

both vitamins in organ incorporation. (2) Although an absolute retention value was actually enhanced by the administration of large dosis, its per-cent retention of injected dosis was markedly reduced when compared with that of small dosis. (3) Calculated whole body retention of OH-B₁₂ and CN-B₁₂ were approximately 27 and 24% respectively at 24 hours and gradually decreased to 13 and 11% after 20 days, which revealed a better retention of OH-B₁₂ by 3 to 5%. (4) Although a better whole body retention by ca. 4% was observed in rats injected intramuscularly, organ distribution of both vitamins was little influenced by the route of administration. (5) Total radioactivity found in the principal organs reached its maximum value of approximately 13% at 24 hours and gradually decreased thereafter. Approximately 95% of the total radioactivity of both

vitamins was found in three main organs; liver, kidneys and gut, regardless of the route of administration. (6) The kidney to liver incorporation ratio was 2.0 to 2.3 for OH-B₁₂ and 5.3 to 7.7 for CN-B₁₂ at 24 hours following administration. (7) The most prominent difference in the organ distribution of both vitamins was a rapid and high hepatic uptake for OH-B₁₂ and slow and low uptake for CN-B₁₂. OH-B₁₂ was incorporated in the liver almost 3 times higher than CN-B₁₂ at 24 hours in either intravenously or intramuscularly injected rats. (8) When considering an approximately 1.5 times higher conversion rate of OH-B₁₂ into Coenzyme-B₁₂ at 24 hours, OH-B₁₂ seems to be converted to Coenzyme-B₁₂ at least 5 times as much as CN-B₁₂ in the liver within 24 hours, suggesting to have a more rapid hematological effect as compared with CN-B₁₂.

Mode of Absorption of Iron Visualized by Autoradiography with ⁵⁵Fe

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In 1959, the author showed that the place of absorption was the place of loss of iron. Recently Crosby and co-workers followed the author's experiment and supposed that the absorption of iron consisted of real absorption and temporary (stay) absorption of radioiron in the intestinal epithelial cells. However, our results did not validate his speculation.

From immediately to 2.5 hours after the intragastric administration of ⁵⁵Fe the intestinal epithelial cells contained a large amount of radioiron in the epithelial cells. However it disappeared almost completely after 6 hours leaving unabsorbed iron in the crypt.

Epithelial cells of both young and old took up radioiron equally and it was cleared soon

after from them.

Exfoliation of the intestinal epithelial cells causes the loss of iron of course. However the % absorption figure cannot be significantly influenced by the exfoliation, since the absorption is very rapid and complete as proved by the measurement of plasma radioactivity and by autoradiography after oral dose.

If iron is absorbed, it leaves intestinal mucosa rapidly and 90% of it is utilized for hemoglobin synthesis. Therefore the redistribution of absorbed iron to the epithelial cells and its loss by exfoliation is negligible.

The results suggested the absorption of iron would occur not only through the intestinal epithelial cells but also through the interepithelial cell space.