



## THE EFFECT OF SHORT -TERM USE OF COLD SPRAY ON ANKLE JOINT POSITION SENSE IN PROFESSIONAL WRESTLER

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**Introduction:** In wrestling the ankle is most frequent site for joint sprains, That involved approximately 38 percent of all wrestling injuries (Pasque & Hewett, 2000).during wrestling exercise or competition following the collision or performs various actions, uncontrolled pressure may be applied to the ankle of the wrestlers, which in some cases require medical treatment, in such situations, a common treatment technique is the use of cooling method. However, in most cases, the athlete should immediately return to practice or competition after applying the cold. Although cryotherapy is commonly used in the treatment of acute and chronic athletic injuries, the deleterious effects of limb cooling, such as decreased nerve and muscle function, slowed sensation and inhibition of normal relaxes, may put an athlete at increased risk of additional injury (Cordo P, Carlton L, Bevan L, Carlton M, & GK, 1994). Reduction of proprioception receptors pulses and postural reflex responses may lead to cause abnormal situation of body and finally, increase the risk of ankle joint injury, especially during athletic activities (Lephart SM, Pincivero DM, Giraido JL, & FH., 1997). The purpose of this study was to examine the effect of a short period of Cryotherapy on ankle position sense in professional wrestlers.

**Methodology:** 14 Professional wrestlers (age 24±3 years old, and weight 74.1±19.2 kg) participated in this study. They all had at least 5 years training experience with provincial and national championships. All participants read and signed an approved informed consent form. Electro-goniometer (J-TECH Made in USA) was used to measure the accuracy of the reproduce of the ankle joint angle and dominant limb was used for the same conditions of participant. In present study aims reproduce the angle of ankle joint, movement and angles plantar and dorsi flexion, respectively, 20 and 10 ° were considered. Initially, each subject was asked to move his ankle to the target angle with open eyes three times and remain for three seconds in that situation and maintaining this position in his short-term memory. Then, to eliminate visual interference during measurement of the test the eyes of participant was closed by blindfold and he was asked to move his ankle in two condition first in active and then with the move of examiner to the target angle in passive form. Error angel defines as the difference between the target angle and the angle created by the participants reproduced, regardless of whether the error was a positive or negative. Each movement was repeated three times and then average of error angles for each movement was taken as the main record. After that, the subjects medial-lateral of ankle, with distance 30 cm for 5 seconds under cold applied by using spray cooling (Cold Spray product of manufacturing HAGER company, made in Germany) And the test was repeated again. Inferential statistics Kolmogorov-Smirnov test was used to check the normality distribution, using a paired t- test tests to compare variables before and after cooling, with a significant level of (P≤0.05).

**Results:** Test results are presented in table 1. Results show that the Regeneration error after using the spray increased 0.23 and 0.29 degree respectively in active and passive dorsiflexion and it was 0.8 and 0.1 degree respectively in active and passive plantar flexion, but this increases was not statistically significant.

Table 1. Result of Pair t-test for Comparison of the Regeneration Error in Active and Passive Situation

Variable name	Pre-test	Post-test	t(13)	P-value
Regeneration error of active dorsi Flexion	2.36±1.29	2.59±1.45	-0.538	0.599
Regeneration error of active plantar Flexion	3.77±1.11	3.85±1.14	-0.176	0.863
Regeneration error of passive dorsi Flexion	2.37±0.95	2.66±1.05	-0.707	0.492
Regeneration error of active plantar Flexion	2.93±0.954	3.03±1.032	-0.176	0.863

### Conclusions:

The results showed that short-term local cooling by using cold spray on ankle joint position sense of professional wrestlers is not significantly change It appears that the use of cold spray for a short time only has an immediate effect on the skin receptors. But the muscle spindles and joint receptors as deeper receptors, which have a key role in joint position sense, are not affected that this results are corresponded with Beyranvand et al research (Beyranvand, Seidi, Rajabi, & Moradi, 2013).

### REFERENCES

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