

Letter to the Editor

Genetically determined lower bitter-taste sensitivity in Africans?

Recently, Soranzo *et al.* (2005) reported a high frequency (16 %) of the ancestral low-sensitivity G516 allele variant in the human bitter-taste receptor gene *TAS2R16* throughout the population in central Africa, compared with non-African populations (0.9 %).

In the framework of the European Union research project 'Early Nutrition Programming Project' (EARNEST; www.metabolic-programming.org), we are investigating the possible effects of early exposure to hypoallergenic protein hydrolysate infant formulae with a distinctive bitter taste on later food preferences in children at 10 years of age. In order to test the practicability and repeatability of the food preference testing, we conducted a feasibility study in two different population subsets.

To measure preferences of different infant formulae, we used a continuous line-scale ranging from 'dislike very much' to 'like very much'. Subjects were instructed to taste the blinded samples in random order and to mark the line according to the degree of liking or disliking for each sample. For statistical analysis, the distance between the left end of the scale and the mark on the line was measured and, thus, liking scores (0 to 14) were generated.

First, we performed the food preference test using the extensive casein hydrolysate Nutramigen 1® (Mead Johnson Nutritionals, Evansville, IN, USA) in twenty-two volunteers working at our institute. To estimate the intra- and inter-individual variability we repeated the test and calculated mean liking scores. The average liking score for the bitter-tasting formula was 2.8 (SD 2.1), with a correlation of r 0.6 ($P=0.018$) between the first and second tests. The most surprising observation was an extremely high

mean liking score of 10.7 given by one single institute member (Fig. 1). This was the only subject with African ancestry.

The same food preference test was also carried out in fifty-five school children attending the 3rd and 4th grades in a primary school in Munich, Germany, on two consecutive days. In twenty-eight (52 %) children, at least one parent had not been born in Germany, thirty-five (65 %) children had been exclusively breastfed for at least 4 months and twenty-eight (52 %) had never been fed with hypoallergenic formula in infancy. The average liking score for the bitter-tasting formula was 1.6 (SD 2.3), with a correlation of r 0.6 ($P<0.001$) between the first and second tests. The two students with African ancestry showed, again, comparable high mean liking scores (7.4 and 6.2) (Fig. 1).

Even though the feasibility study included only a small number and was not designed for this specific purpose, our observations suggest a less sensitive bitter-taste in Africans. The results might be a hint at the higher frequency of the low-sensitivity gene variant reported by Soranzo *et al.* (2005) or an effect of a specific African diet.

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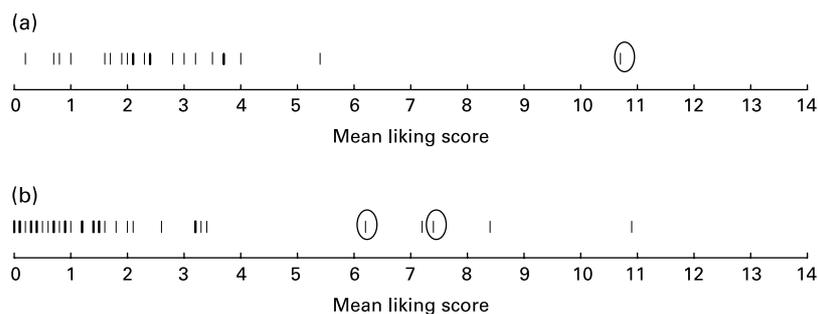


Fig. 1. Mean liking scores for the bitter-tasting infant formula in (a) adults (n 22) and (b) school children (n 55). African ethnicities are marked (O). Multiple values are indicated in bold.

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