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Title:

Assessment of oral tactile sensitivity in adults and children: relationship with texture preference and eating behaviour. A cross-cultural study in UK and Italy

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Food texture is an important driver of both acceptance and rejection in vulnerable consumer groups (e.g., children and the elderly). Since there is limited literature on methodologies to measure oral tactile acuity, the aims of this study were: to identify suitable methods to measure oral tactile acuity in children and adults; to explore age- and country- related differences in oral tactile acuity; to determine the relationship, if any, between oral tactile acuity, preference and eating behavior.

The study involved 207 individuals: 65 English and 32 Italian children (10-11 years), 50 English and 70 Italian adults (> 18 years). Participants were asked to take part in two activities: 1) compilation of questionnaires to investigate preference for food texture and food neophobia; 2) assessment of oral tactile sensitivity through Von Frey's filaments and a grating orientation test.

Cross-cultural differences were found. Italian children showed significantly higher tactile sensitivity than English ones with filaments ($p < 0.001$), while no difference was found with gratings. English adults showed a higher preference ($p < 0.05$) for hard food than Italian ones. Age-related differences were found only for the English population ($p < 0.001$), with adults being more sensitive than children. Oral tactile acuity and food neophobia were positively correlated ($p < 0.05$) in both English and Italian children. Moreover, oral tactile acuity correlated negatively with the preference for hard and lumpy food. The present data suggest that, in children but not adults, higher sensitivity to oral tactile stimuli is associated to both food selectivity and preference for soft and uniform texture. Since food neophobia is reported to be an aversive behavior, which reduces the variety of the diet, the present results suggest that neophobia-related differences as well as individual differences in texture perception in children may have implications on diet and therefore potential health repercussions.