

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

Conflict of interest: The authors declare no conflict of interest.

Acknowledgment: We are thankful to UNISUAM and agencies CNPq, CAPES, and FAPERJ for funding our research.

Ethics committee approval: Not applicable.

<https://doi.org/10.1016/j.bjpt.2024.100603>

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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

Conflict of interest: The authors declare no conflict of interest.

Acknowledgment: The present work was carried out with the support of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES).

Ethics committee approval: Not applicable.

<https://doi.org/10.1016/j.bjpt.2024.100604>

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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