**Cryo Studies**

1) Pro Volleyball players (Poland) –

The Effect of Submaximal Exercise Preceded by Single Whole-Body Cryotherapy on the Markers of Oxidative Stress and Inflammation in Blood of Volleyball Players

<http://www.hindawi.com/journals/omcl/2013/409567/>

Conclusions: **Obtained results suggest that even a single application of cryotherapy prior to exercise may have a beneficial impact on antioxidant system of organism and alleviate the signs of exercise-induced oxidative stress.** The differences in the profile of cytokines after control exercise and WBC exercise imply that exposure to extremely low temperatures may regulate the inflammatory response of organism to physical effort, although the cellular mechanism of the observed changes is still unclear and requires some further studies. As observed in this study the correlations between the markers of oxidative stress and inflammation may testify to the important contribution of ROS in inflammatory response to physical exercise.

2) Whole Body Cryotherapy in Athletes – (Italy)

<http://www.ncbi.nlm.nih.gov/pubmed/20524715>

**The cold stimulation shows positive effects on the muscular enzymes creatine kinase and lactate dehydrogenase, and it should be considered a procedure that facilitates athletes' recovery.** Cardiac markers troponin I and high-sensitivity C-reactive protein, parameters linked to damage and necrosis of cardiac muscular tissue, but also to tissue repair, were unchanged, **demonstrating that there was no damage, even minimal, in the heart during the treatment.**

# 3) Mental state and quality of life after 10 session whole-body cryotherapy.

[**http://www.ncbi.nlm.nih.gov/pubmed/23535078**](http://www.ncbi.nlm.nih.gov/pubmed/23535078)

WBCT has a significant influence on improving the well-being and mood of patients (in terms of both psychological and somatic aspects) and consequently leads to an improvement in their quality of life. The worse the mental state of the patients is prior to the cryotherapy, the stronger its effect. The observed effectiveness of cryotherapy was the strongest in women, patients with spinal pains and in patients with severe depressive symptoms.

# 4) Effects of 15 consecutive cryotherapy sessions on the clinical output of fibromyalgic patients.

<http://www.ncbi.nlm.nih.gov/pubmed/23636794>

Fibromyalgic patients treated with cryotherapy reported a more pronounced improvement of the quality of life, in comparison with the non-cryo treated fibromyalgic subjects, as indicated by the scores of the qualitative indexes and sub-indexes, that are widely recognized tools to assess the overall health status and the effect of the treatments.

# 5) Effects of whole-body cryotherapy in the management of adhesive capsulitis of the shoulder.

<http://www.ncbi.nlm.nih.gov/pubmed/22850489>

There is significant improvement with the addition of WBC to treatment interventions in this sample of patients.