

# The correlation between the muscle temperature and the grip force

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## Abstract

**Background and aim:** Cryotherapy has long been introduced as a common method for preventing and reducing edema caused by traumatic injuries. Many studies have been conducted regarding other effects of cold such as its effects on muscle strength which provided controversial results over the past decades. The aim of this study is to investigate whether cold is capable of changing the muscle strength.

**Materials and methods:** The research was conducted on 30 volunteers with the mean age of 22 years. In a standard situation, the volunteers were asked to make their maximum grip force. Cold was applied over their anterior forearm using an ice pack for 15 minutes. The maximum grip force was measured before and within 1 to 120 minutes after cold application.

**Results:** The strength of the anterior forearm muscles decreased rapidly after cold application. The maximum reduction of muscle strength, in average 18% was observed after 10 minutes. This was followed by a gradual increase of grip force. After 120 minutes the force was increased to about 5% above the baseline force that was before cold application.

**Conclusion:** Regarding the slight increase in the muscle strength and its long delay, cryotherapy of muscles cannot be considered as a practical method in rehabilitation of patients. However, this method would be of great importance for athletes.

**Keywords:** muscle strength, cryotherapy, grip, ice pack

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