

# The development of olfactory tests with objective assessments

**Masaaki Ishikawa**

*Department of Otolaryngology, Head and Neck Surgery, Hyogo Prefectural Amagasaki General Medical Center*

Clinical assessment reflecting olfactory function with objective indicators can provide novel insights for the diagnosis of olfactory dysfunction. Initial pupil size (INIT) can be affected by olfactory stimulation and psychological states, being the candidate of the indicator. However, the effects of changes in the psychological state related to olfactory stimulation on INIT remain unclear. We investigated the effects of olfactory stimulation-induced psychological changes on INIT, using a double-blind study design with repeated measurements. We collected data on INIT and six mood subscales of the Mood States Profile from 28 healthy subjects. Subjects underwent a 10-min olfactory stimulation on different days with six odorants available with the T&T olfactometer. Olfactory stimulation using the no-odor liquid (a control odorant) did not affect mood states and INIT. The sweat odorant significantly worsened five mood subscales, including fatigue-inertia (Fatigue) and decreased INIT compared to the control odorant. When comparing INIT responses related to changes in mood subscales between the control and the sweat odorant, worsened Fatigue were associated with decreased INIT in the sweat odorant. Fatigue can be regarded as an indicator of mental fatigue. Thus, methodology focusing on decreased INIT related to mental fatigue after olfactory stimulation might be a key factor to establish the objective indicators.