

Evaluation of ambulatory function in adults with Spina bifida

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Background

Spina bifida is a congenital malformation consisting of an incomplete closure of the neural tube, which leads to paralysis and/or sensitivity loss in the lower limbs. Standing and walking ability is influenced relative to the level. Persons with low level paresis often maintain their walking, while persons with high level paresis cease walking. Few studies on adults with spina bifida exist.

Aim

To evaluate the ambulatory function according to muscle function with in adults spina bifida older than 18 years.

Subjects

45 persons, 23 female and 22 male, median age 34.8 years (17.4-65.1).

Method

Functional walking ability, outdoor walking distance and use of orthoses and walking aid was documented. Joint range of motion and lower limb muscle strength was examined. The participants were designated a muscle function class (Fig 1). Timed up and go, 10 meters walking test and six minutes walking test were performed. After the 6 minutes walking test the participants estimated pain and physical exertion.

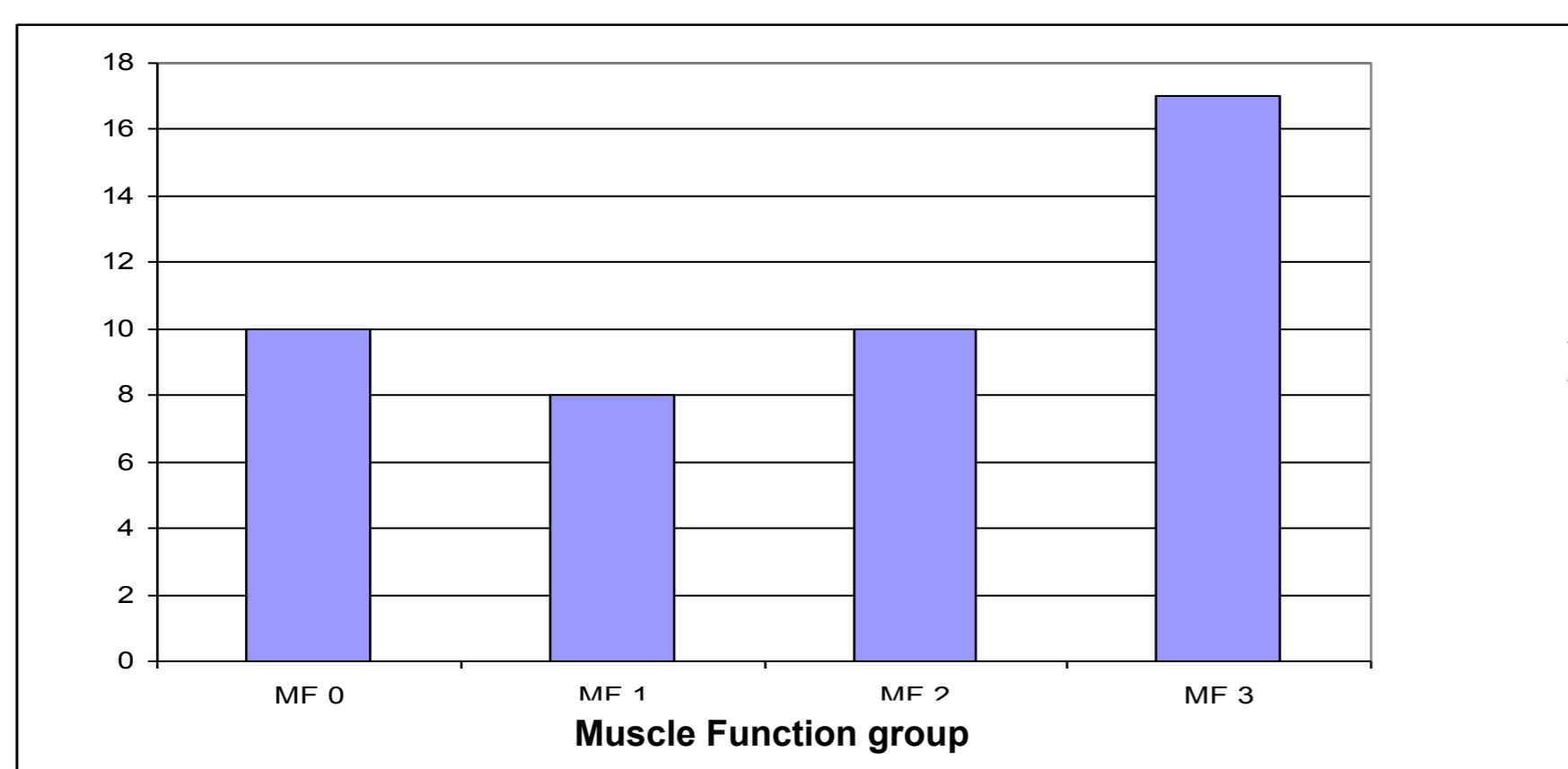


Figure 1. Distribution of participants according to muscle function groups

Muscle function group

MF 0 – No muscle weakness

MF1 – Weakness of intrinsic foot muscles

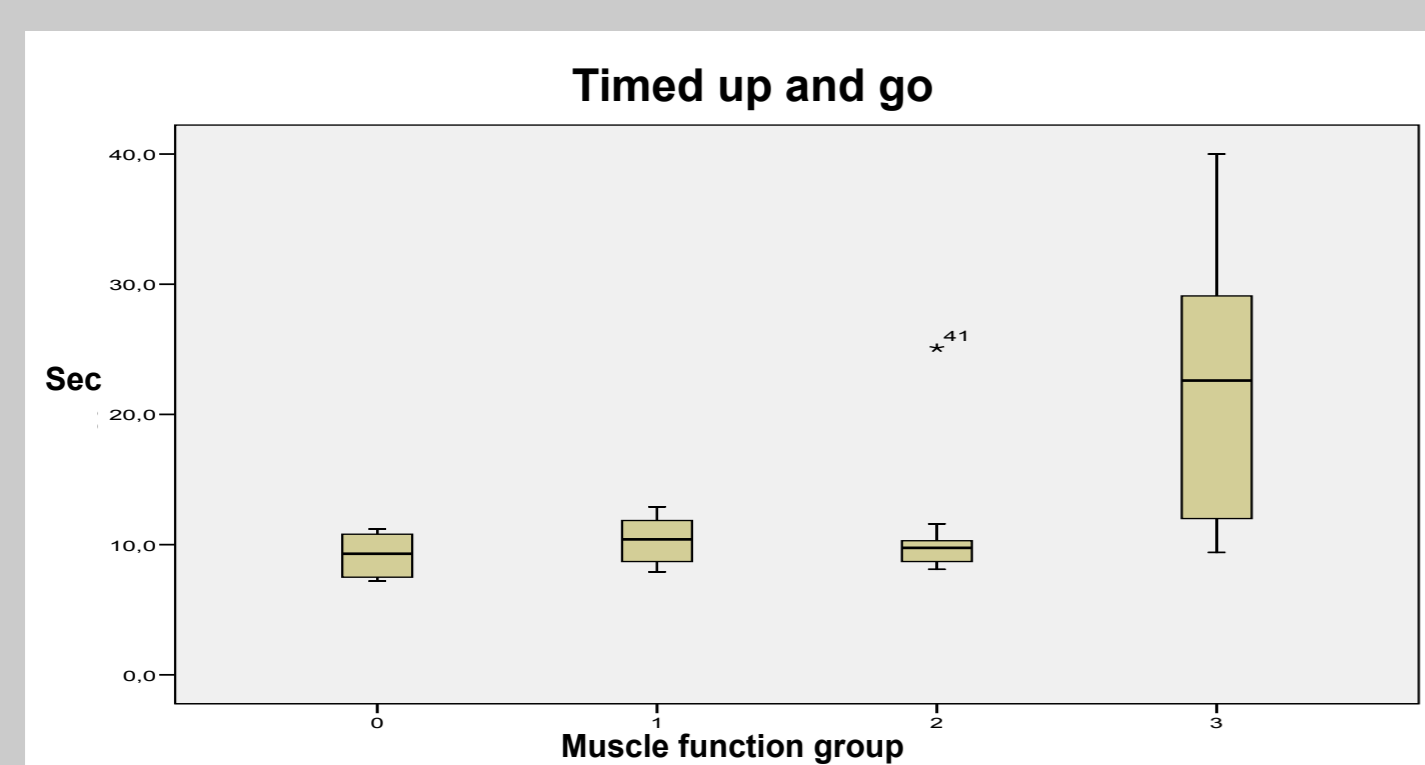
MF2 – Partly weakness of plantar flexors, hip extensors and abductors

MF3 – Trace of hip extension, hip abduction and below knee muscles

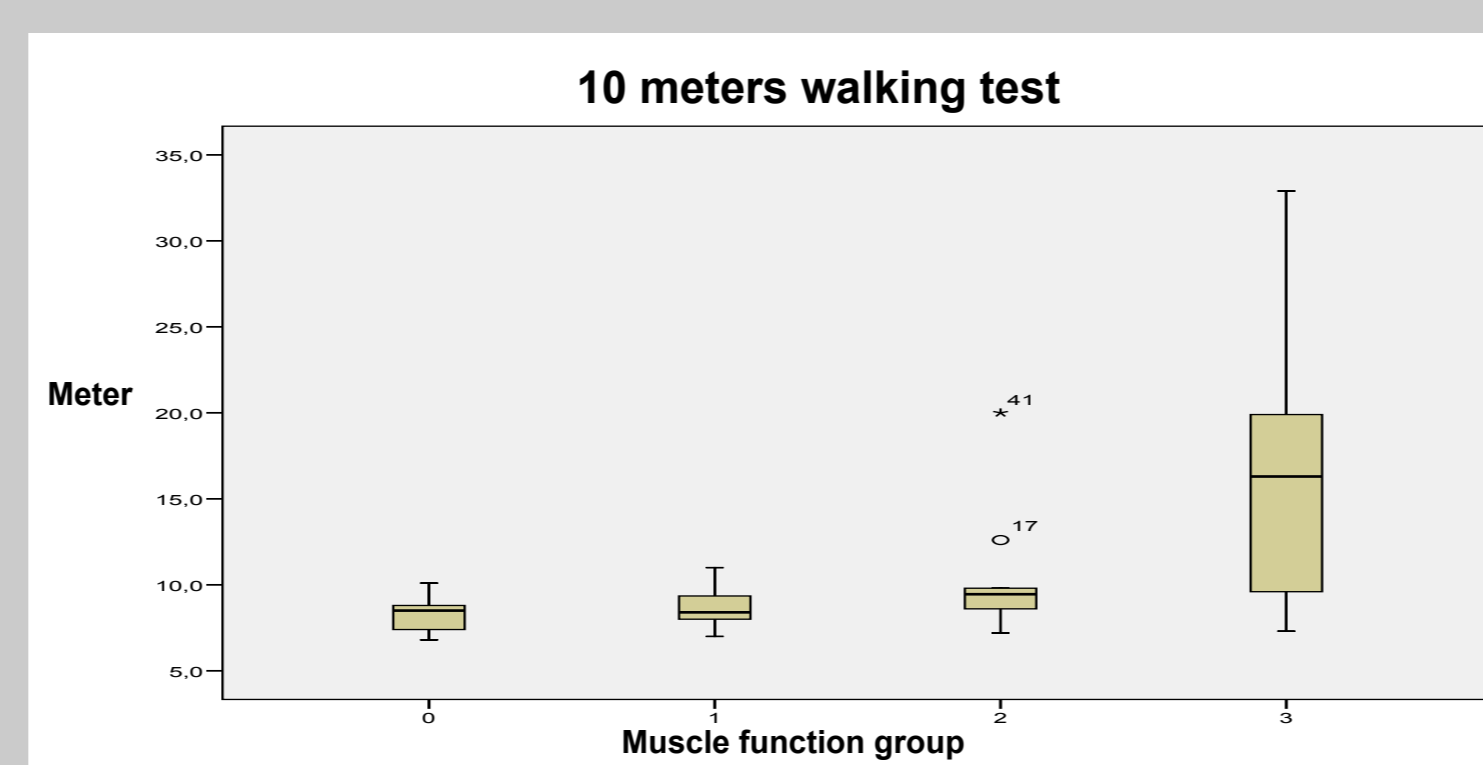
All participants had functioning of 4-5 knee extensors, hip adductors and flexors.

Results

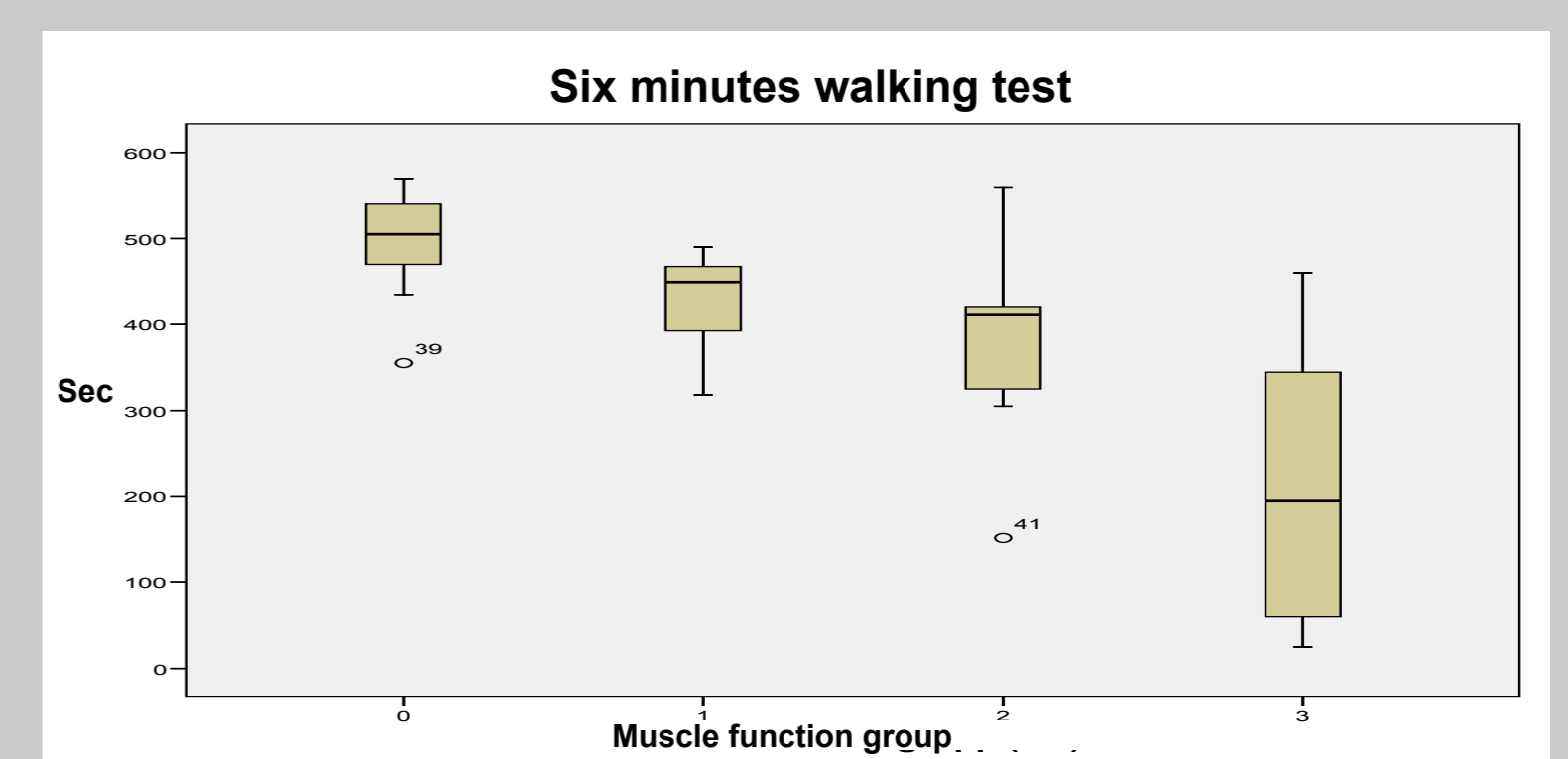
The time used during walking increased significantly for the participants with less muscle function (fig 2 and 3). Distance at six minutes walking test was significantly shorter for the participants with less muscle function (fig 4). 20/42 experienced pain after the performed test and 35/42 reported physical exertion.



Figur 2. Timed up and go in seconds for all muscle function groups



Figur 3. 10 meters walking test in seconds for all muscle function groups



Figur 4. 6 minutes walking test in seconds for all muscle function groups

Conclusion

- Careful standardised walking tests of individuals with spina bifida and remaining walking capability clearly show correlation between assessed motor function and walking test result.
- Pain and exertion after walking tests are frequently reported in this patient group.

In a future study it would be of interest to study the adults' attitude to their walking pattern and to walking aid and orthoses use.

