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Effect of High Intensity Interval Training on Muay Thai Athletes' Mineral Levels

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ABSTRACT There is an evident lack of research focusing on the levels of trace minerals experienced following combat sports and high intensity interval training (HIIT). As a result, the researchers investigated Muay Thai Athletes' (MTA) mineral levels by completing HIIT, and following the International Muay Thai Championship (IMTC). The study was carried out with 21 elite male and female MTAs, which were subjected to the HIIT program before the IMTC. There were some significant changes in the body weight values ($p < 0.01$), and the levels of trace elements of both male and female athletes ($p < 0.05$). For female subjects, erythrocyte (E) Zn levels significantly decreased post training compared to baseline ($p < 0.05$). After the IMTC, E-Cu and plasma (Pl) Zn levels increased ($p < 0.05$), and Pl-Mn levels significantly decreased ($p < 0.05$). For male subjects, E-Zn levels significantly decreased and Pl-Zn levels significantly increased post training compared to baseline ($p < 0.05$). After the IMTC, E-Zn, E-Fe, and Pl-Mn levels significantly decreased ($p < 0.05$), and E-Cu and Pl-Zn levels significantly increased ($p < 0.05$). However there was some decrease or increase in the values of E-Zn, E-Cu, Pl-Zn, Pl-Cu, E-Fe, and Pl-Mn minerals for female subjects, whereas there were no significant changes to the values of E-Cu, Pl-Cu, E-Fe, and Pl-Mn for male subjects post training or IMTC. These results suggest that HIIT and competition could impact the mineral levels of MTA.