

**Table S1.** Database Search Terms

Database	Search terms	Results
AgeLine	AB ( 'multiple sclerosis' or 'ms' or 'demyelinating disease' or 'relapsing remitting' ) AND AB ( smell and taste ) OR AB olfact*	142
PubMed	(((((olfact*[Title/Abstract]) OR ("olfactory perception" [MeSH Terms])) OR ("olfaction disorders"[MeSH Terms])) OR (smell[Title/Abstract])) AND (("multiple sclerosis"[MeSH Terms]) OR (multiple sclerosis[Title/Abstract]))	149
PsycInfo	('multiple sclerosis' or 'ms' or 'demyelinating disease' or 'relapsing remitting' ) AND ( olfact* or smell )	237
CINAHL	('multiple sclerosis' or 'ms' or 'demyelinating disease' or 'relapsing remitting' ) AND ( olfact* or smell )	64
Web of Science	TI=((multiple sclerosis or ms) AND (olfact* or smell))	174
Google Scholar	(multiple sclerosis) AND (olfaction OR olfaction disorder OR smell)	1852
MEDLINE	('multiple sclerosis' or 'MS').mp. and ('olfact*' or 'smell*).ab,ti. [mp=ti, ab, tx, ct, sh, ot, nm, hw, fx, kf, ox, px, rx, an, ui, sy]	1760
Embase	('multiple sclerosis'/exp OR 'ms' OR 'chariot disease' OR 'chronic progressive multiple sclerosis' OR 'disseminated sclerosis' OR 'insular sclerosis' OR 'multiple sclerosis' OR 'multiple sclerosis, chronic progressive' OR 'multiple sclerosis, relapsing-remitting' OR 'primary progressive multiple sclerosis' OR 'relapsing remitting multiple sclerosis' OR 'relapsing-remitting multiple sclerosis' OR 'sclerosis multiplex' OR 'sclerosis, disseminated' OR 'sclerosis, insular' OR 'sclerosis, multiple' OR 'secondary progressive multiple sclerosis') AND (olfact* OR 'smelling'/exp OR 'olfaction' OR 'olfactory acuity' OR 'olfactory analyzer' OR 'olfactory function' OR 'olfactory perception' OR 'olfactory reception' OR 'smelling')	2560

CINAHL, Cumulative Index to Nursing and Allied Health Literature.

**Table S2. Study Qualities**

Author	Year	Population, No.			Study length	Olfactory test	
		RRMS	PMS	Control			
Doty <sup>9</sup>	1999	5 <sup>a</sup>			-	18-20 mo	UPSIT
Uecker <sup>11</sup>	2017	16	4	-	3 y	Sniffin' Sticks and OEP	
Ciurleo <sup>10</sup>	2018	28	-	-	3 y	OERP	
Bsteh <sup>12</sup>	2018	55	-	-	24 wk	Sniffin' Sticks	
Bsteh <sup>7</sup>	2019	128	13	30	3 y	Sniffin' Sticks	
Bsteh <sup>14</sup>	2019	80	-	30	3 y	Sniffin' Sticks	
Bsteh <sup>13</sup>	2020	55	-	-	24 wk	Sniffin' Sticks	
		128	13	30	3 y		
Bsteh <sup>8</sup>	2020	33	4	18	2 y	Sniffin' Sticks	
da Silva <sup>15</sup>	2020	116	33	-	10 y	BSIT	

BSIT, Brief Smell Identification Test; OEP, olfactory evoked potential; OERP, olfactory event-related potential; PMS, progressive multiple sclerosis; RRMS, relapsing-remitting multiple sclerosis; UPSIT, University of Pennsylvania Smell Identification Test.

<sup>a</sup>Specific diagnosis not disclosed.

**Table S3. Clinical Markers Used**

Author, y	Relapse		MRI	EDSS	MSSS and ARMSSS	Duration	INL	sNfL	Death
	O	TNR							
Doty, 1999			X						
Uecker, 2017		X		X		X			
Ciurleo, 2018		X		X		X			
Bsteh, 2018	X								
Bsteh, 2019 <sup>7</sup>	X								
Bsteh, 2019 <sup>14</sup>								X	
Bsteh, 2020 <sup>13</sup>	X	X					X		
Bsteh, 2020 <sup>8</sup>			X						
da Silva, 2020					X				X

ARMSSS, Age-Related Multiple Sclerosis Severity Score; EDSS, Expanded Disability Status Scale; INL, inner nuclear layer; MRI, magnetic resonance imaging; MSSS, Multiple Sclerosis Severity Score; O, occurrence; sNfL, serum neurofilament light chain; TNR, total number of relapses.