

## COOLING VIA HUMAN FOREARM FOR MULTIPLE SCLEROSIS

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### ABSTRACT

The main objective of this research was to computationally investigate the effects of cooling via a human forearm on the tissue temperature for possible development in medical treatment of Multiple Sclerosis. A complete structure of a human forearm was modelled with CAD software and analysed using CFD to determine the temperature distribution through the forearm. Different cooling strategies were applied to human forearm including cooling the entire skin surface, cooling half the skin surface and use of Peltier coolers. The CFD results showed that cooling half the skin surface from bones side would be insignificant as the median nerve temperature was not considerably reduced by cooling. Cooling the entire skin surface, on the other hand, would result in lower median nerve temperature compared to other cooling scenarios. However, this might be worse for some people with MS symptoms. Proper selection of best cooling strategy would be based on people with MS symptoms experience.

**KEYWORDS:** Forearm Cooling, Multiple Sclerosis, Bio-Heat