

## Evaluation of Nutrition Supplement on Body Composition during Catch-Up Growth, in a Pre-Clinical Model of Growth Restriction

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**Abstract :** The aim of the present study was to assess the quality of catchup growth induced by Oral Nutrition Supplement (ONS), in animal model of growth restriction due to under nutrition. Quality of catch-up growth was assessed by proportion of lean body mass (LBM) and fat mass (FM). Young SD rats were food restricted at 70% of normal caloric intake for 4 weeks; and re-fed at 120% of normal caloric intake for 4 weeks. Refeeding diet had 50% calories from animal diet and 50% from ONS formulated for optimal growth. After refeeding, the quantity and quality of catch-up growth were measured including weight, length, LBM and FM. During nutrient restriction, body weight and length of animals was reduced compared to healthy controls. Both LBM and FM were significantly lower than healthy controls ( $p < 0.001$ ). Refeeding with ONS resulted in increase of weight and length, with significant catch-up growth compared to baseline ( $p < 0.001$ ). Detailed examination of body composition showed that the catch-up in body weight was due to proportionate increase of LBM and FM, resulting in a final body composition similar to healthy controls. This data supports the use of well-designed ONS for recovery from growth restriction due to under nutrition, and return to normal growth trajectory characterized by normal ratio of lean and fat mass.

**Keywords :** catch up growth, body composition, nutrient restriction, healthy growth

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