



2-MINUTE WHOLE-BODY CRYOTHERAPY AT -110°C INCREASES MUSCLE STRENGTH AND PERFORMANCE

Whole-body cryotherapy at -110°C over 1, 2 and 3 minutes resulted in a maximum increase of muscle strength and performance of knee joints when applied over 2 min. To define optimal intervals for conditioning in sports, pause intervals of 5 instead of 2 min after cold chamber application have been used in this study.

METHOD:

After a 5-min warm-up phase on the ergometer, one healthy knee joint of each of 7 women and men was examined using a Cybex. After an interval of 5 min whole-body cold treatment over 2 min at -110°C was performed. After another pause interval of 5 min a retest on the Cybex was carried out.

Results: Examination of flexion $120^{\circ}/\text{s}$, flexion $60^{\circ}/\text{s}$, extension $120^{\circ}/\text{s}$, extension $60^{\circ}/\text{s}$ showed an increase in peak strength between 2.83% and 3.76% – except for the $120^{\circ}/\text{s}$ extension with a value of -3.35% . Performance examination showed an increase between 3.30% and 18.6%.

DISCUSSION:

Examination results suggest an additional increase of muscle strength and performance in the case of a 5-min pause interval as compared to the pre-tests with a 2-min pause interval.

Examination results of women and men have to be analyzed separately using larger test groups. Further investigations are necessary to determine optimal time intervals of cold chamber application for sports conditioning.

REFERENCES:

Fricke R, Grapow G, Knauer G. Steigerung von Muskelkraft und Leistung durch Ganzkörper-Kältetherapie