



**2019 Human Movement Science Seminar**  
**Seoul National University, Dept. of Physical Education**



2019 서울대학교 체육교육과 인간운동과학 특강

Date: November 23, 2019 (Sat) at 1pm

Location: 71-1, #206 at Seoul National University

***Title: Motor synergies in health and disease***

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**Abstract** "The word "synergy" has been used in several different meanings. Nikolai Bernstein associated this word with the "level of synergies" in his multi-level scheme for the construction of movements. The level of synergies has two main function: Reducing the number of degrees-of-freedom manipulated by the brain and ensuring dynamical stability of actions. The latter aspect formed the foundation of the principle of abundance and uncontrolled manifold (UCM) hypothesis. The talk will review the current methods of analysis of movement stability across tasks and sets of effectors. It will emphasize the importance of the neural control of stability as illustrated, in particular, by the phenomenon of anticipatory synergy adjustments. Impaired control of stability is seen in healthy older persons and, to a larger degree, in patients with subcortical neurological disorders including Parkinson's disease, cerebellar disorders, and multiple sclerosis. Practice can lead to improved action stability, as reflected in synergy indices, and can lead to better movement accuracy associated with larger variance in the space of effectors.

This seminar is sponsored by the **Human Biomechanics Lab (HBL)** at Seoul National University.

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