E2-35: Calcium and iron content in human hair

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The nutrient content in human hair is an indication of the status of that nutrient in the body over a significant period of time preceding the sampling date.

In this study, iron and calcium levels in hair were analysed for about 150 samples collected at random. About 0.3 g samples of hair were slowly digested in 10 cm^3 conc. HNO_3 until a clear solution was obtained. This was then made up to a quantitative solution and analysed for calcium and iron using flame atomic absorption spectrophotometry employing deuterium background correction.

The average iron content in the samples was 559 $\mu g\ g^{-1}$ of hair. The average for males and females were 548 $\mu g\ g^{-1}$ and 574 $\mu g\ g^{-1}$ respectively. The average calcium content in the samples was 606 $\mu g\ g^{-1}$ with males averaging 580 $\mu g\ g^{-1}$ and the females averaging 628 $\mu g\ g^{-1}$. For the 3 Body Mass Index ranges, <18.5, 18.5-20 and 20-25, the average calcium content was 631 $\mu g\ g^{-1}$, 643 μg^{-1} and 668 $\mu g\ g^{-1}$ respectively whereas for the same Body

Mass Index ranges the average iron content was 566 $\mu g\ g^{-1}$, 609 $\mu g\ g^{-1}$ and 577 $\mu g\ g^{-1}$ respectively. According to our results, at least in the case of calcium, there appears to be a correlation between the calcium content in hair and the Body Mass Index.