



# THE EFFECT OF PHYSIOTHERAPY ON THE FUNCTIONAL RECOVERY IN PATIENTS AFTER STROKE IN A SUBACUTE STAGE

ANTOANETA DIMITROVA<sup>1</sup>, KRISTIN GRIGOROVA-PETROVA<sup>1</sup>, DANIELA LUBENOVA<sup>1</sup>, DANCHE VASILEVA<sup>2</sup>

<sup>1</sup>DEPARTMENT OF PHYSIOTHERAPY AND REHABILITATION, NATIONAL SPORTS ACADEMY "VASSIL LEVSKI", SOFIA, BULGARIA  
<sup>2</sup>FACULTY OF MEDICAL SCIENCES, UNIVERSITY „GOCE DELCHEV“, SHTIP, R. N. MACEDONIA

## BACKGROUND AND AIMS

Neurorehabilitation is a well-established strategy that aids patients' recovery after stroke. It aims to increase their level of functional independence and reintegration and is tailored to the individual needs and expectations of each patient.

The purpose of this study is to investigate the effect of the applied physiotherapy on postural control and gait in patients three months after an ischemic stroke incident.

## METHODS

24 patients (16 men, 8 women, mean age 69.3±2.1) with stroke were studied. The PT sessions were conducted individually, two times daily for 2 weeks in a clinical setting. Therapeutic modalities included techniques which specifically influenced the existing dysfunctions:

To improve the elasticity of soft tissues - mainly the lower limb, ankle joint and m. rectus femoris were applied passive stretching, slow speed and holding for about 15-20 sec., with 5-10 repetitions, from different starting positions.

To stimulate and facilitate active control of the performed movements were used: active motor tasks aimed at symmetrical weight bearing at different starting positions; movements of the body from prone, face-down and side-lying positions; core body movements from sitting such as transferring body weight from side to side with or without support on the upper or lower extremities.

Practicing sit to stand - getting up (focusing on the voluntary control of the activity of the thigh muscles and on ankle dorsiflexion): working on the correct placement of the lower limbs while standing up from different heights; stimulating the active flexion of the upper body relative to the hip joints (not to the lumbar region) with continuous and smooth movements, with gradual increase in the speed of performing these tasks, and with removing the support of the upper extremities, while the therapist may stabilize the position of the lower extremities and facilitate the shifting of body weight; for achieving optimal starting position while performing the task, sitting was performed in reverse.

Walking - stimulating and facilitating reciprocal rotation of the body.

Patients were assessed before and after undergoing physiotherapy using the Trunk Impairment Scale, Five Times Sit-To-Stand Test, the test "Timed Up and Go" and the 10 meters walking test.

## RESULTS

All patients achieved better postural stability ( $p < 0.05$ ), increased functional strength of the lower limbs, improved ability for transfers ( $p < 0.05$ ) and overall functional mobility ( $p < 0.05$ ). The increase in walking speed was not so significant but the overall improvement trend shows that it is possible for these patients to achieve greater independence in everyday life activities.

## CONCLUSIONS

The physiotherapy program improved static and dynamic control, coordination of upper body movements and functional abilities in patients three months post ischemic stroke. The better static and dynamic balance in these patients leads to improved locomotion.

Trunk Impairment Scale



Fig. 1 Changes in the mean value of the static balance, dynamic balance and coordination in sitting position.

Five Times Sit-To-Stand

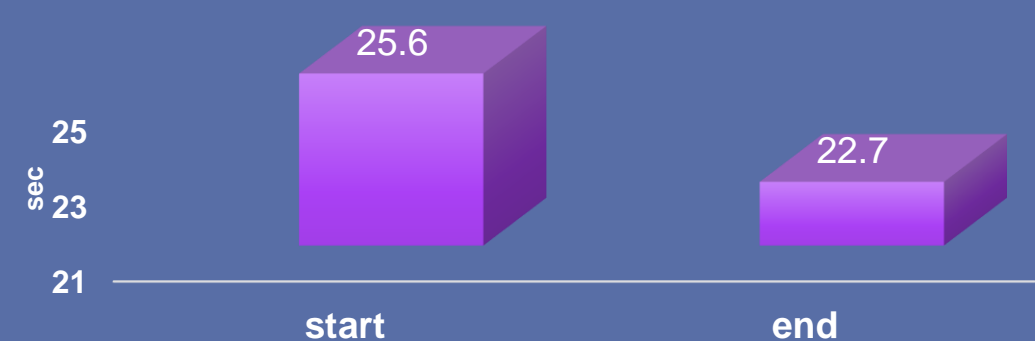


Fig. 2 Changes in the mean value of the functional strength of the lower limbs and the functional balance in sitting position.

Timed Up and Go

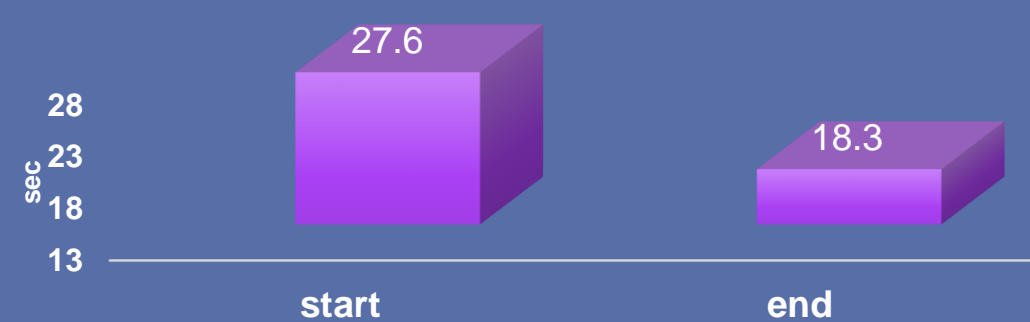


Fig. 3 Changes in the mean value of the functional balance in walking

10 meters walking Test



Fig. 4 Changes in the mean value of the walking speed.