

Mechanism of organization of different types of directed movements

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Abstract

This article considers the mechanism for construction of movements in biological systems as a means of reducing excess degrees of freedom of a motor organ. It is suggested that each type of excess of degrees of freedom is reduced by one of the hierarchically coordinated systems of motor control. Detailed consideration is given to mechanisms for reducing the dynamic excess of a motor organ, the kinematic excess associated with polyarticular motor organs, and the kinematic excess of the desired trajectory. A functional scheme is developed for a motor control system which reduces these excess degrees of freedom, and the control processes for various types of movement were studied by computer modeling. ©1998 Plenum Publishing Corporation.
