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CHEM-643 Intermediary Metabolism

Case Study Problem No. 2 - Written by Harold B. White

Comments on this case study. This case study was prompted by a supplementary section to the March 1996 *Journal of Nutrition* 126(3): 749S-789S which contains several articles from a symposium, "Fortifying Policy with Science - The Case of Folate." Good case studies deal with current topics and frequently controversy. Both elements were present in this topic although the FDA authorized supplementation of cereals with folate in 1996. In addition, the subject is important for students (future parents and patients) to know. Conveniently, vitamins provide a distinctive perspective on metabolism that requires integration and overview. They, as their coenzymes, are involved in many different pathways to different extents. Through this case study, I expect students to deal to varying depth with the following metabolic pathways and related issues:

The metabolism of folate: Absorption from the gut, transport to the tissues, transfer to the fetus, conversion to and interconversion of cofactor forms.

Biosynthesis of purines, thymine, and methionine.

Catabolism of histidine, tryptophan, serine, and glycine.

Interaction between folates and B_{12} coenzymes.

The use of metabolic inhibitors as chemotherapeutic drugs.

The impact of nutrition on metabolism and the interaction of nutrition with certain genetic factors.

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