Dietary Intake of Vitamin B\textsubscript{6} Glycoside by Lactating Women and Its Effect on Milk Vitamin B\textsubscript{6} and Infant Vitamin B\textsubscript{6} Status

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Duplicate 24-hr dietary composites were collected from 26 lactating vegetarian women living in villages surrounding Kathmandu, Nepal and were analyzed for both total vitamin B\textsubscript{6} content and vitamin B\textsubscript{6} glycoside content by a modified microbiological growth assay. Vitamin B\textsubscript{6} glycoside is found in foods of plant origin, with highest concentrations in crucifers, legumes, green leafy vegetables, and rice. These foods constitute the staple diet of the Nepalese. The vitamin B\textsubscript{6} status of the mothers and their infants was determined by measuring plasma pyridoxal phosphate (PLP). Also, total vitamin B\textsubscript{6} content and vitamin B\textsubscript{6} glycoside content were measured in breast milk samples from the mothers. Previous work has demonstrated that vitamin B\textsubscript{6} glycoside has low bioavailability in humans and rats and is excreted in the urine without undergoing any further metabolism.

Results from these analyses indicate that Nepalese vegetarian women consume foods that contain upward of 82% of vitamin B\textsubscript{6} in the form of glycoside, with a mean of 15%. Whereas the total vitamin B\textsubscript{6} daily dietary intake of the Nepalese was nearly identical to that of American lactating women, the plasma PLP concentrations of the Nepalese were significantly lower than those of the Americans, indicating a lower vitamin B\textsubscript{6} nutritional status in the Nepalese. Even with this substantially lower vitamin B\textsubscript{6} status, the Nepalese had breast milk concentrations of total vitamin B\textsubscript{6} nearly identical to those of the Americans; however, the plasma PLP of the Nepalese infants was only about 20% that of American infants. Analysis of Nepalese breast milk revealed that the samples contained upward of 50% of total vitamin B\textsubscript{6} in the form of glycoside (mean of 15%).
Although the data suggest that a dietary intake of vitamin B\textsubscript{6} glycoside by lactating women may contribute to impaired vitamin B\textsubscript{6} status of the mother and her infant, no direct evidence has yet been produced to support this hypothesis. The relationship between maternal dietary intake of vitamin B\textsubscript{6} glycoside and the resulting vitamin B\textsubscript{6} status of lactating women and their infants is being investigated in more detail in American vegetarian and non-vegetarian women.