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The effect of the cryotherapy on the human adipose tissue and pigs isolated adipocytes

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Abstract

The use of cryotherapy is widely used in cosmetic clinics in Brazil promessing the reduction of the localized fat, although there is no study that proves its effectiveness or its mechanisms of action. However, we find in the scientific literature evidences that the exposure to low temperatures environments, as well, the immersion of the body into cold water were efficient to induce lipolysis. The treatments at the clinics are always performed with hydroalcoholic gels or solution with camphor and mint which promotes an effect of cold sensation without scientific evidence of their results. So, initially we aimed evaluate clinically, through of ultrasonography, perimetry and cutaneous fold the chronic effect of the cryotherapic bandage (CB) in healthy women which do not use oral contraceptives. After 12 sessions it was shown a significant reduction in the thickness of abdominal adipose tissue. We also investigate through heart rate variability and ergoespirometry that CB treatment induces a moderate hypothermia, and an increase in the sympathetic tone associated to an increase of the basal metabolism in lean men, but these effects did not occur in overweight individuals. In isolated adipocytes from pigs it was tested the association of cryotherapy with the phonophoresis with caffeine, and we observed that the cryotherapy after the phonophoresis, is capable to increase the basal lipolytic activity. These results allow us to strongly suggest that the use of cryotherapic bandage is efficient to reduce localized fat.

Biography

Graduated in Physical Therapy at Methodist University of Piracicaba (1983), Masters in Education (emphasis in Motor Education) at the Methodist University of Piracicaba and PhD in Functional and Molecular Biology (Physiology) at the State University of Campinas (2004). She is a professor of Physical Therapy Graduate and coordinator of Physiotherapy Dermatology Functional Post Graduation Courses at Methodist University of Piracicaba. Has experience in the area of Dermatology and Endocrinology physiotherapy, research on efficacy of cosmetics therapies, electrotherapy and isolated adipocytes. She is Member of CREFITO-3 and president of the Scientific Committee of the Brazilian Association of Dermato-Functional Physical Therapy (ABRAFIDEF).