

Slides for Discussion of Issue 8: Implication of Nutritional Factors



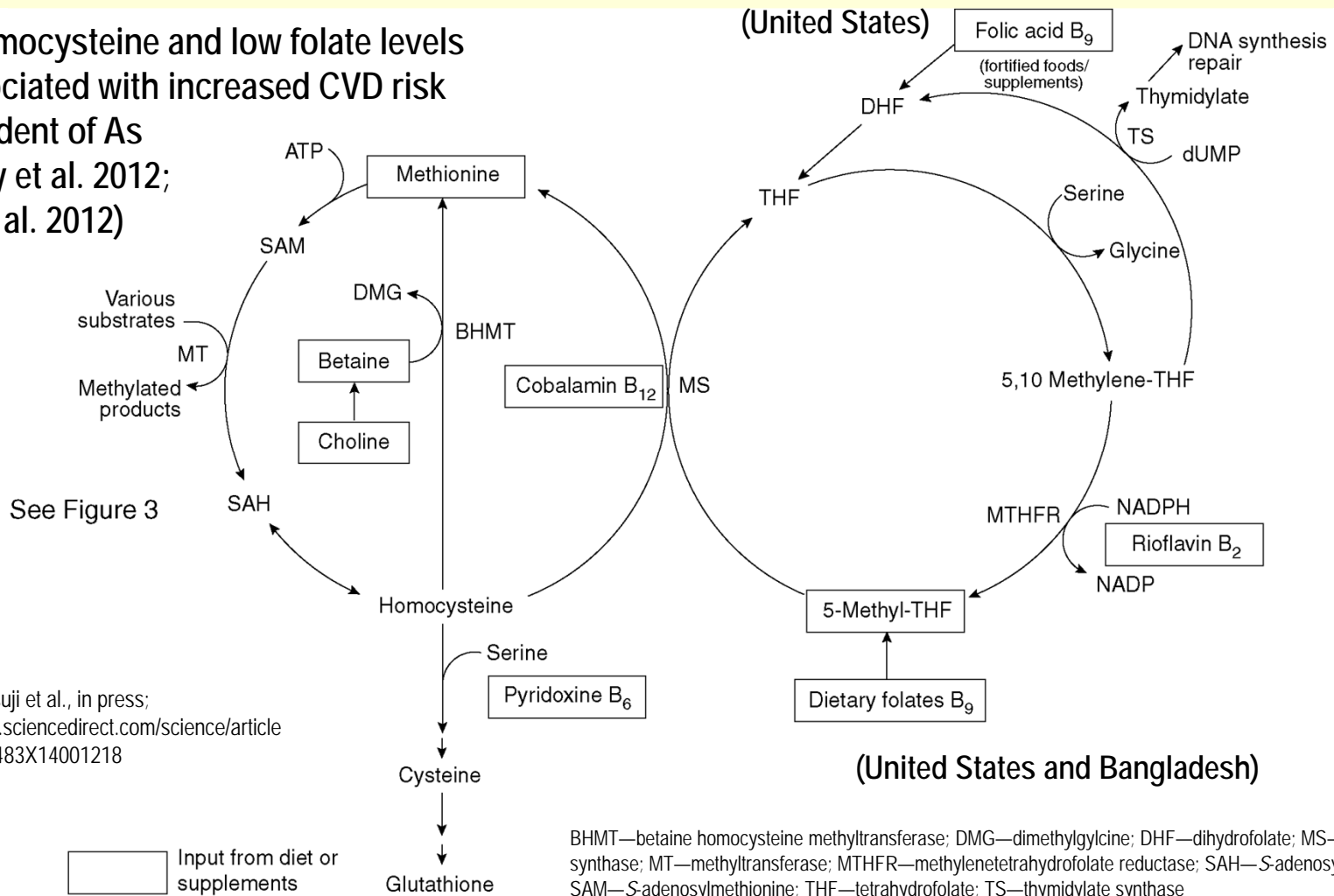
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Role of Nutrients in One-Carbon Metabolism and Health Outcomes

High homocysteine and low folate levels are associated with increased CVD risk independent of As (McNulty et al. 2012; Wang et al. 2012)

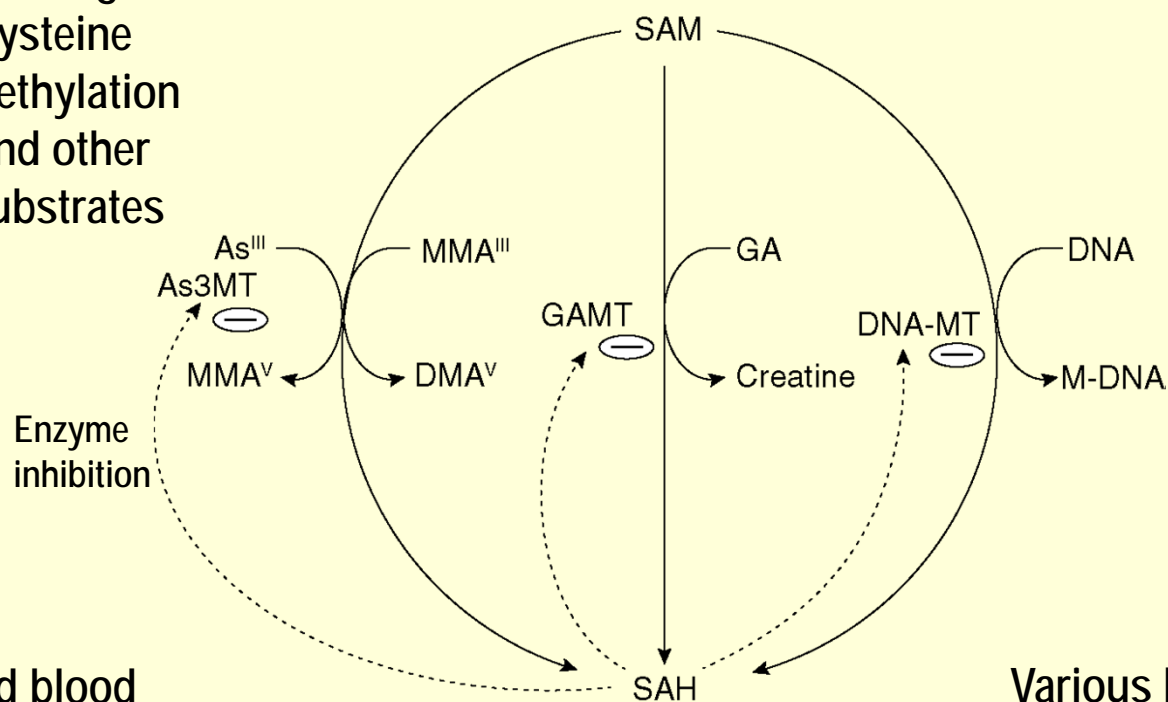


(United States and Bangladesh)



Effect of Homocysteine on 1) Methylation of Arsenic and Other Substrates, 2) Disease Risk

Low folate and high SAH/homocysteine suppress methylation of arsenic and other important substrates



Increased blood levels of total As, iAs, MMA

Bias in apparent association

Various health effects may result from reduced methylation, *independent of As*

As^{III}—trivalent inorganic arsenic; As3MT—arsenite methyltransferase; DMA^V—pentavalent dimethylarsinic acid; DNA MT—DNA methyltransferase; GA—guanidinoacetate; GAMT—guanidinoacetate methyltransferase; MMA—monomethylarsonic acid; SAH—S-adenosylhomocysteine; SAM--S-adenosylmethionine

Source: Figure 3 in Tsuji et al., in press; <http://www.sciencedirect.com/science/article/pii/S0300483X14001218>