The short end and the long end of storing a motor skill

Focusing on evidence using brain stimulation techniques, Joseph Classen will review how motor skills are acquired and stored over time. Motor training, resulting in immediate performance gains, and consolidation, the process of rendering motor skills resistant against perturbation can be differently affected by age and differently modulated by brain stimulation techniques. Motor synergies may constitute structures allowing for the efficient generation of flexible movements. They may also be viewed as devices for the storage of skills acquired over long periods (years) of training. Recent evidence suggests that motor synergies are formed bottom up, by the practice of movements, according to this idea, synapses whose activity constitutes the common building instruction of a movement repertoire may survive a “Darwinian” process allowing transition to late-phase potentiation. As the functional architecture of motor skill acquisition begins to unfold, the challenge will be to translate the knowledge into novel therapeutic strategies for treatment of neurological patients.

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