# ESTABLISHMENT OF ZINC CONCENTRATIONS IN BLOOD OF ELITE RUNNERS BY NAA

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The purpose of this study was to use Neutron Activation Analysis (NAA) to investigate Zn levels in blood of elite athletes (long-distance runners), and compared with a reference population. Zinc is a co-factor for numerous enzymes implicated in several physiological processes, DNA reproduction, cellular respiration, endocrine system, and immune response. High aerobic activity and dietary habits may result in the depletion of body zinc stores, which could decrease aerobic performance, increasing the risks of fatigue and immune disorders. In this study, samples were collected from 10 elite athletes (6 men and 4 women), in constant training for the last 6 years, and 58 healthy individuals (30 men and 28 women) of the same age but not involved in physical activities. The samples were irradiated in the IEA-R1 nuclear reactor (3.5-4.0 MW, pool type) at IPEN. The comparison for female groups (control and athletes) exhibited a decrease in Zn concentrations. Furthermore, the blood Zn concentrations in athletes are higher in men than in women. These data can be considered for the preparation of a balanced diet, for evaluating the performance of the athletes during the competitive period as well as, to present a new evaluation of clinical protocol using NAA technique.