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Inhibitory systems of the spinal cord in the control of interactions of functionally coupled muscles

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Abstract

Studies on muscle functional coupling mechanisms have detected excitatory and inhibitory reflex systems differing in their organization at the spinal level. The classic notions on inhibitory interactions between antagonists at the motoneuronal and premotoneuronal levels are supplemented with data on excitatory interactions. Mutual excitation of synergist muscles is also not the only possible type of interaction: inhibitory relationships are found in the system of synergists under certain physiological conditions. This organization of the motor centers of antagonists and synergists enhances the possibilities for fine coordination of their activity, inhibition and disinhibition mechanisms playing an important role in this system. Data on the inhibitory systems of the spinal cord, in particular, the inhibitory interactions between functionally coupled muscles, are reviewed. © Pleiades Publishing, Inc. 2007.

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