

Experts discuss applying systematic review to the field of nutrition

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Performing systematic reviews of nutrition related topics raises unique challenges not often encountered in the field of medicine. In a new article, a team of researchers use specific examples to describe the steps, strengths, and limitations of systematic reviews relevant to nutrition and discuss the factors that impact the results.

Systematic reviews, also referred to as evidence-based reviews, provide objective assessments with pre-specified questions that can be used to develop clinical and public health practice guidelines, make recommendations, set research agendas, and formulate scientific consensus statements.

"Systematic reviews serve as a means of synthesizing and evaluating evidence from multiple studies in a rigorous and transparent way that minimizes bias," says corresponding author Alice H. Lichtenstein, DSc, director of the Cardiovascular Nutrition Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University. "The systematic review approach is flexible and can accommodate unique challenges posed by questions related to food and nutrition."

Writing in the December issue of the *Journal of Nutrition*, the authors provide examples illustrating the flexibility of the approach to a wide range of nutrition-related topics including: effectiveness and safety of vitamin D in relation to bone health, effects of soy on health outcomes, and health effects of (n-3) fatty acids on arrhythmogenic mechanisms in

animal and isolated organ/cell culture studies.

"When we deal with nutrition-related topics and systematic reviews, we often address issues that are not encountered in other fields of study," says co-author Elizabeth A. Yetley, PhD, a former senior nutrition research scientist with the National Institutes of Health (NIH). "Nutrient intake, whether from food or supplements, tends to be more difficult to accurately quantify than, for example, the daily dosage of a medication. Therefore, when performing a systematic review, it is particularly important to document methods of assessment."

Equally important, the authors write, is the documentation of new data as it emerges, as well as objectivity. Objectivity of a systematic review comes from individuals trained in systematic review methodologies, such as co-author Joseph Lau, MD, director of the Tufts Evidence-based Practice Center at the Institute for Clinical Research and Health Policy Studies at Tufts Medical Center. "To be involved in a systematic review, I must be free of personal biases or vested interest in a particular outcome. I focus on the methodology and look to my colleagues for their nutrition expertise," says Lau, also a professor at Tufts University School of Medicine.

The process of performing a systematic review begins with clearly defining the research question. Lichtenstein, the Stanley N. Gershoff professor at Tufts' Friedman School of Nutrition Science and Policy, and colleagues advocate the "PICO" approach to formulating research questions. The acronym PICO stands for Population (participants), Intervention (or exposure for observational studies), Comparator and Outcome."

"While systematic reviews cannot replace expert judgment and should not be used as a sole source of information for developing science-based recommendations and policies, they are valuable tools that can be

adapted effectively for use in the field of nutrition," says Lichtenstein.

Source: Tufts University

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