

AMINO ACID SUPPLEMENTATION OF CORN MASA. Ricardo Bressani<sup>o</sup>, Moisés Béhar<sup>o</sup>, Nevin S. Scrimshaw, and Fernando Viteri<sup>o</sup>. Institute of Nutrition of Central America and Panama (INCAP), Guatemala.

Hospitalized children recovering from kwashiorkor were fed lime-treated corn (masa) and corn gluten as sole protein sources. The basal diet contained 2.30% nitrogen and included masa 85, gluten 5, L-glutamic acid 2, glycine 3, corn starch 5, essential vitamins and minerals. Amino acids were added stepwise to provide the levels of the FAO reference pattern. Two 3-day nitrogen balance trials were run with each combination. Nitrogen retention was negative on the basal diet, positive with a tryptophan supplement and more so with lysine also added. Methionine, valine and threonine added to the supplemented basal diet resulted in decreased retention. However, isoleucine improved nitrogen balance whenever added. Methionine addition to the basal + tryptophan + lysine or to the basal + tryptophan + lysine + isoleucine diet decreased retention when added to the level of the FAO pattern, but not when half as much was added. Upon supplementation of basal diet with tryptophan, lysine and isoleucine to reference levels, protein intakes of 1.5 to 3.0 g/kg/day resulted in strongly positive balances equivalent to those with milk. At low protein intakes positive retention occurred with tryptophan + lysine but not with tryptophan alone; adding isoleucine caused further increase. Lysine appeared at least as deficient as tryptophan in the basal diet. Low protein intakes were not as sensitive as high intakes for demonstrating positive responses to the addition of limiting amino acids. (Assisted by funds from Du Pont De Nemours & Co., and the National Institute of Arthritis and Metabolic Diseases of the National Institutes of Health (A-981)).