INPLASY

THERAPEUTIC EFFECTS OF EXPOSURE TO VIRTUAL REALITY TECHNOLOGIES IN OLDER PEOPLE WITH ARTHROPLASTY. A SYSTEMATIC REVIEW AND META-ANALYSIS

INPLASY202420039
doi: 10.37766/inplasy2024.2.0039
Received: 07 February 2024
Published: 07 February 2024

Corresponding author:
GONZALO ARIAS-ALVAREZ

gonzalo.arias@uss.cl

Author Affiliation:
Universidad San Sebastián.

Arias-Álvarez, G[1]; Guzmán-Pincheira, C[2]; Mendoza, C[3]; Fernández-Huerta, L[4]; Guede-Rojas, F[5]; Carvajal-Parodi, C[6].

ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202420039

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 February 2024 and was last updated on 07 February 2024.

INTRODUCTION

Review question / Objective The aim of this Systematic review and Meta-analysis is evaluate the effects of virtual reality exposure therapy (VRET) in the rehabilitation in older people with arthroplasty.

Condition being studied Arthroplasty is an increasingly common surgical procedure for replacing damaged joints, it has transformed the quality of life of many patients by relieving pain and restoring joint function. However, the success of surgical intervention often depends on the effectiveness of postoperative rehabilitation. In this context, immersive virtual reality (IVR) emerges as a promising tool to improve rehabilitation after arthroplasty. RVI offers an innovative approach by providing immersive sensory stimuli that can support patients' physical and motivational recovery. Although research in this field is evolving, early indications suggest that the integration of RVI into orthopedic rehabilitation programs could represent a significant advance in the care and recovery of patients undergoing arthroplasties.

METHODS

Search strategy The searches will be carried out in the electronic databases Pubmed, CINAHL, Scopus, Web of Science and PEDro. The search strategy will include keywords and related indexing terms/MESH terms for x-reality, mixed reality, augmented reality, and exergame*.

Participant or population Older people with arthroplasty.

Intervention Virtual reality exposure therapy.

Comparator Traditional rehabilitation modalities.

Study designs to be included Randomized controlled trials (RCTs), with no restriction on language.

Eligibility criteria All Randomized controlled trials (RCTs), with no restriction on language with full available evaluating Virtual reality exposure therapy in Older people with arthroplasty. Articles of any other study design or not reporting virtual reality exposure will be excluded.

Information sources The searches will be carried out in the electronic databases Pubmed, CINAHL, Scopus, Web of Science and PEDro.

Main outcome(s) Test or assessment scores of functionality.

Data management A standardized form will be used to extract information from the selected studies. The form will include information about the author and year of publication, characteristics of the studies and samples, intervention protocols, comparison groups, measurement instruments, and intergroup results. Two reviewers they will independently carry out the data extraction, and a third author will intervene to approve the information.

Quality assessment / Risk of bias analysis Studies will be meta-analyzed using RevMan 5.4 (Review Manager® 5.4.1) and Stata 15.0 software. Two reviewers will independently assesses the quality of selected studies according to the Cochrane collaboration´s tool for randomized controlled trials. Items will be evaluated in three categories: Low Risk of bias, unclear bias and high risk of bias. Heterogeneity between the studies in effect measures will be assessed using the I2 statistic.

Strategy of data synthesis Mean differences (MD) with their associated 95% CI will be calculated for continuous data when eligible trials use the same instrument to measure a given construct. In cases where different measurement instruments are used, we will calculate standardized mean differences (SMDs).

Subgroup analysis Subgroups will be considered as differences in treatment methods between traditional treatment groups, type of virtual reality used, and location.

Sensitivity analysis Sensitivity analysis will be performed using a case-by-case exclusion analysis to determine the effectiveness of virtual reality in the rehabilitation of older people with arthroplasty.

Country(ies) involved Chile.

Keywords Virtual reality exposure therapy; arthroplasty; Augmented reality; rehabilitation.

Contributions of each author

Author 1 - GONZALO ARIAS-ALVAREZ.
Email: gonzalo.arias@uss.cl
Author 2 - Claudio Carvajal-Parodi.
Email: claudio.carvajal@uss.cl
Author 3 - Carla Guzman-Pincheira.
Email: carla.guzman@uss.cl
Author 4 - Lincoyan Fernández-Huerta.
Email: lincoyan.fernandez@uss.cl
Author 5 - Cristhian Mendoza.
Email: cristhian.mendoza@uss.cl
Author 6 - Francisco Guede-Rojas.
Email: guedef2@gmail.com