

NUTRIENT ADEQUACY OF COMPLEMENTARY DIETS IN CEBU, PHILIPPINES AND EVALUATION OF HOUSEHOLD METHODS FOR THEIR IMPROVEMENT

LEAH A. PERLAS
MS Human Nutrition
University of Otago, New Zealand

Background: Philippine complementary foods (CF) are generally plant-based, with very small amounts of meat, fish, poultry or vegetables added. These CFs, then, have low absorbability of minerals. They are often prepared as thin porridges, thus energy and nutrient density are also low. Diets of such low quality can have adverse consequences, thus programs should be initiated to improve them. **Objectives:** (1) To assess the nutrient adequacy of Philippine CFs, (2) To evaluate household methods to overcome deficits. **Materials and methods:** The study consists of 2 phases: the Community and the Laboratory Phases. In the Community Phase, energy and selected nutrient intakes from CFs, based on 24 hr recalls, were calculated for breast-fed infants aged 10 months (n=1794) and again at 16 (n=1089) months. Infants were classified according to sex, geographic location (urban versus rural), and breast-feeding frequency (< 5 or ≥ 5 breast-feeds per day). Adequacy of intakes were evaluated by comparing with the WHO estimated needs and desired nutrient density from CFs. The Laboratory Phase focused on increasing the amount of absorbable minerals in rice- and maize-based CFs by enrichment and soaking strategies. The amount of calcium, iron, and zinc content was determined by AAS, and phytate (Phy) by HPLC, before and after enrichment with liver, egg yolk, fish, and mung beans, and soaking mung beans and maize for 6 hours. Relative bioavailability was assessed by [Phy]/[Fe] and [Phy]/[Zn] molar ratios. **Results:** Median intakes (per day; per 100 kcal) of energy, calcium, iron, zinc, vitamins A and C (but not protein) failed to meet WHO estimated needs and desired nutrient densities. Nutrient deficits were greater for rural compared to urban intakes, irrespective of breast-feeding frequency. Enrichment of CFs with liver resulted in the greatest increase in iron and zinc content, whereas enrichment with whole small fish with bones resulted in the greatest increase in calcium. Soaking reduced phytate content of the CFs, resulting in lower [Phy]/[Fe] and [Phy]/[Zn] molar ratios thus increasing their absorbability. **Conclusion and Recommendations:** Content of iron, zinc, and calcium of Philippine CFs do not meet estimated needs and desired nutrient densities of CFs. The amount of absorbable minerals can be increased by enrichment and soaking strategies. Use of these strategies should be encouraged to improve the nutrient adequacy of CFs for infant and young child feeding in the Philippines.