

**Title:** Development of a Japanese Version Nutrient Profile Model for Dishes and Its Applicability Across Asia

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**Abstract:**

Excessive sodium intake remains the most critical nutritional challenge for the Japanese population, with approximately 70% of the intake derived from seasonings such as soy sauce and miso. While various Nutrient Profiling (NP) models are utilized globally to rank foods according to their nutritional composition, most existing models are designed for Western processed foods and are not suitable for evaluating the complex "dishes" that characterize Japanese meal patterns. To address this gap, we developed a "Nutrient Profile Model for Dishes in Japan Version 1.0 (NPM-DJ 1.0)." This public and neutral model aims to encourage food business operators to reformulate healthier products and support consumers in making informed and healthier dietary choices.

The NPM-DJ (1.0) was developed based on the framework of the Japanese Food Guide Spinning Top, which is Food-based dietary guideline in Japan, and utilizes data from the National Health and Nutrition Survey. The scoring process involves four distinct steps: 1) categorizing dishes into five types (Staple, Side, Main, Mixed, and Mixed with Staple); 2) calculating "Baseline Points" for negative nutrients (Energy, Saturated Fatty Acids, Sugars, and Sodium); 3) calculating "Modification Points" for positive components (Vegetables, Protein, and Dietary Fiber); and 4) determining the Final Score by subtracting modification points from baseline points. Dishes are subsequently assigned a rating from 0.5 to 5 stars, based on 10-percentile intervals within each dish category.

As the world's first dish-based NP model developed by a government-affiliated institute, NPM-DJ (1.0) allows for a realistic assessment of the seasonings and oils used in cooking. Furthermore, it can quantify the health impacts of specific consumption styles, such as the consumption of noodle soup. As many Asian countries share similar dish-based meal structures and have established their own food-based dietary guidelines, the NPM-DJ concept is highly applicable across this region. It serves as a reference framework for other nations to develop localized, country-specific models using their national nutrition survey data and food-based dietary guidelines.