Table S1. Detailed search strategy for each database

Database	Search Strategy	Filter	Results
PubMed	(“COVID-19” OR “2019 nCoV” OR “2019nCoV” OR “COVID 19” OR “COVID19” OR “new coronavirus” OR “novel coronavirus” OR “novel corona virus” OR “SARS-CoV-2” OR “SARSCoV2” OR “2019-novel CoV” OR “ncov19” OR “ncov-19” OR “nCov 2019” OR “coronavirus” OR “coronavirus disease 2019” OR “long COVID” OR “coronavirus disease” OR “COVID”) AND (“olfactory dysfunction” OR “anosmia” OR “hyposmia” OR “parosmia” OR “olfactory loss” OR “loss of smell” OR “smell disorder*” OR “smell dysfunction” OR “olfaction” OR “olfactory” OR “dysosmia*” OR “phantosmia*” OR “cacosmia*” OR “microsmia*” OR “absent smell” OR “olfactory impairment” OR “smell impairment” OR “sense of smell” OR “smell loss”) AND (“olfactory training” OR “smell training” OR “odor exposure” OR “odorants” OR “olfactory rehabilitation” OR “olfactory stimulation” OR “smell therapy” OR “smell retraining” OR “scent training” OR “olfactory retraining” OR “odor retraining” OR “nasal smell training” OR “smell recovery training”)	All fields	n=591
CENTRAL	(“COVID-19” OR “2019 nCoV” OR “2019nCoV” OR “COVID 19” OR “COVID19” OR “new coronavirus” OR “novel coronavirus” OR “novel corona virus” OR “SARS-CoV-2” OR “SARSCoV2” OR “2019-novel CoV” OR “ncov19” OR “ncov-19” OR “nCov 2019” OR “coronavirus” OR “coronavirus disease 2019” OR “long COVID” OR “coronavirus disease” OR “COVID”) AND (“olfactory dysfunction” OR “anosmia” OR “hyposmia” OR “parosmia” OR “olfactory loss” OR “loss of smell” OR “smell disorder*” OR “smell dysfunction” OR “olfaction” OR “olfactory” OR “dysosmia*” OR “phantosmia*” OR “cacosmia*” OR “microsmia*” OR “absent smell” OR “olfactory impairment” OR “smell impairment” OR “sense of smell” OR “smell loss”) AND (“olfactory training” OR “smell training” OR “odor exposure” OR “odorants” OR “olfactory rehabilitation” OR “olfactory stimulation” OR “smell therapy” OR “smell retraining” OR “scent training” OR “olfactory retraining” OR “odor retraining” OR “nasal smell training” OR “smell recovery training”)	Title abstract keyword	n=108
Web of Science	(“COVID-19” OR “COVID 19” OR “COVID19” OR “new coronavirus” OR “novel coronavirus” OR “novel corona virus” OR “SARS-CoV-2” OR “SARSCoV2” OR “2019-novel CoV” OR “ncov19” OR “ncov-19” OR “nCov 2019” OR “coronavirus” OR “coronavirus disease 2019” OR “long COVID” OR “coronavirus disease” OR “COVID”) AND (“olfactory dysfunction” OR “anosmia” OR “hyposmia” OR “parosmia” OR “olfactory loss” OR “loss of smell” OR “smell disorder*” OR “smell dysfunction” OR “olfaction” OR “olfactory” OR “dysosmia*” OR “phantosmia*” OR “cacosmia*” OR “microsmia*” OR “absent smell” OR “olfactory impairment” OR “smell impairment” OR “sense of smell” OR “smell loss”) AND (“olfactory training” OR “smell training” OR “odor exposure” OR “odorants” OR “olfactory rehabilitation” OR “olfactory stimulation” OR “smell therapy” OR “smell retraining” OR “scent training” OR “olfactory retraining” OR “odor retraining” OR “nasal smell training” OR “smell recovery training”)	All fields	n=194
Scopus	(“COVID-19” OR “2019 nCoV” OR “2019nCoV” OR “COVID 19” OR “COVID19” OR “new coronavirus” OR “novel coronavirus” OR “novel corona virus” OR “SARS-CoV-2” OR “SARSCoV2” OR “2019-novel CoV” OR “ncov19” OR “ncov-19” OR “nCov 2019” OR “coronavirus” OR “coronavirus disease 2019” OR “long COVID” OR “coronavirus disease” OR “COVID”) AND (“olfactory dysfunction” OR “anosmia” OR “hyposmia” OR “parosmia” OR “olfactory loss” OR “loss of smell” OR “smell disorder*” OR “smell dysfunction” OR “olfaction” OR “olfactory” OR “dysosmia*” OR “phantosmia*” OR “cacosmia*” OR “microsmia*” OR “absent smell” OR “olfactory impairment” OR “smell impairment” OR “sense of smell” OR “smell loss”) AND (“olfactory training” OR “smell training” OR “odor exposure” OR “odorants” OR “olfactory rehabilitation” OR “olfactory stimulation” OR “smell therapy” OR “smell retraining” OR “scent training” OR “olfactory retraining” OR “odor retraining” OR “nasal smell training” OR “smell recovery training”)	Article title, abstract, keywords	n=300
Embase	(“COVID-19” OR “2019 nCoV” OR “2019nCoV” OR “COVID 19” OR “COVID19” OR “new coronavirus” OR “novel coronavirus” OR “novel corona virus” OR “SARS-CoV-2” OR “SARSCoV2” OR “2019-novel CoV” OR “ncov19” OR “ncov-19” OR “nCov 2019” OR “coronavirus disease 2019” OR “long COVID” OR “coronavirus disease” OR “COVID”) AND (“olfactory dysfunction” OR “anosmia” OR “hyposmia” OR “parosmia” OR “olfactory loss” OR “loss of smell” OR “smell disorder*” OR “smell dysfunction” OR “olfaction” OR “olfactory” OR “dysosmia*” OR “phantosmia*” OR “cacosmia*” OR “microsmia*” OR “absent smell” OR “olfactory impairment” OR “smell impairment” OR “sense of smell” OR “smell loss”) AND (“olfactory training” OR “smell training” OR “odor exposure” OR “odorants” OR “olfactory rehabilitation” OR “olfactory stimulation” OR “smell therapy” OR “smell retraining” OR “scent training” OR “olfactory retraining” OR “odor retraining” OR “nasal smell training” OR “smell recovery training”)	All fields	n=293

Table S2. List of excluded studies during the full-text screening step

Study ID	Title	Reason of exclusion
Cleene et al. 2025	Protocol for olfactory training in persisting COVID-19-associated loss of smell (SMELL): a monocentric randomized controlled trial conducted in Innsbruck	Protocol
Masson et al. 2025	Assessment of two olfactory training methods for post-COVID-19 loss of olfaction: classical and intensive	No control group, comparing two olfactory training models
Treder-Rochna et al. 2024	The effectiveness of olfactory training for chronic olfactory disorder following COVID-19: a systematic review	Systematic review
Mehraeen et al. 2024	Treatments for olfactory dysfunction in COVID-19: a systematic review	Systematic review
Qiao et al. 2025	Clinical efficacy of olfactory training using aromatic traditional Chinese medicine in managing olfactory dysfunction induced by SARS-CoV-2	Quasi-randomized
Guerra et al. 2024	Four odorants for olfactory training are enough: a pilot study	Did not include COVID-19 patients
Boscolo-Rizzo et al. 2024	Adherence to olfactory training improves orthonasal and retronasal olfaction in post-COVID-19 olfactory loss	Observational study and did include control group
Delgado-Lima et al. 2024	Maximizing participation in olfactory training in a sample with post-COVID-19 olfactory loss	Quasi-randomized
Cantone et al. 2024	Persistent COVID-19 parosmia and olfactory loss post olfactory training: randomized clinical trial comparing central and peripheral-acting therapeutics	No control group
Schepens et al. 2024	The effect of smell training on COVID-19 induced smell loss	Case-control study (observational)
Chan et al. 2024	Olfactory dysfunction and training in children with COVID-19 infection: a prospective study post-COVID pediatric olfactory training	Including pediatrics and observational study
Figueiredo et al. 2024	Alpha-lipoic acid does not improve olfactory training results in olfactory loss due to COVID-19: a double-blind randomized trial	No control group
Alarfaj et al. 2023	Olfactory dysfunction following COVID-19 and the potential benefits of olfactory training	Cross-sectional study
Stadio et al. 2023	Treatment of COVID-19 olfactory dysfunction with olfactory training, palmitoylethanolamide with luteolin, or combined therapy: a blinded controlled multicenter randomized trial	No control group
Yan 2023	Assessing efficacy using variations of olfactory training for COVID-19-related smell loss-would a rose by any other scent smell as strong?	Commentary paper
Lechien et al. 2022	Effectiveness of olfactory training in COVID-19 patients with olfactory dysfunction: a prospective study	No control group and observational study
Yaylacı et al. 2023	Effects of classical olfactory training in patients with COVID-19-related persistent loss of smell	Not randomized
Pirese et al. 2022	Intensive olfactory training in post-COVID-19 patients: a multicenter randomized clinical trial	No control group
Altundag et al. 2022	Modified olfactory training is an effective treatment method for COVID-19 induced parosmia	Observational study
Denis et al. 2021	Olfactory training and visual stimulation assisted by a web application for patients with persistent olfactory dysfunction after SARS-CoV-2 infection: observational study	Observational study
Kattar et al. 2021	Olfactory training for postviral olfactory dysfunction: systematic review and meta-analysis	Not for COVID-19
Winter et al. 2025	Olfactory training using nasal inserts is more effective due to increased adherence	No control group
NCT04964414	Treatment of pediatric patients that lost sense of smell Due to COVID-19	Terminated clinical trial
NCT04374474	Anosmia rehabilitation in patients post coronavirus disease (COVID 19)	Withdrawn clinical trial
Serrano et al. 2022	Olfactory rehabilitation in non-severe COVID-19 patients: a randomized double-blinded clinical trial	Conference abstract
Doluoğlu et al. 2024	Evaluation of long-term results of olfactory training for persistent olfactory dysfunction after COVID-19 infection	Single-arm study
NCT04422275	Coronavirus smell therapy for anosmia recovery (Co-STAR)	Withdrawn clinical trial