

World Congress on

# Nutrition and Obesity Prevention Source

November 16-18, 2017, Barcelona, Spain

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## Evaluation of the Nutritional Quality of Menu Plans Aligned With the 2015-2020 Dietary Guidelines for Americans Vs 2015 Mexican Dietary Guidelines Using the Nutrient Balance Concept

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**Introduction:** Dietary guidelines are developed to promote overall health, reduce the risk of diet-related non-communicable diseases (NCDs) and maintain a healthy weight. The most recent 2015-2020 Dietary guidelines for Americans (DGA) focus on detailed food group recommendations for three dietary patterns: A Healthy U.S, Vegetarian and Mediterranean style eating patterns. By comparison, 2015 Mexican dietary guidelines are more general, and focus on guidelines with a holistic approach. However, the nutritional quality of weekly menu plans aligned with these guidelines have yet to be explored. The purpose of this study was to evaluate the nutritional quality of weekly menu plans aligned with current US and Mexican dietary guidelines using the Nutrient Balance Concept (NBC) (Fern et al 2015).

**Methods:** Menu plans were developed by translating 2015-2020 DGA and 2015 Mexican guidelines into menu plans using a non-linear methodology. All nutrient information was extracted from the USDA national nutrient database (Standard reference 28). The NBC was used to assess the nutritional quality of each menu plan using three scores, which provide indices for nutrients that are important for health (The Qualifying Index (QI), and the Nutrient Balance (NB), as well as an index for nutrients that are harmful for health in excess (the Disqualifying Index (DI)).

**Results:** Each of the 2015-2020 DGA menu plans for the three dietary pattern and the Mexican menu plans based on the 2015 local guidelines had a DI score  $\leq 1$  and a QI score  $\geq 1$ , with NB scores  $\geq 80$ , indicating they are rich in nutrients important for health and low in nutrients of concern.

**Conclusion:** The NBC provides a novel way of assessing the nutritional quality of menus and diets. NBC data confirm that menu plans that meet both the 2015-2020 DGA and 2015 Mexican guidelines are of high nutritional quality. Such menu plans and can help to guide the population to eat healthily and reduce the risk of NCDs.