

Olfactory Testing

<https://www.ncbi.nlm.nih.gov/books/NBK565861/>

There are major challenges in [olfactory nerve](#) measurements in clinical practice; therefore, a handheld [Digital scent technology](#) device (DSD; Noar MultiScent 20®) was developed as a tablet with an integrated storage system for odors. The DSD is a self-administered, handheld device that controls the duration of odor release to the [nasal cavity](#) through a touchscreen digital interface with automatic database generation. This study aimed to determine the feasibility of this DSD as an olfactory assessment test.

Nakanishi et al. recruited 180 participants (mean \pm standard deviation age: 34.58 ± 9.71 years; 114 women and 66 men) to participate in [smell](#) tests using both the DSD and the 40-item Smell Identification Test (SIT-40), which contained the same type and order of odors and the same multiple-choice answers. The scores were compared and evaluated for correlation between the tests, and test-retest reliability was calculated.

The DSD test scores were higher than the SIT-40 scores (median [interquartile range] = 32 [5.0] vs. 31 [7.0], $p = 0.005$). The completion time was lower for the DSD test than for the SIT-40 (12.5 [5.0] vs. 16 [6.0] min, $p < 0.001$). The tests were strongly correlated (Spearman's rho: 0.74; $p < 0.001$) and exhibited a high level of agreement (Bland-Altman regression coefficient: 0.672; $p = 0.003$). The DSD test-retest reliability coefficient was 0.820.

The DSD is feasible as an olfactory assessment test. The digitalization of olfactory assessment combined with data science may enable new research perspectives in the field of [olfaction](#) ¹⁾.

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¹⁾

Nakanishi M, Fornazieri MA, Gomes PL, Augusto de Miranda Dias L, Freire GSM, Vinha LGDA, Barbosa de Sa LC, Voegels RL, Eng CG, Lima WTA. The digital scent device as a new concept for olfactory assessment. Int Forum Allergy Rhinol. 2022 Feb 27. doi: 10.1002/alr.22992. Epub ahead of print. PMID: 35224885.

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