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Effect of thiamine on neuromuscular transmission in smooth muscles

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Abstract

Effects of thiamine, thiamine monophosphate (TMP), and thiamine diphosphate (TDP) on excitatory cholinergic and inhibitory noncholinergic nonadrenergic neuromuscular transmissions were studied in the smooth muscles of the gastric fundus and in the circular layer of the distal colon of the guinea pig, respectively. It was found that, when applied in the physiological concentration range, thiamine, TMP, and TDP evoked depolarization and an increase in strain in the smooth muscle strips, as well as an increase in the amplitude of inhibitory synaptic potentials and postinhibitory depolarization. The amplitude of the excitatory synaptic potentials increases in the presence of thiamine and TMP, and decreases in the presence of TDP. The results obtained suggest that thiamine and TMP, which are normally present in the extracellular medium, may modulate synaptic transmission, as well as the electrical and contractile activity of the smooth muscles in the gastrointestinal tract.

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About this article

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Keywords

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* **Thiamine**
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* **Distal Colon**
* **Physiological Concentration**

