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Weight and Length Increments during Infancy related to Wasting and Stunting at older Ages in African Children

Simondon KB, Simondon F, Maire B, Cornu A, Delpuech F.

Tropical Nutrition Units, Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM)

Dakar, Senegal; Montpellier, France; Brazzaville, Congo

The differences between growth of infants in developing and in western countries have often been described. Few studies have described infant growth in African cohorts according to the development of malnutrition at older ages, which is the aim of the present study.

We have analyzed longitudinal data from 180 children from Congo (no length data available during infancy) and 151 children from Senegal. Stunted children were defined as those with a height/age (NCHS) < -2 z-scores (Congo: n=48, Senegal: n=41) at age 24 months and moderately wasted children were defined as those with a weight/height < -1.5 z-scores (Congo: n=38, Senegal: n=47) at age 18 months. Quarterly weight and length increments during infancy were compared (t-test) between stunted children and children with no stunting and between moderately wasted children and children with no wasting.

Wasted children had significantly lower weight increments from age 0-3 months (Congo: 2.30 kg v. 2.82 kg, $p < 0.05$; Senegal: 2.64 kg v. 3.13 kg, $p < 0.01$). They had significantly lower length increments from 6-9 months (Senegal: 3.7 cm v. 4.4 cm, $p < 0.01$).

Stunted children had significantly lower weight increments from 3-6 months in Congo (1.23 kg v. 1.58 kg, $p < 0.01$) and from 0-3 months in Senegal (2.74 kg v. 3.10 kg, $p < 0.05$). They had significantly lower length increments from 0-3 months (Senegal: 10.0 cm v. 10.7 cm, $p < 0.05$) and from 6-9 months (Senegal: 3.6 cm v. 4.3 cm, $p < 0.01$).

In conclusion growth during the first quarter of infancy was an important determinant for development of malnutrition at older ages. Previously little attention has been paid to this very early period, most likely because all infants are exclusively breastfed, infections are uncommon and the average growth rate from 0-3 months is high in many African countries compared to growth rates in western countries (NCHS: 2.7 kg). The reasons for poor growth during the first months of life should be investigated further.

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