

Assessment and rehabilitative treatment of olfactory loss

Brief description

Olfactory dysfunction is a common problem that receives less attention than it should because it is considered less disabling than deficits in sight or hearing. Olfactory alterations are rarely fatal, therefore patients do not normally receive adequate medical care, although the deterioration of smell can have a negative effect on quality of life, safety and it can be a sign of other health problems.

How does it work?

Rehabilitation training of olfactory capacity has emerged as an intervention technique for the treatment of loss of smell. The concept behind olfactory rehabilitation is similar to rehabilitative treatment after stroke or other neurological condition. In the event of a deficit-generating event, existing neurological pathways can be strengthened and trained to compensate for the deficits or restore lost function.

Olfactory training is based on the retraining of the brain for a correct interpretation of the neurological signals received when odorants are presented and generate an impulse that travels through the olfactory nerve, the olfactory bulb and the olfactory cortex.

What problem does it solve?

Interest in olfactory deficits has become more relevant in recent years, due to clinical and research findings that indicate the existence of olfactory alterations derived from traumatic injuries such as brain injury, in surgical or medical procedures for the treatment of some diseases as, laryngeal tumors that require partial or total laryngectomy, treatment with radiotherapy, or in pathologies that present with alterations of the sense of smell such as arterial hypertension, liver diseases, diabetes mellitus, rhinitis, sinusitis, anxiety, major depression, schizophrenia or autism. In addition, in recent years, the possibility that loss of smell is a biomarker of some neurodegenerative diseases such as frontotemporal dementia, amyotrophic lateral sclerosis, Parkinson's disease or Alzheimer's disease has been revealed. More recently, sudden olfactory loss (anosmia or hyposmia) has been considered as an initial symptom in 80% of patients with COVID-19, a disease derived from the new SARS-CoV-2 virus.

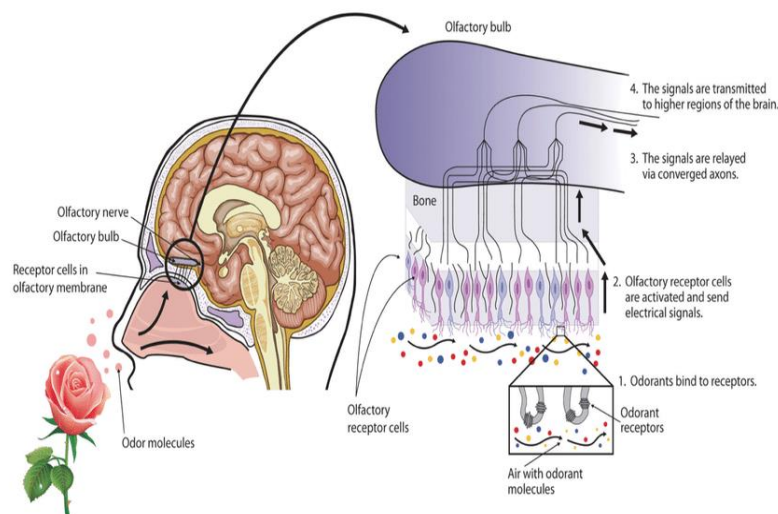


Figure 1. Diagram.



What future products will it develop?

- An evaluation of the sense of smell.
- Individualized sessions aimed at the rehabilitation of the three components of smell. The treatment.
- Design of the individualized treatment explained to the patient, who receives weekly online sessions.
- Evaluation of the olfactory capacity after 3 months of rehabilitation treatment, assessment of the need to continue or end the treatment.

Competitive advantages compared to other research

Previous research focuses on the application of olfactory training with the four traditional odorants and to a lesser extent personalised training. This paper advocates personalised training and a combined approach as possible therapeutic interventions for olfactory dysfunction, involving the integration of training sessions with medication intake.

Where has it been developed?

The evaluation system, design and application of the olfactory deficits rehabilitation program has been developed by a team of researchers from the Department of Experimental Psychology, Cognitive Processes and Speech Therapy, of the UCM Faculty of Psychology. The research team has developed, adapted and validated the olfactory capacity assessment test. Furthermore, together with the procedure for the evaluation of the three dimensions of olfactory capacity: threshold, discrimination and identification, they have designed the rehabilitation program for olfactory deficits.

Since the appearance of COVID-19, the research team has been working together with the Central Hospital of the Red Cross and the San Carlos Clinical Hospital, in the evaluation and treatment of patients with sequelae of loss of smell due to coronavirus.

In addition, they have been working for years in the study of the loss of smell as a possible biomarker of Alzheimer's disease, in various projects funded by the Ministry of Science, Innovation and Universities.

Researcher in charge

María Luisa Delgado Losada, mldelgad@ucm.es; **Alice Helena Delgado Ramos Lima**, alicedel@ucm.es
Jaime Bouhaben, jaimebou@ucm.es

Department: **Experimental Psychology, Cognitive Processes and Speech Therapy**

Faculty: **Psychology**