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EDITORIAL

# Are we losing sight of the meaning of "evidence-based nutrition?"

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Nutritional science has generated a large and complex body of scientific knowledge, and confusion and debate are widespread among the public, healthcare authorities, and academics alike. Nutritional science, like all health science, depends on the well-established hierarchy of evidence pyramid. Case reports inform the lowest levels of evidence (serving as fundamental starting points for developing greater knowledge), while the highest level is occupied by systematic reviews and meta-analyses of randomized controlled trials (RCTs) (West et al. 2002). Even though RCTs set the highest standard for original research, they are sometimes infeasible or unethical in nutritional science (Blumberg et al. 2010) and there are research topics that do not lend themselves to meta-analyses. Evidence-based nutrition guidelines are based on the highest level of evidence available; this means that in some cases, they are drawn from middle or lower levels of the evidence pyramid such as cohort or case–control studies (Stewart and Clarke 1995; Blumberg et al. 2010). Nutritional science uses several validated evidence grading processes to synthesize findings from varying levels of evidence; these processes account for inherent study biases and limitations (Porritt et al. 2014). Expert working groups, such as those that develop clinical practice guidelines (CPGs), use these processes to guide their nutrition recommendations. For example, evidence grading was used to develop current CPGs in diabetes. Grades were assigned based on factors such as the strength and clarity of the evidence and its applicability to the target population (Sherifali et al. 2018). This is the foundation of evidence-based nutrition.

Where the highest quality of evidence is unavailable, nutritional researchers should survey available literature, look to the best existing evidence, and assess risk of bias in individual studies (Blumberg et al. 2010). However, in reality we often see carefully selected ("cherry-picked") peer-reviewed scientific articles that muster available evidence to support a particular scientific *belief* (see, for example, Woolley 2013). "Cherry picking" is a practice employed in social media debates, at scientific conferences, and in research papers alike. This is of great concern since, after all, evidence-based nutrition is not a belief system; it is a *science*.

A growing number of healthcare providers label and market themselves as advocates for a particular dietary pattern or nutritional counseling approach. For example, nutritionists who adopt the descriptor "Low-Carb, High-Fat Nutritionist" make clear their inherent bias and may be predisposed to rejecting scientific evidence that does not support their beliefs. Even if a nutritionist chooses this title based on their interpretation of current evidence, new findings may overturn old findings. Choosing a neutral label (or no label at all) signals that a nutritionist is open to such change and is dedicated to guiding the general public to the highest quality evidence about health and well-being. Similarly, in academia some research programs and laboratories support particular concepts or beliefs in nutritional science; a research laboratory focused on the benefits of low-carbohydrate dietary patterns might avoid publishing negative or contradictory findings that cast doubt on the effectiveness of a low-carbohydrate dietary pattern. A strong commitment to a particular belief, in the absence of robust evidence, may endanger the scientific community and the general public by biasing the entire body of knowledge. This tendency may be countered by the current push within the scientific community to publish more null research findings in peer-reviewed journals (Duyx et al. 2017). Another danger of adopting and advocating beliefs about nutrition is that advocates tend to push one-size-fits-all nutritional solutions instead of tailoring dietary patterns to individuals. Evidence-based nutrition, on the contrary,

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highlights the advantages of personalized dietary plans: what works for one person may not work for another.

The field of precision (personalized) nutrition is supported by three key pillars: (1) general nutrition recommendations guided by population-based studies for various age groups, gender, and social determinants of health; (2) individualized nutrition recommendations based on phenotype (observable physical characteristics); and (3) nutrition recommendations that factor in genetic variation (Ferguson et al. 2016). People are different, and so are cultures and populations. Cultural and religious influences like fasting, vegetarianism, exclusion of dietary components (e.g., alcohol), or kosher/halal food laws can strongly influence an individual's nutrition (Rucker and Rucker 2016). Precision nutrition takes individual factors into account to create specific dietary plans for specific people. In cases where there is evidence that two different dietary strategies are effective, e.g., a health-at-every-size approach or a more weight-focused approach (Jensen et al. 2013; Ulian et al. 2018), deciding which approach is best for a particular patient may depend mainly on individual considerations. Therefore, understanding precision nutrition and individual considerations can help guide evidence-based nutrition when multiple strategies or dietary patterns have been demonstrated effective.

Today, there is more need than ever for researchers, healthcare providers, individuals and organizations communicating nutrition information and public health authorities to remain neutral and unbiased and scrutinize the best available evidence in order to resolve global nutrition-related public health crises. They must make an ethical commitment and honor their responsibility to provide society with the highest quality *evidence-based* nutrition advice.

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