

## **P1.142 Food neophobia is associated with scarce olfactory performances and specific signatures on oral microbiota**

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### **Abstract**

Food Neophobia (FN), i.e., the unwillingness to try novel foods, reportedly affects dietary variety and can lead to erroneous eating habits across the lifespan. While a complex paradigm reporting arousal to mediate the orosensory responses of neophobics towards foods has been proposed, the consequences of this link on both olfaction and host-related non-genetic factors, such as the oral microbiota, are little investigated. Against this backdrop, this contribution aimed at assessing the associations between FN and olfactory functioning, retronasal aroma release, and oral microbiota.

Eighty-three subjects (57.8 % female, aged 22-68 yo) completed the Food Neophobia Scale and the trait anxiety subscale of the State-Trait Anxiety Inventory before being tested for olfactory functioning through the Sniffin' Sticks Test battery (i.e., odor threshold, discrimination, identification). Each subject was then asked to consume a strawberry jelly candy while being monitored, through an ergonomic nosepiece, for the retronasal release of 7 strawberry aroma compounds (nose-space analysis with Selected-Ion Flow-Tube Mass Spectrometry). Prior to starting the sensory tasks, participants provided an unstimulated saliva sample later analyzed by 16S rRNA gene profiling.

We identified 35 Low-Neophobics (LN), 29 Medium-Neophobics (MN) and 19 High-Neophobics (HN). Overall, higher FN traits showed marginally higher anxiety traits, lower olfactory thresholds (i.e., higher odor sensitivity), and lower discrimination abilities. LN and MN showed a higher aroma release compared to HN, probably due to longer oral processing. Interestingly, the oral microbiota of HN harbored a higher abundance of several dysbiosis-related microbes, such as the cariogenic pathogen *Scardovia wiggisiae*.

Taken collectively, this study suggests a pervasive role of arousal in mediating the sensory responses of neophobics towards foods, which would promote a cascade system leading to unhealthy dietary habits negatively shaping the oral microbiota. Possible links between oral microbiota and olfactory performances will be also discussed.

### **Keywords**

Food neophobia  
Arousal  
Olfactory performances  
Oral microbiota