

Abstract

The effects of porridge viscosity and increased energy density on porridge consumption and overall energy intake.

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Many mothers in developing countries feed a thin, low energy dense porridge, which does not provide adequate energy to their weanlings. This may lead to Protein Energy Malnutrition. It is not clear whether adequate energy may be obtained by feeding a thick porridge, as some claim this constrains the amount consumed due to the bulk, while others claim that viscosity reduction is necessary. The effects of viscosity and energy density on energy intake were assessed in fifteen children aged 7-15 months who had recovered from malnutrition.

Three porridges were developed:

- i) low energy (51Kcal/100g viscosity 280-480 cp)
- ii) high energy (98kcal/100g viscosity 3000-4000cp)
- iii) amylase-treated, high energy (97kcal/100g viscosity 280-480 cp)

Using a cross-over design, each porridge was fed *ad libitum* 4 times daily for 4 days by trained feeders.

The mean daily intake in grams was significantly higher for the thin porridge ($952 \pm 220\text{g}$) than for the thick ($677 \pm 164\text{g}$) or amylase-treated ($748 \pm 105\text{g}$) porridge.

However, the mean energy intake of the thick (96kcal/kg/d) and amylase-treated porridges (105kcal/kg/d) was not significantly different, and was significantly higher than that of the thin porridge (71kcal/kg/d). The mean daily energy intakes of the thick and amylase treated porridges matched the WHO/FAO recommended requirements. Meal duration was significantly longer for the thick porridge (12.9 min.) than for the amylase-treated (6.4 min.) or thin (7.4 min.) porridges. Reducing the viscosity of a thick energy dense porridge did not significantly increase energy intake.