

Milk, an Outstanding Source of Vitamin B₁₂

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The main natural source of vitamin B₁₂ in human food is animal products, especially those of ruminants (meat and dairy products), because this vitamin is absent in plant products. Cow's milk in particular contains over 1 µg per cup (250 ml) and could be described as an "excellent source" of vitamin B₁₂. One glass of milk (250 ml) provides more than half of the daily recommended amount for adults and children 13 years and older (2.4 µg/d). The synthetic form of vitamin B₁₂, available on the market in vitamin supplements, is cyanocobalamin, which is considered to have low intestinal absorption efficiency (less than 4%).

In this experiment, it was hypothesized that the important daily provision of vitamin B₁₂ brought by unprocessed (raw) or processed milk (pasteurized or micro-filtered) is more efficiently absorbed than the synthetic form (cyanocobalamin) used in vitamin supplements. The present study aimed to compare in pigs, used as a animal model for humans, the net portal flux of vitamin B₁₂ (an indicator of intestinal absorption) after ingestion of conventional and vitamin B₁₂-enriched milk (raw, pasteurized or micro-filtrated) to the equivalent amount of cyanocobalamin or to a control diet without vitamin B₁₂.

The efficiency of intestinal absorption of vitamin B₁₂ in milk is approximately 10% regardless of the type of milk (conventional or enriched) or the technological process (raw, pasteurized or microfiltered) while the net flux of this vitamin to the portal vein was undetectable after ingestion of a synthetic supplement of vitamin B₁₂ (cyanocobalamin) or a control meal without vitamin B₁₂. Therefore, vitamin B₁₂ naturally and abundantly present in cow's milk can be used more efficiently than synthetic forms.

Implications. These results confirm that cow milk is a unique food in human nutrition as a source of vitamin B₁₂, combining quantity and quality. Milk consumption may represent an excellent prophylactic tool to prevent deficiencies of this vitamin, which can lead to irreversible neurological problems that still today affect several population groups, notably young children, pregnant women, persons who do not eat meat and the elderly.