

Olfactory training, brain plasticity, and quality of life

Phd thesis

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From an evolutionary perspective, olfaction is one of our oldest senses with direct connections to key limbic structures and is deeply entangled with emotions and memories.

It provides quality of life, warnings about danger, and pleasure of eating and drinking.

However, olfactory dysfunction is common and severely affects quality of life. Luckily, plasticity in the olfactory system allows for rehabilitation with a therapy called olfactory training.

The main scope of this Ph.D. was to investigate olfactory training and olfactory plasticity.

Olfactory training was investigated in patients with olfactory dysfunction to rehabilitate olfactory function. A new online training paradigm was compared to the original training paradigm to improve treatment options for patients with olfactory dysfunction. Olfactory plasticity was investigated with brain scans using magnetic resonance imaging techniques for measuring olfactory connectivity in the brain. Furthermore, for assessment of quality of life, a new instrument was developed to measure smell and taste related quality of life and daily life implications of chemosensory dysfunction. Lastly, ecological olfactory training was investigated in culinary students, starting as novices with normal olfactory, and gustatory function and naturally training their chemosensory senses during the first year of education, and relating the findings to a matched control group.

The presentation will cover the thesis, the related papers and present an improved treatment option for olfactory dysfunction and a new assessment tool for chemosensory dysfunction.