

Gender related differences in gustatory and olfactory perception in Austrian school children

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BACKGROUND

The training of sensory skills, especially with children, has the potential of activating the chemosensory awareness, which then may lead to healthier and more balanced eating habits.

METHOD

The present survey is structured in 5 steps (Figure 1) including a sensory training and the evaluation of sensory perception (Baseline and Follow Ups). The aim of the baseline measurement (step 1) was to evaluate the gustatory and olfactory perception in Austrian school children with a focus on gender related differences in order to implement a specific school-based sensory education program. 277 Austrian school children (116 female, 161 male; aged from 11 to 14) of four secondary schools participated in this project. The individuals performed a taste recognition test according to DIN 10961 and ISO 3972 and an odor identification test with Sniffin`Sticks from the company Burghart.

BASELINE EVALUATION



Figure 1: Structure of the study

TASTE

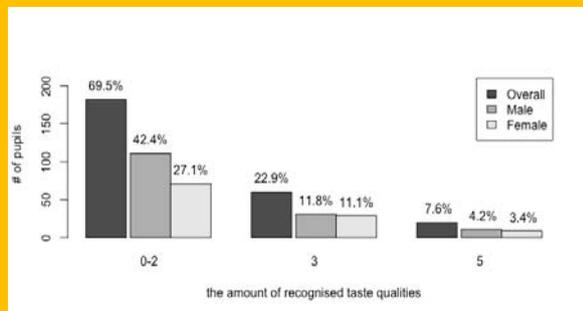


Figure 2: Percentage of children segmented by the number of recognised taste qualities at baseline evaluation

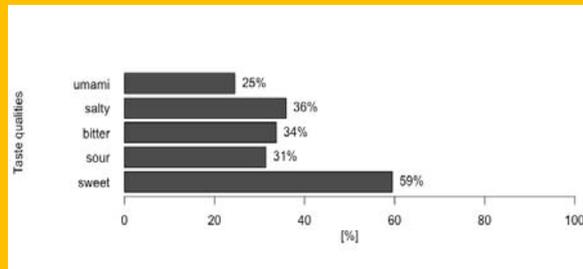


Figure 3: Percentage of correctly identified taste qualities by children at baseline evaluation

ODOR

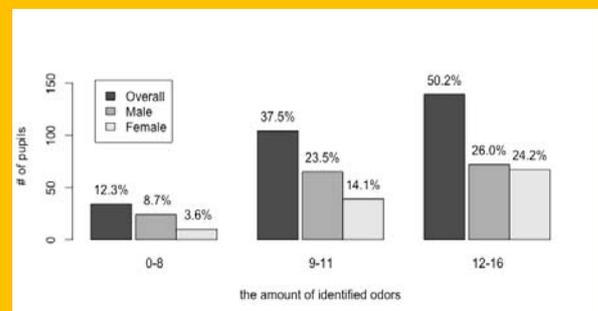


Figure 4: Percentage of children segmented by the number of identified odors at baseline evaluation

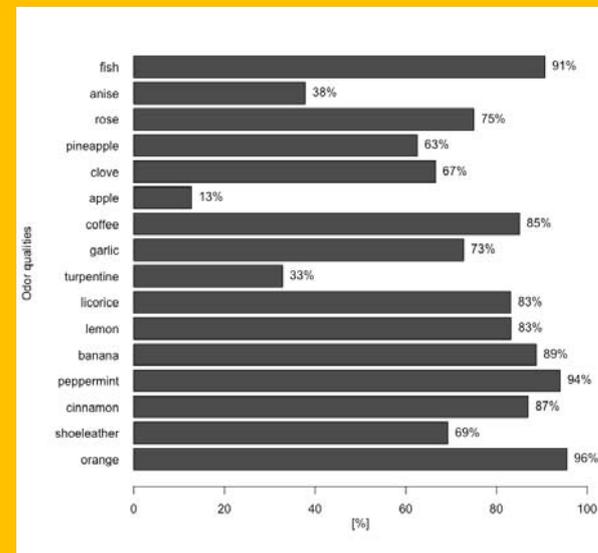


Figure 5: Percentage of correctly identified odors by children at baseline evaluation

RESULTS

At the baseline evaluation the majority (69.5%) of the pupils were not able to identify more than two out of the five basic taste qualities, only 7.6% recognized all five samples (Figure 2). The taste quality sweet was most frequently identified by the children (Figure 3). The results of the smell identification showed that 50% of the participants correctly identified 12 or more out of the offered Sniffin` Sticks (Figure 4). Figure 5 shows that more than 90% of the children were able to identify the odor qualities orange, peppermint and fish.

The gender of the participants had no statistically significant ($p < 0.05$) impact on gustatory or olfactory perception. Additionally, factors such as age and school location (rural, urban) did not influence the taste and smell identification abilities. The Body Mass Index showed a statistically significant ($p < 0.05$) impact on the olfactory perception, but not on the gustatory perception.

CONCLUSION

The present study demonstrates low taste and smell identification abilities of the evaluated Austrian school children but no gender related differences. This aspect is an essential information for planning an effective sensory training. Consequently, the improvement of gustatory and olfactory perception based on school-based sensory interventions, seem to be very important for raising the health awareness of future consumers.