

For the number of steps, the Wilcoxon test revealed differences only for TUG ($Z_{24} = -2.121$; $p < 0.035$). The patients reduced the number of steps performing the task probably due to the increased step length. The program of generalized physical activities was sufficient to improve functional mobility, and it is probably an important factor to minimize the risk of falls. We recommend the enrollment of Parkinson's disease patients in physical activity programs. (Acknowledgements: FINEP, FAPESP, FNS/MS.)

Electromyographic Activity Patterns of a Paralympic Athlete with Sequelae of Polio During Arm Cranking

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The performance of elite athletes is strongly dependent on good motor control and muscular coordination, mainly when precision is required. Due to this, coaching paralympic athletes with neurological sequelae such as those of poliomyelitis is a challenging task, since training methodology must be fitted to each athlete. In this sense, it is important to evaluate relevant aspects of motor abilities of these athletes. This was done in the case of a female paralympic athlete, with sequelae of polio, integrating the athletics team of CEDE-PUCPR, specialist in throwing events. Despite good results in competitions, her throwing pattern is not regular. During her shoulder isokinetic evaluation, the torque curve showed anomalous behavior and by arm cranking she was not able to maintain a regular rhythm. It was conjectured that irregular muscular activation patterns are related to this behavior. In order to investigate it, the electromyographic activity of the biceps and triceps brachii was registered during arm cranking. Electromyography bipolar electrodes were positioned over the biceps and triceps brachial and the signal was collected with the equipment EMG 1600CA (EMG System) with a sampling rate of 1 kHz and filtering between 20 Hz and 500 Hz. The athlete was firmly attached to the chair of a mechanical ergometer M4100 (Cefise) and then asked to perform three series of 4 min each, with interval of 10 min between them. During each series, the cadence was progressively increased, from 40 RPM until 70 RPM, increasing 10 RPM per each minute. The electromyography activity has shown the presence of co-contractions in both arms, but they appeared more frequently on the left side (non-dominant). When left pushing and right pulling, the left biceps have shown amplitude 5 times higher than that of the right biceps. This behavior has changed over the series: during the first series, the activation of muscles of the left sides was higher if compared to their right counterparts; during the second series there was a more symmetric behavior. During the third series, besides the interlimb asymmetry, it was observed that the left biceps remained activated along all the series. The results of this preliminary analysis have shown that muscular activation patterns might be the reason for the irregular throwing behavior. However, a more detailed analysis of the electromyography signals is necessary to identify the mechanisms behind it and help design a training program to correct the activation patterns and improve throwing performance.