

BALANCE TRAINING AND EXERCISE IN GERIATRIC PATIENTS
Systematic neglect of geriatric problems

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M.Runge, G.Regfeld, E. Resnicek, Aerpah-Klinik Esslingen, Kennenburger Str. 63 73732
Esslingen, RungeEsslingen@t-online.de

Objective measures of gait and balance which meet the criteria of reliability and validity are required exercise regimes. We established reference values of clinically relevant locomotor and balance performances for geriatric patients. We are using these data for evaluating the effects of different therapeutic approaches to locomotors and balance disorders.

Reference values for chair rising

We administered a battery of five tests concerning neuromuscular function, locomotion and balance to a sample of 212 participants without apparent locomotor deficits (139 women, 73 men, mean age 70,5 years, SD 6,78, median 70 years, range 60 to 90 years, recruited by public announcements). The test battery comprised the "chair rising test" for measuring lower extremity neuromuscular function (five repetitions of rising from a chair as quickly as possible with arms crossed over the chest). The test has been proven reliable, valid, sensible and predictive for falls and future locomotor status and ADL-status (Guralnik et al 1995).

Chair rising [sec/5x], w=women, m=men

Range: 5,4 - 19,4 Mean: 9,1 (w 9,2; m 9,0) SD: 1,97 Median: 8,9

Training of balance and muscle power with Galileo 2000- preliminary results

Galileo is a device for whole body vibration/oscillatory muscle stimulation. The subject is standing with bended knees and hips on a rocking platform with a sagittal axle, which pushes alternatively the right and left leg 7-14 mm upwards with a frequency of 27 Hz, thereby lengthening the extensor muscles of the lower extremities. The reflective reaction of the neuromuscular system is a chain of rapid muscle contractions. We conducted a randomized controlled trial, n=34 (age: mean 67y, range 61-85yr) cross-over design, intervention group 2 month training program three times a week (each session 3x2 minutes), performance tests of all participants every two weeks). The participants reached performance gains in chair rising of 18%, significantly different to the value of the controls. We interpreted the findings as improvements in muscle power of functional relevance by the oscillative muscle stimulation. We observed no serious side effects.

Tab. 1: Systematic neglect of geriatric problems in the acute care setting

Analysis of 200 consecutive medical records of 100 post-stroke patients and 100 patients with fall-related hip fractures, referred to geriatric rehabilitation (Germany 1994)

findings	registered in external records	present on examination on admission
incontinence (feaces)	4/200	22/200
incontinence (urine)	17/200	57/200
decubital ulcers	3/200	24/200
neuropsychological disorders*	5/100	36/100
depression or general cognitive impairments	45/200	89/200
discussion of causes and mechanisms of fall	33/100	100/100

* only poststroke patients (neglect, apraxia, visuo-spatial disorders)

** only patients with fall-related hip fractures