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### Extended perspective of sensorimotor training - do we train functionally enough?


The movement control and movement coordination are subject to the functional capability of the sensorimotor system. This includes the recording, its forwarding and the signal transmission. In everyday life, a muscle response must occur within a certain time frame, with the aim to stabilizing a joint or to keep the body in balance. For example, the quadriceps muscle must contract during walking within 125 to 200 ms or during stairs climbing within 100 to 150 ms. Implemented to treatment modalities, a frequency range between 3 and 6 Hz should be used. Sensorimotor training (SMT) is used in rehabilitation and prevention to improve the slowed muscle reflexes. This is usually done with the aid of active devices, such as whole-body vibration devices (WBV), as well as passive therapy devices, such as foam mats balance boards, etc. However, studies show that passive therapy devices produce primary weak stimuli below 3 Hz. The question that

arises is if these devices could produce the necessary stimuli for the sensorimotor system in order to obtain the desired motor response. On the one hand, the presentation takes up this question, examines various movements from everyday life and sports from the side of biomechanics and demonstrates which movement patterns are produced by active and passive training devices. On the other hand, the meaningful use and the requirements of such training devices in rehabilitation and prevention should be critically examined, analyzed and discussed.

### Biography

Slavko Rogan is a Lecturer and Research Scientist. He has a background in Physiotherapy, Osteopathy and further adult education. He works in the fields of Geriatrics, Musculoskeletal Disorders and Sport Science. His research interests focus on the development of exercise and training programs in elderly persons, investigation of manual therapy effectiveness and sensorimotor training and in the field of adult education he focusses on mentoring and (attended) self-study. In this field, he has authored more than 35 peer-reviewed articles in peer-reviewed journals in the field of Gerontology, Sport Science and Physiotherapy.

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