Supplementary Table S1. The PRISMA 2020 Statement Guideline (10).

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE	1	Identify the report as a systematic review.	1
ABSTRACT	2	See the PRISMA 2020 for Abstracts checklist.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	2
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	2
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	2
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	2
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (*e.g.,* for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	2
	10b	List and define all other variables for which data were sought (*e.g.*, participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	3
Effect measures	12	Specify for each outcome the effect measure(s) (*e.g.,* risk ratio, mean difference) used in the synthesis or presentation of results.	3
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (*e.g.*, tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	3
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	3
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	5
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	3
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (*e.g.*, subgroup analysis, meta-regression).	3
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not applicable
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not applicable

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	6
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	6
Study characteristics	17	Cite each included study and present its characteristics.	6
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	6
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (*e.g.* confidence/credible interval), ideally using structured tables or plots.	6
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	6
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (*e.g.*, confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	6
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	6
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applicable
DISCUSSION			
	23a	Provide a general interpretation of the results in the context of other evidence.	11
	23b	Discuss any limitations of the evidence included in the review.	13
	23c	Discuss any limitations of the review processes used.	13
	23d	Discuss implications of the results for practice, policy, and future research.	13
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	2
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	2
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	2
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	2+13
Competing interests	26	Declare any competing interests of review authors.	2
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Not reported

Supplementary Table S2. Search queries used for PubMed and Web of Science search. The search strategy was customised according to the database being searched.

Search tool	Search query	Filter
PubMed	((Sjogren*[Title/Abstract] OR Sicca Syndrome[Title/Abstract]) AND (Saliv*[Title/Abstract]) AND (Sialo*[Title/Abstract] OR Ions[MeSH Terms] OR Ions[Title/Abstract] OR Electrolytes[MeSH Terms] OR Electrolyte*[Title/Abstract] OR Metabolomic[Title/Abstract] OR Metabolomic[MeSH Terms] OR Metabolite[Title/Abstract] OR Arsenate[Title/Abstract] OR Arsenite[Title/Abstract] OR Borate[Title/Abstract] OR Bromate[Title/Abstract] OR Bromide[Title/Abstract] OR Carbonate[Title/Abstract] OR Chlorate[Title/Abstract] OR Chloride[Title/Abstract] OR Chromate[Title/Abstract] OR Cyanide[Title/Abstract] OR Fluoride[Title/Abstract] OR Hydroxide[Title/Abstract] OR Iodate[Title/Abstract] OR Iodide[Title/Abstract] OR Nitrate[Title/Abstract] OR Nitrite[Title/Abstract] OR Oxide[Title/Abstract] OR Phosphate[Title/Abstract] OR Phosphite[Title/Abstract] OR Sulfate[Title/Abstract] OR Sulfide[Title/Abstract] OR Sulfite[Title/Abstract] OR Vanadate[Title/Abstract] OR Anions [Title/Abstract] OR Cations [Title/Abstract] OR Sodium [Title/Abstract] OR Potassium [Title/Abstract] OR Magnesium [Title/Abstract]) NOT (Review[Publication Type]))	'Human' and 'English'
Web of Science	(TI=(Sjogren* OR Sicca Syndrome) OR AB=(Sjogren* OR Sicca Syndrome)) AND (TI=(saliv*) OR AB=(Saliv*)) AND (TI=(Sialo* OR Ions OR Electrolytes OR Metabolomic OR Metabolite OR Arsenate OR Arsenite OR Borate OR Bromate OR Bromide OR Carbonate OR Chlorate OR Chloride OR Chromate OR Cyanide OR Fluoride OR Hydroxide OR Iodate OR Iodide OR Nitrate OR Nitrite OR Oxide OR Phosphate OR Phosphite OR Sulfate OR Sulfide OR Sulfite OR Vanadate OR Anions OR Cations OR Sodium OR Potassium OR Magnesium) OR AB=(Sialo* OR Ions OR Electrolytes OR Metabolomic OR Metabolite OR Arsenate OR Arsenite OR Borate OR Bromate OR Bromide OR Carbonate OR Chlorate OR Chloride OR Chromate OR Cyanide OR Fluoride OR Hydroxide OR Iodate OR Iodide OR Nitrate OR Nitrite OR Oxide OR Phosphate OR Phosphite OR Sulfate OR Sulfide OR Sulfite OR Vanadate OR Anions OR Cations OR Sodium OR Potassium OR Magnesium))	'Article'

The asterisk (*) was used as a truncation symbol.

Supplementary Table S3. The extensive reasoning for the exclusion of the excluded articles.

Studies	Title	Reason(s) for exclusion
Bakyalakshmi *et al*., 2017	Sialometry and sialochemistry: A diagnostic tool in Sjögren's syndrome	The diagnostic/classification procedure was not clearly defined. Specifically lacking which classification criteria were adhered to.
Benedek-Spät, 1978	Sialochemical Examinations in Non-Tumorous Parotid Enlargements	SjD diagnosis not confirmed. Diagnosis of SjD has been established on the characteristic clinical signs and laboratory data and, in about one-third of the cases, on histological examination. But which clinical signs and what laboratory data was not reported. Also, for the majority of included patients SjD diagnosis was not confirmed with histological examination.
Busamia *et al*., 2010	Assessing the determination of salivary electrolytes and anti-Ro and anti-La antibodies for the diagnosis of Sjögren's Syndrome (SS)	The results for specific ions (sodium, chloride) were too high to have been measured in human saliva. For example, the sodium concentration for primary SjD patients was 7.07 mEq/ml, which equals to 7070 mEq/l. And for the chloride concentration with for example in primary SjD patients the concentration was 37.1 mEq/ml, which equals to 3710 mEq/l. Contact with the authors was attempted, but unfortunately unsuccessful.
Ferguson, 1999	The flow rate and composition of human labial gland saliva	This paper reviews the data currently available on the flow rate and composition of labial gland saliva.
Fidelix *et al*., 2017	Low-level laser therapy for xerostomia in primary Sjögren's syndrome: a randomized trial	No healthy controls and/or other dry-mouth patients groups were included as a comparison.
Fox *et al*., 1987	Oral and sialochemical findings in patients with autoimmune rheumatic disease	No full text was available. The authors were contacted multiple times to obtain the full text, however, these attempts were unsuccessful.
Jonsson *et al*., 1982	Histologic and sialochemical findings indicating sicca syndrome in patients with systemic lupus erythematosus	SjD diagnosis was part of the experimental design and therefore not confirmed, thus making it difficult to determine if the patient were actually Sjögren's disease patients.
Kalk *et al*., 2002	Sialometry and sialochemistry: a non-invasive approach for diagnosing Sjögren's syndrome	The ion concentrations of the test group were not presented and could unfortunately not be obtained through the authors.
Kamisawa *et al*., 2003	Salivary Gland Involvement in Chronic Pancreatitis of Various Etiologies	It is reported that SjD patient were included, however the criteria to diagnose/classify these patients are not mentioned.
Konttinen *et al*., 1997	Role of nitric oxide in Sjögren's syndrome	An attempt to derive the flow rate based on the reported nitrite concentration and output for the Sjögren's disease patient group and the healthy controls, resulted in a higher flow rate for the SjD patients, which should not be possible. The results could unfortunately not be confirmed by contacting the authors.
Schiodt *et al*., 1992	Sialochemistry in human immunodeficiency virus associated salivary gland disease	The same SjD patients used as in the article of Atkinson *et al*. 1990, and no sicca patients used in this article to make a comparison.
Peric *et al*., 2015	Efficacy of pastes containing CPP-ACP and CPP-ACFP in patients with Sjögren's syndrome	No healthy controls and/or other dry-mouth patients groups were included as a comparison.
Pijpe *et al*., 2009	Clinical and Histologic Evidence of Salivary Gland Restoration Supports the Efficacy of Rituximab Treatment in Sjögren's Syndrome	No healthy controls and/or other dry-mouth patients groups were included as a comparison.
Sreebny and Zhu, 1996	Whole saliva and the diagnosis of Sjogren's syndrome: an evaluation of patients who complain of dry mouth and dry eyes. Part 1: Screening tests	Sicca patients were included, however no diagnosis of SjD was made prior to the experiment. Due to, the diagnostic procedure being part of the experimental design.
Tsianos *et al*., 1985	Sialochemistry of patients with autoimmune rheumatic disease with and without histological manifestations of Siögren's syndrome	SjD diagnosis was not confirmed. Only minor salivary gland biopsies were performed among included patients.
Walters *et al*., 1986	A double-blind, cross-over, study of oral N-acetylcysteine in Sjögren's syndrome	No full text was available and unfortunately the contact details of the authors could not be obtained.
Wei *et al*., 2013	Diagnostic model of saliva peptide finger print analysis of primary Sjögren's syndrome patients by using weak cation exchange magnetic beads	No ions were measured.

Supplementary Table S4. Risk of Bias assessment based on the NIH Quality Assessment Tool for Observational Cohort and Cross Sectional studies (17).

Studies	1. Was the research question or objective in this paper clearly stated?	2. Was the study population clearly specified and defined?	3. Was the participation rate of eligible persons at least 50%?	4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	5. Was a sample size justification, power description, or variance and effect estimates provided?	6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?	7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?	9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	10. Was the exposure(s) assessed more than once over time?	11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	12. Were the outcome assessors blinded to the exposure status of participants?	13. Was loss to follow-up after baseline 20% or less?	14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	Total
Almståhl & Wikström, 2003	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair
Ancuta *et al*., 2017	yes	no	NR	NR	NR	yes	yes	no	yes	NA	no	NR	NA	no	Poor
Asashima *et al*., 2013	yes	no	NR	NR	NR	yes	yes	yes	yes	NA	no	CD	NA	no	Fair
Atkinson *et al*., 1990	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair
Ben-Aryeh *et al*., 1981	yes	no	NR	NR	NR	yes	yes	yes	yes	NA	no	NR	NA	no	Fair
Benchabane *et al*., 2016	no	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	yes	Fair
Benedek-Spat *et al*., 1975	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair
Kalk *et al*., 2001	yes	no	NR	no	NR	yes	yes	yes	yes	NA	yes	NR	NA	no	Fair
Kalk *et al*., 2002	yes	yes	NR	yes	NR	yes	yes	yes	yes	NA	yes	yes	NA	no	Good
Mandel & Baurmash, 1976	no	no	NR	NR	NR	yes	yes	no	yes	NA	no	NR	NA	yes	Poor
Miller *et al*., 2012	yes	no	NR	NR	NR	yes	yes	no	yes	NA	no	NR	NA	no	Poor
Nahir *et al*., 1987	yes	no	NR	NR	NR	yes	yes	no	yes	NA	no	NR	NA	no	Poor
Pedersen *et al*., 1999	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	yes	Fair
Pedersen *et al*., 2005	yes	no	NR	yes	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair
Pijpe *et al*., 2007	yes	no	NR	no	NR	yes	yes	yes	yes	NA	yes	NR	yes	yes	Fair
Pringle *et al*., 2021	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	CD	NA	no	Fair
Stuchell *et al*., 1984	yes	no	NR	yes	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair
Van den Berg *et al*., 2007	yes	no	yes	no	NR	yes	yes	yes	yes	NA	yes	yes	NA	no	Fair
Van der Reijden *et al*., 1996	no	no	NR	NR	NR	yes	yes	yes	yes	NA	no	NR	NA	no	Poor
Vissink *et al*., 1993	yes	no	NR	NR	NR	yes	yes	no	yes	NA	no	NR	NA	no	Poor
Xia *et al*., 2003	yes	no	NR	NR	NR	yes	yes	no	yes	NA	yes	NR	NA	no	Fair

NA: not applicable
NR: not reported
CD: cannot be determined

Supplementary Table S5. Sodium concentrations (mean ± standard deviation (SD)) in stimulated whole saliva (SWS) and submandibular/sublingual (SM/SL) saliva, of the healthy controls and Sjögren's disease (SjD) patients not included in the meta-analyses and the significant differences between them.

Authors, year	Control (mM)	SjD (mM)
	SWS	
Nahir *et al*., 1987 (35)	10.1±4.9	15.9±13.5*
	SM/SL	
Vissink *et al*., 1993 (44)	11±6	27±14.39*

*Significant difference with the healthy control group as reported by the article.

Supplementary Table S6. Sodium concentrations (mean ± standard deviation (SD)) in unstimulated (UWS) and stimulated (SWS) whole saliva, submandibular/sublingual (SM/SL) and parotid saliva, of each the sicca and Sjögren's disease (SjD) patient groups and the significant differences between them.

Authors, year	Sicca (mM)	SjD (mM)	Primary SjD (mM)	Secondary SjD (mM)
		UWS		
Asashima *et al*., 2013 (25)	CTD: 19.8±16.8***	-	39.2±25.2	36.4±26.1
Ben-Aryeh *et al*., 1981 (27)	XUC: 6.12±2.5***	-	18.52±10.7	20.2±15.5
Nahir *et al*., 1987 (35)	RA:5.8±3.5*	25.3±21.2	-	-
		SWS		
Almståhl & Wikström, 2003 (23)	RT: 22.20±5.64 Neuro: 18.67±3.50 XUC: 22.33±9.86	-	32±17	-
Nahir *et al*., 1987 (35)	RA: 13.8±8.95	15.9±13.5	-	-
		SM/SL		
Kalk *et al*., 2001 (31)	XUC: 6±6***	-	20±15	16±11
Pringle *et al*., 2021 (39)	Meta: 2.73±1.58* Meds: 4.70±5.15* XUC: 3.72±3.41*	-	8.16±10.9	-
		Parotid		
Kalk *et al*., 2001 (31)	XUC: 4±4***	-	26±23	23±22
Kalk *et al*., 2002 (32)	XUC: 3±3***	-	19±18	18±22
Pringle *et al*., 2021 (39)	Meta: 1.14±0.64* Meds: 2.01±1.76* Other: 1.46±0.96*	-	3.57±4.35	-
Van den Berg *et al*., 2007 (41)	Sialosis: 2.7±3.2* SRS: 2.1±2.4* Meds: 5.0±5.8* No gland pathology: 5.2±5.2*	23±21	-	-

CTD: patients with a connective tissue disease; RA: patients with definite or classical rheumatoid arthritis; RT: radiotherapy in the head and neck region; Neuro: patients receiving neuroleptic medication; XUC: xerostomia of unknown cause; Meta: patients with a metabolic disease/disorder; Meds: medication induced xerostomia; S: patients diagnosed as having sialosis on the basis of clinical and sialographical findings; SRS: sodium retention syndrome.
*significantly different from (p)SjD patients. ***significantly different from both pSjD and sSjD patients.

Supplementary Table S7. Chloride concentrations (mean ± standard deviation (SD)) in unstimulated whole saliva (UWS) and submandibular/sublingual (SM/SL) saliva, of the healthy controls and Sjögren's disease (SjD) patients not included in the meta-analyses and the significant differences between them.

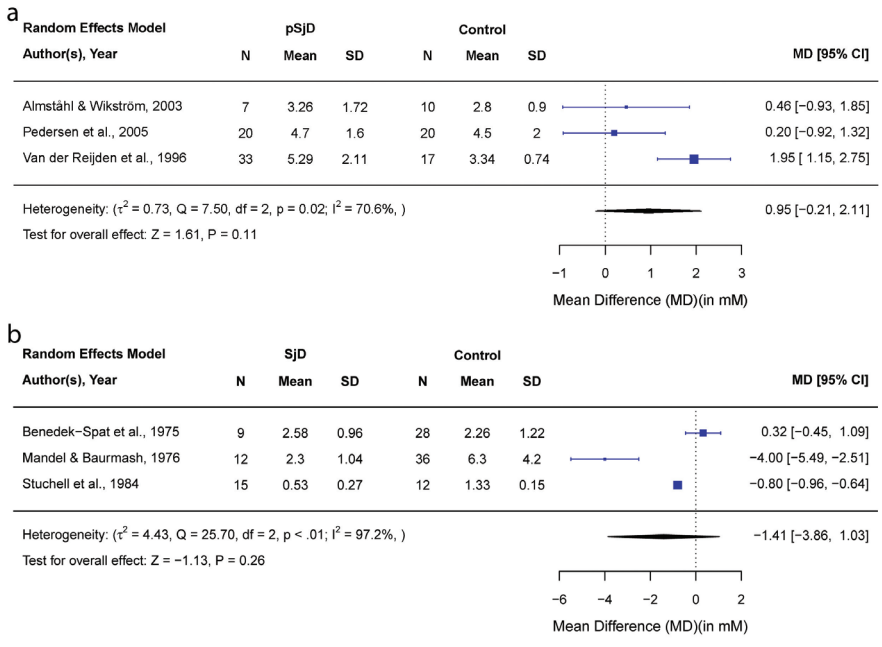
Authors, year	Control (mM)	SjD (mM)	Secondary SjD (mM)
		UWS	
Miller *et al*., 2012 (34)	26.1±8.2	40.2±20.1*	-
Asashima *et al*., 2013 (25)	27±7	-	36.4±26.1*
		SM/SL	
Vissink *et al*., 1993 (44)	16±6	29±4.8*	-

*Significant difference with the healthy control group as reported by the article.

Supplementary Table S8. Chloride concentrations (mean ± standard deviation (SD)) in unstimulated whole saliva (UWS), submandibular/sublingual (SM/SL) and parotid saliva, of the sicca and Sjögren's disease (SjD) patient groups and the significant differences between them.

Authors, year	Sicca (mM)	SjD (mM)	Primary SjD (mM)	Secondary SjD (mM)
		UWS		
Asashima *et al*., 2013 (25)	CTD: 32.1±16.6***	-	51.1±25.0	47.8±24.3
		SM/SL		
Kalk *et al*., 2001 (31)	XUC: 16±5**	-	27±15	34±35
Pringle *et al*., 2021 (39)	Meta: 16.67±4.61 Meds: 13.29±4.65 XUC: 14.56±5.38	-	16.04±4.93	-
		Parotid		
Kalk *et al*., 2001 (31)	XUC: 18±6**	-	30±14	37±28
Kalk *et al*., 2002 (32)	XUC: 19±8**	-	26±15	33±27
Pringle *et al*., 2021 (39)	Meta: 24.20±5.44 Meds: 14.71±4.28 XUC: 15.56±3.68	-	19.1±5.51	-
Van den Berg *et al*., 2007 (41)	S: 23±7.3* SRS: 17±5.4* Meds: 19±6.4* XUC: 19±5.5*	31±22	-	-

CTD: patients with a connective tissue disease; XUC: xerostomia of unknown cause; Meta: patients with a metabolic disease/disorder; Meds: medication induced xerostomia; S: patients diagnosed as having sialosis on the basis of clinical and sialographical findings; SRS: sodium retention syndrome.
*significantly different from SjD patients.
**significantly different from sSjD patients.



Supplementary Fig. S1. Forest Plot depicting the results of the meta-analyses for phosphate concentration depicting the results in mean difference for **a**) stimulated whole saliva between primary Sjögren's disease patients and healthy controls and **b**) parotid saliva between Sjögren's disease patients and healthy controls.
N: number of participants included; SD: standard deviation; 95% CI: 95% confidence interval.

Supplementary Table S9. Phosphate concentrations (mean ± standard deviation (SD)) in unstimulated (UWS) and stimulated (SWS) whole saliva, and parotid saliva, of the healthy controls and Sjögren's disease patients not included in the meta-analyses and the significant differences between them.

Authors, year	Controls (mM)	SjD (mM)	Primary SjD (mM)	Secondary SjD (mM)
		UWS		
Miller *et al*., 2012 (34)	1.93±0.58	2.21±0.94	-	-
Pedersen *et al*., 2005 (37)	6.2±2.3	-	7.2±4.3	-
		SWS		
Van der Reijden *et al*., 1996 (42)	3.34±0.74	-	-	5.85±1.69*
		Parotid		
Pedersen *et al*., 2005 (37)	6.5±3.2	-	5.2±2.2	-

*Significant difference with the healthy control group as reported by the article.

Supplementary Table S10. Phosphate concentrations (mean and SD) in stimulated (SWS) whole saliva, submandibular/sublingual (SM/SL) and parotid saliva, of sicca and Sjögren's disease (SjD) patient groups and the significant differences between them.

Authors, year	Sicca (mM)	Primary SjD (mM)	Secondary SjD (mM)
	SWS		
Almståhl & Wikström, 2003 (23)	RT: 2.58±1.30 Neuro: 5.28±2.05* XUC: 3.41±0.75	3.26±1.72	-
	SM/SL		
Kalk *et al*., 2001 (31)	XUC: 3.9±1.7***	2.3±1.2	2.5±1.2
Pringle *et al*., 2021 (39)	Meta: 6.21±0.74* Meds: 3.59±0.43* XUC: 5.71±0.57*	4.08±1.72	-
	Parotid		
Kalk *et al*., 2001 (31)	XUC: 5.8±2.9	4.5±2.4	4.2±1.6
Kalk *et al*., 2002 (32)	XUC: 6.5±2.4***	4.9±1.8	4.1±1.9
Pringle *et al*., 2021 (39)	Meta: 13.31±5.65 Meds: 6.93±1.43 XUC: 8.33±3.56	8.00±4.14	-

RT: radiotherapy in the head and neck region; Neuro: patients receiving neuroleptic medication; XUC: xerostomia of unknown cause; Meta: patients with a metabolic disease/disorder; Meds: medication induced xerostomia;
*significantly different with pSjD patients.
***significantly different with both pSjD and sSjD patients.

Supplementary Table S11. Calcium concentrations (mean ± standard deviation (SD)) in unstimulated (UWS) and stimulated (SWS) whole saliva, submandibular/sublingual (SM/SL) and parotid saliva, for the healthy controls and Sjögrens disease (SjD) patient groups not included in the meta-analyses and the significant differences between them.

Authors, year	Control (mM)	SjD (mM)	Secondary SjD (mM)	Primary SjD (mM)
		UWS		
Miller *et al*., 2012 (34)	1.12±0.38	1.7±0.81*	-	-
Pedersen *et al*., 2005 (37)	1.6±0.6	-	-	2±0.7
		SWS		
Van der Reijden *et al*., 1996 (42)	0.3±0.21	-	1.47±0.52*	-
		SM/SL		
Vissink *et al*., 1993 (44)	1.73±0.36	1.87±0.72	-	-
Kalk *et al*., 2001 (31)	1.73±0.36	-	1.9±0.5	1.9±0.9
		Parotid		
Kalk *et al*., 2001 (31)	0.8±0.6	-	1.0±0.2	-

*Significant difference with the healthy control group as reported by the article.

Supplementary Table S12. Calcium concentrations (mean ± standard deviation (SD)) in stimulated whole saliva (SWS), submandibular/sublingual (SM/SL) and parotid saliva, of the sicca and Sjögren's disease (SjD) patient groups and the significant differences between them.

Authors, year	Sicca (mM)	Primary SjD (mM)	Secondary SjD (mM)
	SWS		
Almståhl & Wikström, 2003 (23)	RT: 1.87±2.47* Neuro: 0.82±0.29 XUC: 0.47±0.07	0.73±0.31	-
	SM/SL		
Kalk *et al*., 2001 (31)	Non-SS: 2.2±1.6	1.9±0.9	1.9±0.5
	Parotid		
Kalk *et al*., 2001 (31)	Non-SS: 1.3±0.8	1.3±1.0	1.0±0.2

RT: Radiotherapy in the head and neck region; Neuro: Patients receiving neuroleptic medication; XUC: xerostomia of unknown cause.
*significantly different with pSjD patients.

Supplementary Table S13. Potassium concentrations (mean ± standard deviation (SD)) in stimulated whole saliva (SWS), for the healthy controls and Sjögren's disease (SjD) groups not included in the meta-analyses and the significant differences between them.

Authors, year	Control (mM)	SjD (mM)
	SWS	
Nahir *et al*., 1987 (35)	18.5±3.8	25.7±6.9*

*Significant difference with the healthy control group as reported by the article.

Supplementary Table S14. Potassium concentrations (mean ± standard deviation (SD)) in unstimulated (UWS) and stimulated (SWS) whole saliva, submandibular/sublingual (SM/SL) and parotid saliva, of the sicca and Sjögren's disease (SjD) patient groups and the significant differences between them.

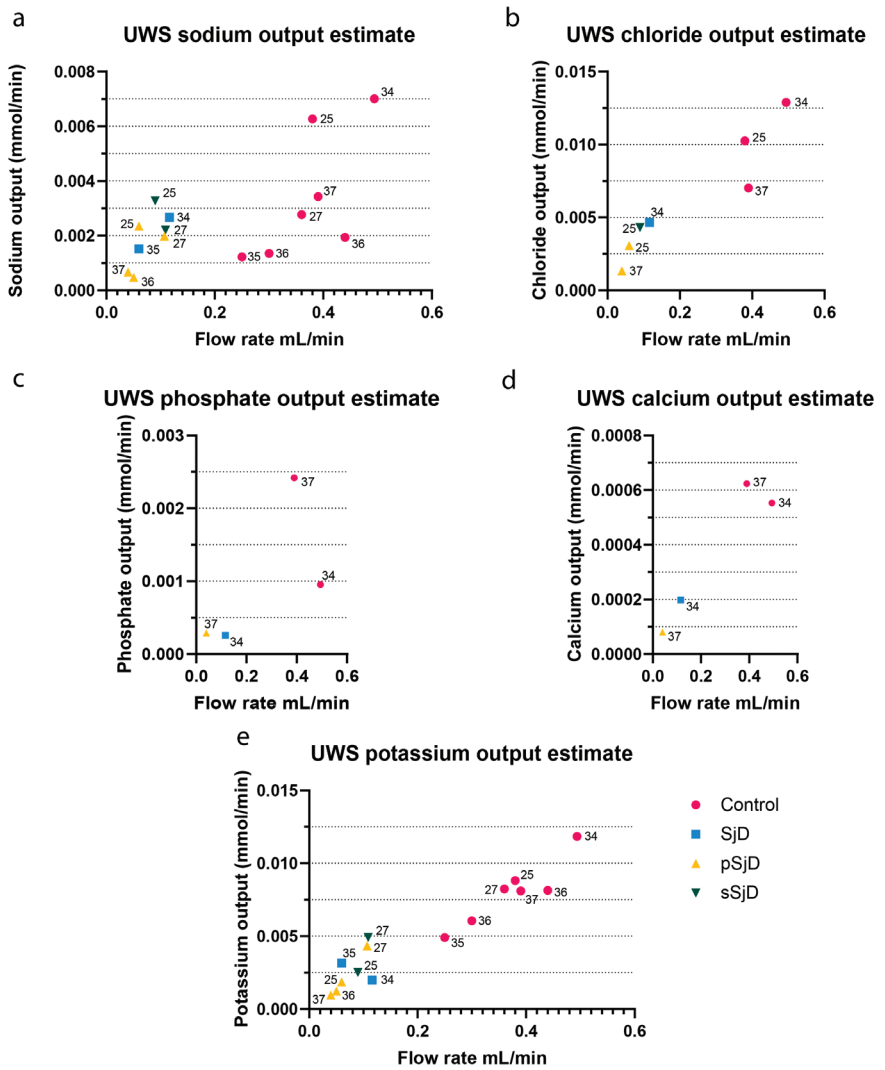
Authors, year	Sicca (mM)	SjD (mM)	Primary SjD (mM)	Secondary SjD (mM)
	UWS			
Asashima *et al*., 2013 (25)	CTD: 26.8±9.2	-	31.0±11.2	28.0±9.0
Ben-Aryeh *et al*., 1981 (27)	XUC: 28.8±10***	-	40.6±15.9	45.14±20
Nahir *et al*., 1987 (35)	RA: 23.1±4.3*	52.7±48	-	-
	SWS			
Almståhl & Wikström, 2003 (23)	RT: 30.60±8.91* Neuro: 24.00±4.72 XUC: 20.44±1.95	-	19.00±9.41	-
Nahir *et al*., 1987 (35)	RA:19.9±3.6*	25.7±6.9	-	-
	SM/SL			
Kalk *et al*., 2001 (31)	XUC: 20±6	-	21±21	18±7
Pringle *et al*., 2021 (39)	Meta: 23.11±7.62 Meds: 15.43±3.07 XUC: 19.18±6.65	-	21.54±16.15	-
	Parotid			
Kalk *et al*., 2001 (31)	XUC:30±21	-	23±6.0	23±9.0
Pringle *et al*., 2021 (39)	Meta: 37.74±7.26* Meds: 22.46±4.43 XUC: 30.71±14.73	-	29.19±11.57	-
Van den Berg *et al*., 2007 (41)	Sialosis: 37±13* SRS: 32±43 Meds: 26±4.2 XUC: 27±6.5	23±7.3	-	-

CTD: patients with a connective tissue disease; RA: patients with definite or classical rheumatoid arthritis; RT: radiotherapy in the head and neck region; Neuro: patients receiving neuroleptic medication; XUC: xerostomia of unknown cause; Meta: patients with a metabolic disease/disorder; Meds: medication induced xerostomia; S: patients diagnosed as having sialosis on the basis of clinical and sialographical findings; SRS: sodium retention syndrome.
*significantly different from (p)SjD patients.
***significantly different from both pSjD and sSjD patients.

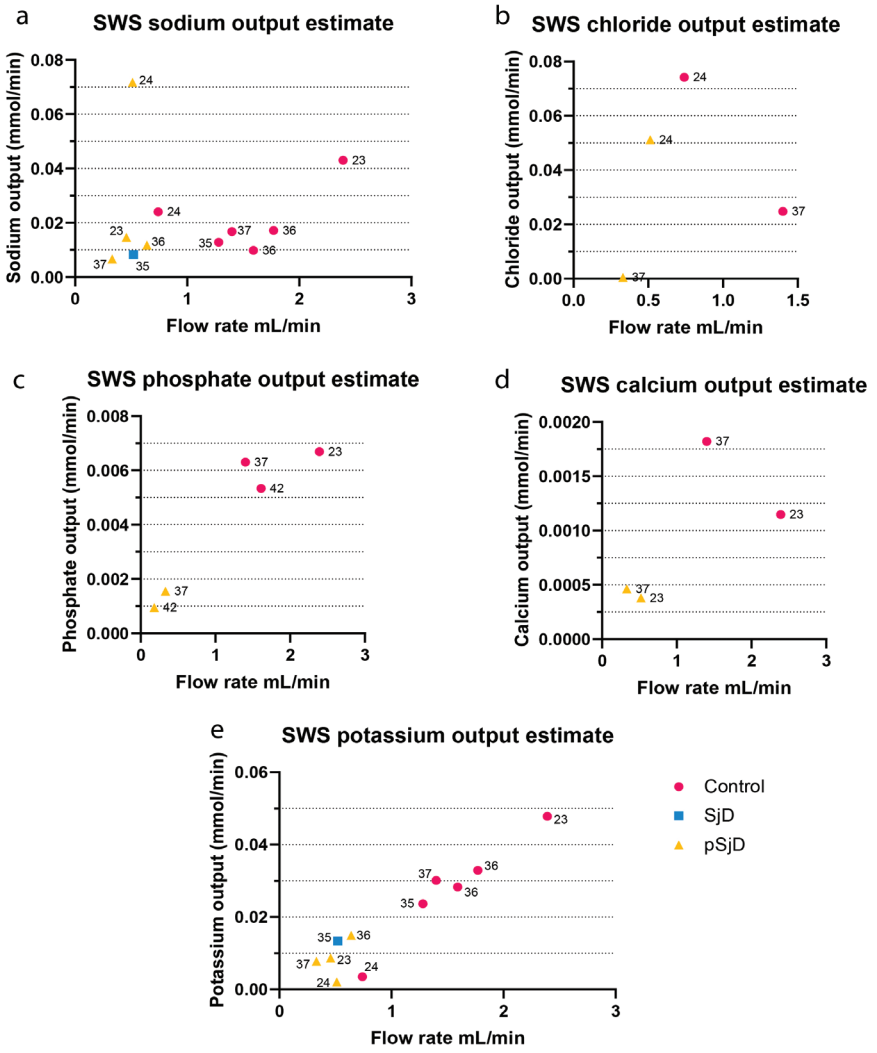
Supplementary Table S15. Nitrite and nitrate concentrations (mean ± standard deviation (SD)) in stimulated (SWS) whole saliva and parotid saliva, of sialosis and Sjögren's disease (SjD) patients and the significant differences between them, as described by Xia *et al*. (45).

Saliva type	Sialosis	SjD
	Nitrite (µM)	
SWS	867.30±432.56	147.81±71.73*
	Nitrate (mM)	
SWS	1.73±0.61	0.39±0.24*
Parotid	2.81±1.08	0.85±0.55*

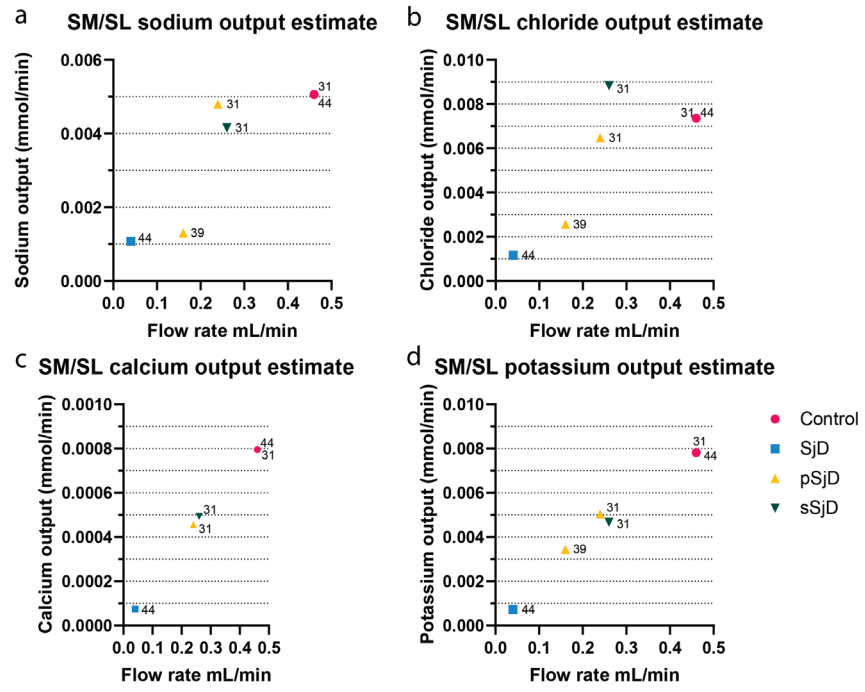
*Significant difference with the healthy control group as reported by the article.



Supplementary Fig. S2. Scatter plot depicting the **a**) sodium, **b**) chloride, **c**) phosphate, **d**) calcium and **e**) potassium output estimates against the flow rate per study for unstimulated whole saliva (UWS). Each data point corresponds to a specific patient group from one article, marked by reference number.



Supplementary Fig. S3. Scatter plot depicting the **a**) sodium, **b**) chloride, **c**) phosphate, **d**) calcium and **e**) potassium output estimates against the flow rate per study for stimulated whole saliva (SWS). Each data point corresponds to a specific patient group from one article, marked by reference number.



Supplementary Fig. S4. Scatter plot depicting the **a**) sodium, **b**) chloride, **c**) calcium and **d**) potassium output estimates against the flow rate per study for submandibular/sublingual saliva (SM/SL). Each data point corresponds to a specific patient group from one article, marked by reference number.