Background: Cerebral Palsy (CP) presents motor impairments as one of its main symptoms, such as the equinus gait pattern. There is a portable electrical stimulator available in the market called the Walkaide® which aims to stimulate the anterior tibial muscle. However, due to shortening and contractures, the triceps surae muscle suffers a decrease in its ability to move, resulting in hyperactivation of the anterior tibial muscle. Stimulating the triceps surae muscle can provide the necessary force for improving gait biomechanics, generating an increase in propulsion during the terminal support phase, range of motion, speed, and stride length. Unfortunately, the Walkaide® is not accessible in low- and middle-income countries like Brazil due to its cost.
Objective: To evaluate the immediate effects of a prototype portable electrical stimulator designed to activate the gastrocnemius muscle in children with Cerebral Palsy.
Methods: Three children with right-side unilateral CP (two females aged 9 and 13 years old, and one male aged 9 years old) participated in this prototype study. Plantar pressures were evaluated in a semi-static posture and during walking on the MPS Platform with and without the use of electrical stimulation on the gastrocnemius muscle. The pressures in different areas of the foot and the arch index were analyzed before and during the use of the electrical stimulator in the two conditions mentioned above.
Results: The use of electrical stimulator led to an improvement in the plantar distribution in both affected and non-affected lower limbs in static and dynamic conditions, as observed in the three children with CP evaluated. In the static condition with the stimulator, there was greater weight bearing posteriorly to the right, an increase in the contact surface, and an improvement in the arch index compared to the condition without the stimulator. In the dynamic condition, there was an increase in the contact surface of the right foot with the device, and the weight distribution was more symmetrical when compared to not using the device.
Conclusion: The use of electrical stimulator on the gastrocnemius muscle has a great potential for improving the distribution of plantar pressures, which can enable children with unilateral CP to distribute their weight to the heel. Therefore, it is believed that with time, children may show an improvement in their gait pattern.
Implications: The use of the electrical stimulator may lead to improvements in plantar pressures, allowing children with unilateral CP to discharge weight posteriorly. This could potentially replace the use of standardized orthoses, resulting in aesthetic and practical benefits. Additionally, it promotes the development of a national equipment with lower costs of production.
Keywords: Cerebral palsy, Gait, Electrical stimulator

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: We would like to thank all the research participants and collaborators.
Funding: FAPEMIG and CAPES
Ethics committee approval: Universidade Federal de Juiz de Fora. CAAE: 59362122.0.0000.5147.

https://doi.org/10.1016/j.bjpt.2024.100788

192

ASSESSMENT OF THE LONG-TERM PHYSICAL CAPACITY OF COVID-19 SURVIVORS

Jéssica Gabriela Messias Oliveira[1], Rayanne Costa de Sales[2], Renan Pereira Campos[2], Beatriz Luiza Pinheiro Alves Azevedo[1], Thiago Thomaz Mafort[1], Agnaldo José Lopes[1,2]
[1] *Departamento de Pneumologia, Policlínica Piquet Carneiro, Universidade do Estado do Rio de Janeiro (UERJ), Rio de Janeiro, Rio de Janeiro, Brasil*
[2] *Programa de Pós-Graduação em Ciências da Reabilitação, Centro Universitário Augusto Motta (UNISUAM), Rio de Janeiro, Rio de Janeiro, Brasil*

Background: Post-COVID-19 syndrome (PCS) is characterized by a set of clinical findings that appear during or after infection with SARS-Cov-2 and persist after 12 weeks. The long-term consequences of COVID-19 are not fully known, but there is already evidence that the infection can deteriorate lung function, reduce functional capacity, impair quality of life and cause important emotional repercussions. Thus, there needs to be a tool to assess the course of sequelae and how limiting they may be to estimate the long-term burden of this disease. One of the tools used is the *Post-COVID-19 Functional Status Scale* (PCFS), which considers pain, emotional aspects and functional limitations of the individual.
Objectives: To build a predictive model of physical function through PCFS in patients with PCS.
Methods: Between October and March 2021, a cross-sectional study was carried out with 201 survivors of COVID-19 aged 18 years or older at Policlínica Piquet Carneiro, UERJ. The study included patients with persistent symptoms or development of sequelae beyond 12 weeks from the onset of acute COVID-19 symptoms. The meanings of each score on the PCFS scale are as follows: grade 0: no functional limitations; grade 1: negligible functional limitations; grade 2: slight functional limitations; grade 3: moderate functional limitations; and grade 4: severe functional limitations. They were also assessed for general fatigue using the Chronic Fatigue Therapy Functional Rating Scale (FACIT-F), handgrip strength (HGS), and spirometry. The inferential analysis was composed by Pearson's correlation coefficient for the association between the PCFS and the other variables. Multivariate linear regression was applied to investigate which variables were predictive of PCFS. Significance $P<0.05$ was used. The analysis was processed using JASP version 0.14.1.
Results: The number of participants classified as 0, 1, 2, 3 and 4 on the PCFS scale was 25 (12%), 40 (20%), 39 (19%), 49 (24%) and 48 (24%), respectively. The PCFS scale was significantly correlated with the following variables: FACIT-F score ($r=0.542$, $P<0.001$), HGS ($r=-0.339$, $P<0.001$), previous hospitalization ($r=0.226$, $P=0.001$), BMI ($r=0.163$, $P=0.021$) and gender ($r=-0.153$, $P=0.030$). The regression model with the highest regression coefficient ($R=0.622$) included the following variables: age, sex, BMI, FACIT-F, previous hospitalization and HGS.
Conclusion: Using the PCFS scale, we investigated the factors that contribute to a worse physical condition of patients with PCS, without previous locomotor deficiency. The results indicate that the worse the general fatigue in these patients, the worse their physical functions.
Implications: Based on these results, we propose a predictive model for the PCFS scale in patients with PCS that takes into account age, sex, BMI, FACIT-F, previous hospitalization and HGS. Due to the importance of assessing physical functioning in this patient population, the PCFS scale can be a useful tool for clinical evaluation and planning of rehabilitation strategies.
Keywords: Post-COVID-19 syndrome, Physical ability, Quality of life

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: Not applicable.
Ethics committee approval: UERJ Ethics and Research Committee under number CAAE-30135320.0.0000.5259.

https://doi.org/10.1016/j.bjpt.2024.100789