

India Soy Protein Study

The Problem of Malnutrition

Child malnutrition is a problem worldwide. According to data obtained from surveys conducted between 1987 and 1998, two out of five children in developing countries are stunted, one in three are underweight and one in ten are wasted. It is known that more than 800 million people do not have enough food to eat globally and that action is needed most urgently in countries where chronic food insecurity is most prevalent or increasing. Rapid, effective and permanent approaches to feeding children are necessary in order for children of today to become healthy productive adults of tomorrow. Protein Technologies International, a Dupont Business is committed to taking a leadership role in developing nutritious food ingredients that can be developed into great tasting, healthy and nutritious foods that will help feed the world and reduce malnutrition and the development of the common chronic diseases.

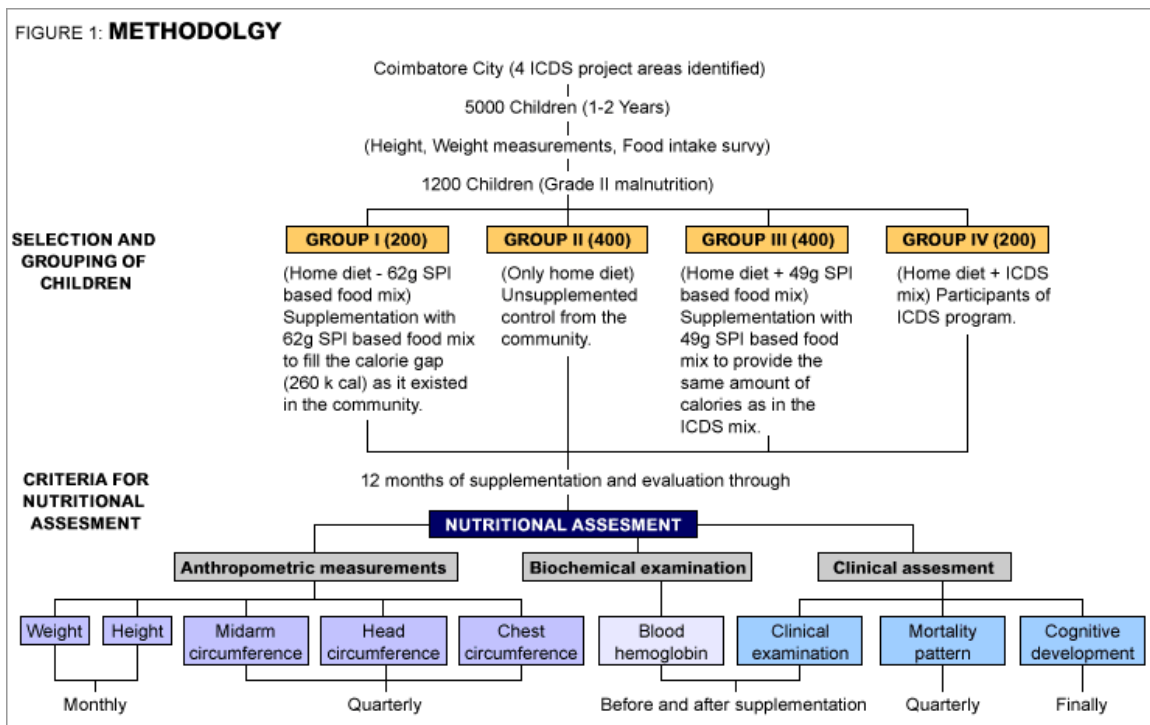
Scope of the Study

This study was conducted under the guidance of two internationally recognized experts in the field of maternal and child health and nutrition, Dr. Rajammal P. Devadas (Chancellor) and Dr. Usha Chandrasekhar (Professor and Head of the Department of Food Science and Nutrition) of the Avinashilingam Deemed University, Coimbatore India. The study evaluated feeding Soy Protein Isolate (SPI), a high-quality, plant-based protein as part of the standard Integrated Child Development Service (ICDS) sponsored program in 1200 malnourished (Grade II) children. The children were 1-2 years of age and the study lasted for a 12-month intervention period. The SPI was formulated into a food mix. Measurements of growth, physical and cognitive development, morbidity, clinical symptoms and nutritional anemia were evaluated before, during and following nutritional intervention. Each child's birth weight, size of family, sex and caste were taken into consideration. Approximately 5000 children from four ICDS project areas were identified and screened for study criteria eligibility in the Coimbatore City area.

Methodology

Researchers measured and documented the energy gap between the typical average intake of the nutritionally at-risk children on a daily basis as compared to the Recommended Dietary Allowance for 1-2 year old children. The SPI food mix was used to fill the documented calorie deficit. This mix was tested for taste, acceptability and convenience of delivery at the feeding sites.

Eligible children were assigned to one of the four dietary arms. Two arms of the study did not contain SPI food mix and consisted of (1) unsupplemented, fed only the home diet or (2) the standard ICDS weaning mix. The two arms with SPI food mix included (3) SPI food mix at a level of 62g to fill the documented calorie deficit and (4) SPI food mix at a level of 49g to provide the same amount of calories as in the standard ICDS mix. (as shown in Fig 1)

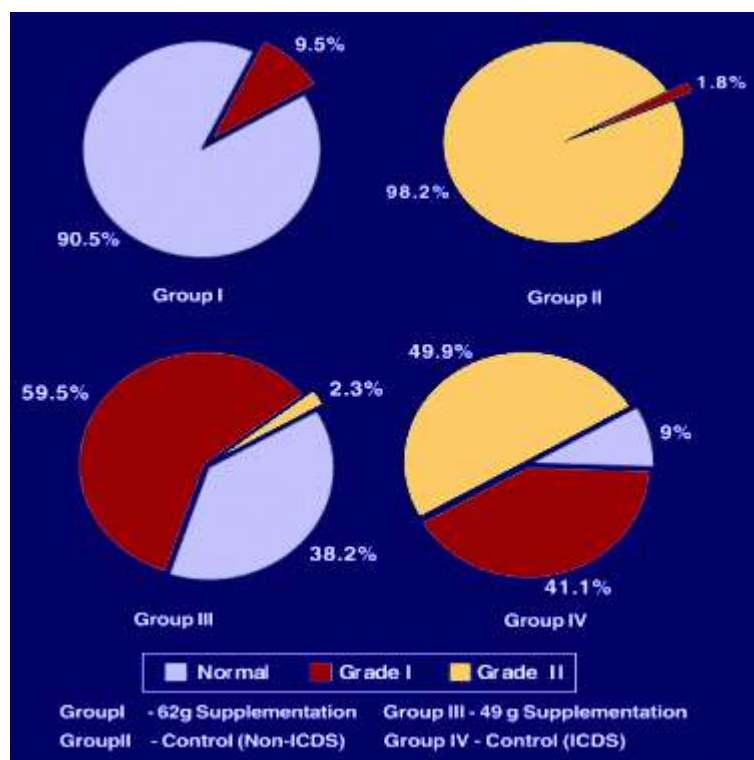


Results

Findings from this study demonstrated that the groups received the SPI food mix had significant improvements in growth (height, weight, mid-arm circumference, head circumference, chest circumference) and cognitive development in addition to reduction in clinical symptoms, morbidity and nutritional anemia. The group of children receiving the SPI mix at 62g filling the calorie gap demonstrated the most beneficial effects followed by the group receiving the SPI food mix at the level of 49g to provide the same amount of calories as in the standard ICDS meal.

This study demonstrated that use of SPI food mix in the daily diet of malnourished children had significant benefits. Results showed statistically significant improvements in growth and development as well as reduction of nutritional anemia, clinical symptoms and morbidity. Results show that children in group I who received the SPI mix of 62g filling the calorie gap had the highest recovery rate and were in the normal children category by the end of the study, as compared to other groups in which many of the children were still under grade I and grade II malnutrition (as shown in figure 2). Recognition of these benefits may help to provide essential tools for both, the nutritionist and planners of child feeding programs. The value of ingredients such as SPI for formulation into well accepted foods would enhance the nutritional status of growing children.

Figure 2 - Malnutrition status among the different groups of children after the study (Grade I and Grade II are levels of malnutrition with grade I being better)



SUPRO Ó Brand Isolated Soy Protein has been used in clinical studies for over 30 years and has demonstrated benefits in infants, young growing children, teenagers and in adults. This study reconfirms previous study results demonstrating that SPI delivers a high-quality, plant-based protein, which can be used as an ingredient in developing healthy, nutritious and great tasting foods for both young growing children and for people across the lifecycle.