Child food neophobia, i.e., rejection or avoidance of novel food products in young age is a prevalent problem that affects quality of children's diet and impedes the development of healthy food preferences. Existing research identified a number of biological, environmental and psychological determinants and correlates of this problem, and these include also one's sensory sensitivity. Among sensory modalities, olfaction seems to be an obvious candidate of such a predictor as it largely influences food perception and enjoyment of consumption. However, with a few exceptions, existing research rarely examines the association between olfaction and food neophobia, especially in children and offers no explanation of the underlying mechanisms. More common studies on olfaction and neophobia in adults indicate a negative relationship between olfactory sensitivity and food neophobia and suggest a mechanism modulating this association, but these results cannot be generalized to young age groups. Therefore, the main research problem addressed in the current proposal is an investigation of the association between various aspects of olfactory sensitivity and food neophobia in children.

We hypothesized that olfactory sensitivity is significantly associated with children's food neophobia through increased arousal generated by odor perception in neophobic children. In Study 1 we aim to thoroughly investigate the relationship between different aspects of smell sensitivity and food neophobia and in Study 2 we intend to test the hypothetical, physiological mechanism underlying this association. The studies will include several odor types and our analyses will be additionally expanded by inclusion of a number of control measures and covariates. Second, malleability of smell preferences and abilities suggests that child food neophobia might be tackled through interventions targeting the sense of smell. Therefore, in Study 3 we aim to examine if food neophobia diminishes after an olfactory intervention, and we will test an assumption that influencing olfactory sensitivity in children through an olfactory intervention will decrease their reluctance to try novel foods.

In all three studies food neophobia will be assessed with the use of a questionnaire completed by a child and a primary caregiver, and a behavioral test involving novel food products – a "willingness to eat" task guided by Reverdy et al. (2008) research. In Study 1 we will explore the associations between food neophobia and a variety of olfactory abilities, i.e., olfactory identification skills, thresholds for detection of an unknown food and an unknown non-food odor, and odor pleasantness assessments and control measures. The sample will include children aged 3-8 years recruited in preschools and schools. The children will be tested in three sessions, and each session will comprise one olfactory measurement. Study 2 will involve odor-induced arousal assessment through skin conductance measurement. We will analyze the physiological responses to odor stimuli in relation to children's food neophobia level and stimuli type. Study 3 addresses a possibility that food neophobia can be reduced through an intervention targeting the sense of smell in 4 year-olds. The children in the experimental group will take part in a 12 week-long olfactory training, and the effects of this training on food neophobia will be assessed immediately after its completion and 10 months later.