scope of application of the Human Research Act?**

Yes

##### **BECAUSE**

This project was based on a study protocol that defined the exact procedures to be used. It included a relatively large number of persons and was not based on individual cases ("method-driven search for generalizable knowledge", defined as research by HRA). Female dancers ("persons"), between 19-25 years old, suffering from chronic knee pain, were randomly assigned to take ballet lessons with or without a mirror. This study investigated the effect of using a mirror on the dancers' balance ("research concerning function of the human body").

##### **Is the research project a project involving living persons?**

Yes

##### **BECAUSE**

This study included female dancers ("persons") suffering from chronic knee pain.

**Is the research project a clinical trial as defined by ClinO or ClinO-MD?**

Yes

**BECAUSE**

The investigator randomly assigned ("prospectively assigned") female dancers suffering from chronic knee pain to receive physiotherapy either with or without a mirror. The study assessed between-groups difference via the Balance Error Scoring System ("to investigate its effect on health"). The purpose was to increase our understanding of the use of mirrors during rehabilitation, as a tool to improve stability ("therapeutic measure").

**Does the trial involve investigating medicinal products (including combinations according to Art. 2 Para. 1 Letters f and g Medical Device Ordinance (MedDO) from the July 1, 2020)?**

No

**BECAUSE**

**Does the trial involve investigating a medical device (in vitro diagnostics excluded) or any other device as defined in Article 1 of the Medical Devices Ordinance (MedDO) (Status as of 26 May 2022)?**

No

**BECAUSE**

**Does the trial investigate an intervention that is neither a therapeutic product nor a transplant product, nor a product according to Art. 2a para. 2 Therapeutic Products Act (TPA) (Status from May 26, 2021), nor a transplant?**

Yes

**BECAUSE**

The investigator randomly assigned ("prospectively assigned") female dancers suffering from chronic knee pain to receive physiotherapy either with or without a mirror. A mirror is not a medicinal product or device, a transplant or transplant product, a gene therapy, or a pathogenic organism.

**Does the trial investigate gene therapy or a pathogenic organism?**

No

**BECAUSE**

**Does the intervention involve minimal risks and stress for the participating persons?**

Yes

**BECAUSE**

The investigator randomly assigned ("prospectively assigned") female dancers suffering from chronic knee pain to receive physiotherapy either with or without a mirror. The study assessed between-groups difference via the Balance Error Scoring System ("to investigate structure and function on the human body"). Dancing in front of a mirror creates minimal risk or stress in participants.