when compared to the other conditions, was effective only for the timed up and go test (three studies, n=225; MD=-1.38, 95% CI [-2.35, -0.41]; p=0.005; I^2=56%). No significant differences were observed for the other analyses.
Conclusion: The findings of the present study demonstrate that physical therapy based on exercises, when started mainly in the early postoperative period of TKA is better than the comparison conditions in knee functionality.
Implications: The present review shows the clinical applicability of physiotherapeutic exercises started early after TKA, which can improve the functional conditions of patients.
Keywords: Arthroplasty, Knee, Replacement, Exercise Therapy, Postoperative Care

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BODY BALANCE IN INDIVIDUALS WITH OSTEOARTHRITIS OF THE HIP AND KNEE, BEFORE AND AFTER GROUP PHYSIOTHERAPY INTERVENTION PROTOCOL

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Background: Osteoarthritis (OA) is a slow and progressive musculoskeletal disorder that primarily affects the hip and knee joints. As a result, it leads to loss of flexibility, pain, reduced range of motion, and affects gait and body balance, resulting in functional dependence and reduced quality of life for individuals. Physical therapy based on exercises is considered the best treatment option due to its favorable cost-benefit ratio, helping to reduce pain and improve physical function, gait, and body balance. Additionally, studies suggest that group physical therapy has proven beneficial as it utilizes fewer resources, thereby reducing costs, offering greater interaction among patients, and achieving similar results to individual treatment.
Objectives: This study aimed to evaluate the effects of a group exercise protocol on static and dynamic body balance in individuals with knee and hip osteoarthritis.
Methods: A clinical trial was conducted with patients diagnosed with knee and/or hip OA, who were able to walk independently and scored above 25 on the Lower Extremity Functional Scale (LEFS). The assessment instruments included the LEFS functionality questionnaire, Visual Analogue Scale (VAS) for pain assessment, Agility and Dynamic Balance Test (ÁGIL), and Stabilometry using an electronic baropodometer (FootWalk Pro®, AM CUBE, France), where participants maintained a bipedal position without support for 30 seconds. The intervention protocol consisted of 10 group kinesiotherapy sessions, conducted twice a week, with progressive exercises. The first week focused on mobility exercises involving active movements of the lower limbs, ballistic stretching, oscillations, and adopting different positions. The second week they emphasized mobility and resistance, incorporating shin pads and active lower limb exercises. In the third week, the focus was on resistance with higher intensity compared to the previous week. The fourth week they included resistance and functional exercises simulating musculoskeletal strain during daily activities. The fifth week involved functional exercises with increased intensity and additional balance training. Data were presented as means and standard deviations, and comparisons were made using dependent sample tests determined by the Kolmogorov-Smirnov test with the assistance of SPSS software (version 19.0) at a significance level of 5%.
Results: The sample comprised 27 participants, 20 women (74%) and seven men (26%), and a mean age of 64.19±8.33 years. After accounting for sample loss between the first and second evaluation moments (after intervention), there were 18 participants available for comparison tests. The results showed a significant 17% improvement in functional capacity and a 44% reduction in pain during movement.
Conclusion: The five-week group exercise protocol improved pain and functionality in this sample; however, it did not lead to significant changes in static and dynamic body balance parameters.
Implications: This study demonstrates the clinical applicability of group exercises, which can improve pain and function in patients with knee and/or hip osteoarthritis, thereby reducing costs and enhancing the efficiency of care in clinics.
Keywords: Osteoarthritis, Balance, Physiotherapy

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THE INTRODUCTION OF NEW TECHNOLOGIES APPLIED TO THE CITIZEN SCIENCE METHOD IN SCIENTIFIC PROJECTS IN HEALTH: AN INTEGRATIVE REVIEW

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Background: Citizen Science (CC) refers to the collaboration of volunteers, amateur scientists, non-professional scientists (citizens), and those without academic training in a project or research of a scientific nature, actively contributing to science. In public health, research with the CC method is recent, in small numbers and samples, proving particularly useful, especially with the recent introduction of new technologies (NT). These NT help collect and analyze population health data, encourage the involvement of community members, and promote greater interaction, contribution, and discussions in solving the scientific problem that directly impacts a community's health and/or well-being.
Objectives: To describe the main studies in the literature and their findings on the incorporation of new technologies in health research applied to the citizen science method.
Methods: We carried out an integrative review of articles published up to 2021, extracting the location, the most used technology, and its results on the health of the individual or the environment in which he lives.
Results: Fourteen studies were found in 5 countries, mostly American (42.8%) and European (35.7%), with 92.8% using information and communication technology (applications) on mobile devices (smartphones) for data collection and recording of the studied population. All studies presented important findings regarding the training of individuals in the collection, analysis, monitoring, and health promotion of the studied population.

Conclusion: Research using the CC method was carried out, in greater numbers, in developed countries, demonstrating the involvement and importance of the participation of the lay public (citizen scientists) of these nationalities in the promotion of health research, facilitated and improved through new technologies. These studies pointed to the positive and significant impact of these technologies not only on data collection and analysis but also on the perceptions of empowerment, autonomy, and the collective environment of the individuals involved, promoting greater interaction and contribution to discussions in solving the scientific problem that impacts health. and/or the well-being of a community.
Implications: The CC method associated with new technologies proves to be an important tool in monitoring the health of the community and the environment in which it lives, as well as in formulating proposals for public policies for improvements.
Keywords: Citizen Participation in Science and Technology, Public Perception of Science, Technology and Innovation in Health

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ANTICIPATORY SYNERGY ADJUSTMENTS: A NARRATIVE REVIEW OF STUDIES USING THE UNCONTROLLED MANIFOLD APPROACH IN INDIVIDUALS WITH NEUROLOGICAL DYSFUNCTIONS

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Background: According to the Uncontrolled Manifold (UCM) approach, motor synergies allow motor flexibility while ensuring stable task performance. The stronger the motor synergies, the greater performance stabilization. Thus, just before the start of a new motor task, the synergies need to be attenuated to facilitate the initiation or change of movement. This reduction in synergy during the preparation for movement initiation is called Anticipatory Synergy Adjustments (ASAs). In individuals with neurological deficits, changes in the timing or magnitude of ASAs can result in reduced movement agility or greater difficulty initiating a new task. Additionally, altered ASAs can serve as preclinical markers of neurological dysfunctions such as Parkinson's disease or multiple sclerosis.
Objectives: The aim of this study was to characterize the behavior of ASAs in populations with neurological dysfunctions and analyze their clinical implications.
Methods: A narrative review of studies that used the UCM approach to quantify ASAs in individuals with neurological dysfunctions was conducted.
Results: The review resulted in the inclusion of 9 exploratory studies. The study samples consisted of individuals with Parkinson's disease (PD), olivopontocerebellar atrophy (OA), stroke, multiple sclerosis (MS), and cerebral palsy (CP). The motor tasks analyzed in the studies were divided into manual tasks and standing postural control tasks. In individuals with PD, MS, and OA, delayed and smaller magnitude of ASAs were observed when compared to healthy individuals. In individuals with CP and stroke, ASAs in manual tasks differed from healthy individuals in small magnitudes.
Conclusion: In general, the observed changes in ASAs in the study lead to reduced agility during task execution and greater difficulty initiating new movements.
Implications: The use of the UCM method and the analysis of ASAs appears to be sensitive for the early detection of some neurological conditions and tracking disease progression and intervention effects, especially in individuals with subcortical disorders. However, using UCM to evaluate patients in the clinical context is still challenging. Its application requires specific technology and knowledge, which limits its use to the search environment. It would be interesting if future studies investigated the relationship between the behavior of ASAs and performance in commonly used functional instruments/questionnaires in clinical practice so that the understanding and application of the UCM method in the clinical context can be optimized.
Keywords: Anticipatory synergy adjustments, UCM, Neurological dysfunctions

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PAIN NEUROSCIENCE EDUCATION IN NECK PAIN MANAGEMENT: A SYSTEMATIC REVIEW

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Background: Neck pain is a worldwide public health problem, highly prevalent, and varies significantly between countries. It is one of the leading causes of disability in the world. It is estimated that half of the world's population will experience an episode of neck pain. On the other hand, compared to other conditions, the number of treatments dedicated to the management of neck pain is relatively low. In comparison with traditional biomechanical models, Pain Neuroscience Education (PNE) is a recent approach, providing the patient with a better understanding of pain and the sensation experienced by him. Considering the heterogeneous nature of each individual and its multidimensionality, it is necessary to use the PNE in a heterogeneous way based on the patient.
Objectives: The purpose of this study was to explore the effectiveness of PNE as a treatment approach for people suffering from chronic neck pain.
Methods: This is a systematic review prospectively registered in PROSPERO (CRD42021283000), following the PRISMA checklist and Cochrane recommendations. Titles and abstracts were screened by independent reviewers, the inclusion criteria were published in the English language, investigating the effects of PNE on neck pain in adult subjects. The third reviewer will resolve discrepancies between reviewers The analysis of the methodological quality of the eligible studies was performed using the PEDro quality scale. Data were analyzed and extracted using the PICO strategy. For data