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Milk and acid-base balance: proposed hypothesis versus scientific evidence.

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Recently the lay press has claimed a hypothetical association among dairy product consumption, generation of dietary acid, and harm to human health. This theoretical association is based on the idea that the protein and phosphate in milk and dairy products make them acid-producing foods, which cause our bodies to become acidified, promoting diseases of modern civilization. Some authors have suggested that dairy products are not helpful and perhaps detrimental to bone health because higher osteoporotic fracture incidence is observed in countries with higher dairy product consumption. However, scientific evidence does not support any of these claims. Milk and dairy products neither produce acid upon metabolism nor cause metabolic acidosis, and systemic pH is not influenced by diet. Observations of higher dairy product intake in countries with prevalent osteoporosis do not hold when urban environments are compared, likely due to physical labor in rural locations. Milk and other dairy products continue to be a good source of dietary protein and other nutrients. Key teaching points: Measurement of an acidic pH urine does not reflect metabolic acidosis or an adverse health condition. The modern diet, and dairy product consumption, does not make the body acidic. Alkaline diets alter urine pH but do not change systemic pH. Net acid excretion is not an important influence of calcium metabolism. Milk is not acid producing. Dietary phosphate does not have a negative impact on calcium metabolism, which is contrary to the acid-ash hypothesis.