

Comments on “The Public Health Case for Modernizing the Definition of Protein Quality”

Dear Editor:

The article by Katz et al. (1) on “modernizing the definition of protein quality” discussed dietary protein, sources, metabolism, and health effects. They proposed a definition of protein quality for economically advanced countries that addressed both environmental (ranging from water utilization to carbon emissions) and health issues associated with protein food sources. They concluded that in these countries the balance of benefits favored plant sources; they also pointed out that without food insecurity (including dietary protein quality and clinical manifestations of protein-energy malnutrition) the potential health benefits of plant-based diets are undisputable. In this context, I would like to add another environmental and health factor in favor of plant food sources: exposure to persistent bioaccumulative pollutants. The impacts of this class of environmental pollutants on dietary protein sources can be significant.

Environmental pollutants that are slow (organic substances) or resistant to degradation (toxic elements) can accumulate in cattle, swine, poultry, and fish and end up in animal-protein sources classed as high quality—meat, dairy, eggs, and fish. Farm animals that are raised for meat, dairy, and eggs are fed foodstuffs made of discarded animal products (meat and bone meal) as in the case of cattle, poultry, and swine. Depending on price and availability, fishmeal is also another nonplant source of high quality that is frequently used in the farm-animal industry, especially in aquaculture. These types of proteins are the main sources of bioaccumulating organic and inorganic pollutants and can contribute to levels of exposure that may represent increased risks to human health.

Although organic and bioaccumulative substances can also be found in crops, animal products that serve as human foods are their major carriers (2). Therefore, modern increases in environmental pollution have driven dietary habits to become an important issue. Katz et al.’s justification

for balanced plant-based protein in human diets, besides other health benefits, stands as an important step to lower the body burden of harmful pollutants of dietary animal-protein origin. Studies have shown decreased exposure to environmental pollutants following vegetarian diets. Indeed, lactating mothers consuming vegetarian diets secreted fewer organochlorine substances in breast milk than did non-vegetarian mothers (3). Body loads of persistent organic pollutants have been shown to decrease in vegetarians compared with nonvegetarians (4–6). The recent human prion disease variant “Creutzfeldt-Jakob disease” was linked to the consumption of cattle fed meat and bone meals, which led to the epidemic of bovine spongiform encephalopathy (7). These are some examples supporting plant-based diets and Katz et al.’s justification.

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