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Potassium containing toothpastes for dentine hypersensitivity (Review)

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[Intervention Review]

Potassium containing toothpastes for dentine hypersensitivity

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ABSTRACT

Background

Dentine hypersensitivity may be defined as the pain arising from exposed dentine, typically in response to external stimuli, and which cannot be explained by any other form of dental disease. Many treatment regimens have been recommended over the years, and in recent years particular attention has been focused on toothpastes containing various potassium salts.

Objectives

To compare the effectiveness of potassium containing toothpastes with control toothpastes in reducing dentine hypersensitivity.

Search methods

The following databases were searched: Cochrane Oral Health Group Trials Register (searched until August 2005); CENTRAL (until August 2005); EMBASE/MEDLINE, PubMed, Web of Science (until September 2005). Bibliographies of clinical studies and reviews identified in the electronic search were checked for studies published outside the electronically searched journals.

Selection criteria

Randomised controlled trials (RCTs) in which the effect on dentine hypersensitivity of potassium containing toothpastes was tested against non-potassium containing control toothpastes.

Data collection and analysis

Two of the review authors independently recorded the results of the included trials using a specially designed form. Sensitivity was assessed by using thermal, tactile, air blast, and subjective methods.

Main results

Six studies were included in the meta-analysis which showed the statistically significant effect of potassium nitrate toothpaste on air blast and tactile sensitivity at the 6 to 8 weeks follow up, e.g. the meta-analysis of air blast sensitivity showed a standardized mean difference in sensitivity score of -1.25 (95% CI: -1.65 to -0.851) in favour of treatment. The subjective assessment failed to show a significant effect at the 6 to 8 week assessment.

Authors' conclusions

The evidence generated by this review is based on a small number of individuals. Furthermore, the effect varies with the methods applied for assessing the sensitivity.

Thus no clear evidence is available for the support of potassium containing toothpastes for dentine hypersensitivity.

PLAIN LANGUAGE SUMMARY

Potassium containing toothpastes for dentine hypersensitivity

Dentine hypersensitivity is a sharp, sudden pain arising from the teeth when exposed to touch or hot and cold foods. If dental disease is not the cause of the pain, toothpastes containing potassium have been recommended to reduce tooth sensitivity. This review of trials found there was not enough evidence to show that potassium is effective in desensitising teeth. More research is needed.

BACKGROUND

Dentine hypersensitivity may be defined as the pain arising from exposed dentine, typically in response to external stimuli, and which cannot be explained by any other form of dental disease. The pain most often occurs after exposure of root dentine by removal of cementum and overlying periodontal tissues (Bissada 1994).

The main symptom of dentine hypersensitivity is a sharp sudden pain of short duration in response to thermal stimuli such as intake of cold or hot foods, but may also arise from tactile stimuli e.g. the use of a toothbrush. The proportion of the population experiencing this condition is in the region of 15% (Graf 1977; Flynn 1985).

Dentine hypersensitivity continues to be a problem, although many treatment regimens have been recommended over the years. In recent years particular attention has been focused on potassium containing toothpastes (Schiff 1998). In the same period the consumption of this type of toothpaste has increased significantly in most European countries.

The exact mechanisms by which potassium containing toothpastes desensitises dentine is yet to be elucidated, but the toothpaste companies marketing these products typically claim that the desensitising effect is due to the potassium ion. This statement is based on results from animal studies indicating that by increasing the extracellular potassium ion concentration in very deep dentine cavities it is possible to depolarise nerve fibre membranes and render them unable to repolarise because of the maintained high levels of extracellular potassium ions (Kim 1986). However, the experimental model used in these studies cannot be compared with the situation, where a patient uses a toothpaste twice a day. Daily use of the toothpaste will result in only a slight increase in concentration of potassium ions in saliva and only for a short period of time. Furthermore, during toothbrushing the distance between the desensitising agent and the dental nerves will be large compared to the animal model, where the therapeutic agent is placed in a deep dentine cavity close to the pulp tissue. Clinical trials to investigate active agents in toothpastes for the relief of dentine hypersensitivity are hampered by a number of factors and not least by the very subjective nature of pain assessment (Kaufman 1994; Orchardson 1994; Holland 1997). A great number of clinical trials concerning potassium containing toothpastes have been published since 1974. The literature indicates conflicting results, although most reports state a very positive effect. The aim of this study is to conduct a systematic, up-to-date review of the previous randomised controlled trials (RCTs) on this subject.

OBJECTIVES

To assess the effectiveness of potassium containing toothpastes in reducing dentine hypersensitivity.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised controlled trials (RCTs) in which potassium containing toothpastes were compared to non-potassium containing toothpastes.

Types of participants

Healthy human adults (18 years or more) with dentine hypersensitivity from exposed root surfaces.

Types of interventions

Daily home use of potassium containing toothpaste versus control toothpaste. In each study the toothpastes compared will either both contain fluoride or not. The control toothpaste will be exactly the same as the test toothpaste apart from the addition of a potassium salt, and this will be called the 'control' toothpaste throughout the review.

Types of outcome measures

Changes in (1) pain symptoms in response to test procedures including tactile, thermal and airblast stimuli or (2) patients' subjective assessment of pain during every-day life.
Only studies which reported data that allowed them to be included in the meta-analysis (i.e. mean and standard deviation), are included in the review.

Search methods for identification of studies

The following databases were searched: Cochrane Oral Health Group Trials Register (searched until August 2005); CENTRAL (until August 2005); EMBASE/MEDLINE, PubMed, Web of Science (until September 2005). Bibliographies of clinical studies and reviews identified in the electronic search were checked for studies published outside the electronically searched journals.

The searches attempted to identify all relevant studies irrespective of language. Non-English articles would be translated. The CENTRAL search strategy (*see* Appendix 1) was modified for use in the other databases (*see* Appendix 2; Appendix 3; Appendix 4). No handsearching was performed.

From the titles in the electronic search all relevant clinical studies and review articles were identified by review author Sven Poulsen (SP).

Bibliographies of clinical studies and reviews identified in the electronic search were checked for additional studies published outside the electronically searched journals.

All selected articles were screened to identify randomised controlled trials (RCTs), which fulfilled the inclusion criteria (SP).

Named first authors of all included RCTs were contacted (SP) in order to clarify questions relating to the published trials and obtain information on possible unpublished trials or missing data.

Manufacturers were contacted about unpublished studies by the staff at the Cochrane Oral Health Group in Manchester.

Data collection and analysis

Two review authors, Marie Errboe (MAE) and Sven Poulsen (SP) independently selected the papers to be read from the abstracts. Each review author independently selected reports of trials eligible for inclusion in the review. All information and data recording was done independently and any disagreements resolved by discussion.

The quality of all eligible trials was assessed on the basis of the randomisation procedure, allocation concealment, blinding and description of withdrawals.

MAE, Y Lescay Mevil (YLM) and SP independently completed the data extraction on a specially designed form.

The authors of trials were contacted in an attempt to clarify points relating to design and to obtain the mean or standard deviation or both if these parameters were not presented in the article.

As the length of the trials varied, it was decided to use sensitivity measurements after 6 and 8 weeks.

Sensitivity was assessed using the following types of measurements: tactile (pressure with a standardised probe), thermal (heat/cold) stimulation or air blast. Furthermore, patients' subjective assessment of sensitivity was also recorded.

Heterogeneity

The significance of discrepancies in the estimates of the treatment effects from the different trials will be assessed by means of Cochran's test for heterogeneity.

Choice of summary statistic and estimate of overall effect

For each measurement of sensitivity, the mean scores at 6 to 8 weeks were used, although in most of the studies the data were ordinal.

There were insufficient studies with the same outcome to examine publication bias.

RESULTS

Description of studies

See also: Characteristics of included studies table.

Six studies fulfilled the criteria for being included in the review (Nagata 1994; Schiff 1994; Silverman 1996; Schiff 1998; Schiff 2000 (2); Sowinski 2000).

In all six studies the experimental toothpaste contained 5% potassium nitrate whereas the control pastes were without potassium nitrate. Two studies contained sodium monofluoride phosphate in both experimental and control toothpaste in identical concentrations (Schiff 1994; Schiff 1998), two studies contained sodium fluoride in both experimental and control toothpastes in identical concentrations (Schiff 2000 (2); Sowinski 2000), while two studies contained no fluoride (Nagata 1994; Silverman 1996).

All six studies had a parallel group design; four ran for 8 weeks and two for 12. All patients had one or more teeth with dentine hypersensitivity in exposed root surfaces. Teeth with suspected pulpitis, cracked enamel, caries or defective restorations were excluded.
The patients in all six trials were instructed to brush twice a day. None of the studies monitored compliance.

Dentinal hypersensitivity was measured using tactile, thermal and airblast tests. Furthermore, in some studies a subjective assessment was also used. In one of the studies (Nagata 1994) tactile sensitivity (method a) was scored using an ordinal scale (increasing sensitivity giving an increasing score) and could thus not be included in a meta-analysis with the five other studies (Schiff 1994; Silverman 1996; Schiff 1998; Schiff 2000 (2); Sowinski 2000), where tactile sensitivity was assessed as a continuous variable by pressure with a standardized probe (increasing sensitivity giving a decreasing score) (method b). All assessments, except the tactile assessment in these five trials were scored on an ordinal scale (frequently from 0 to 3). None of the studies reported the mean change scores from baseline, all simply reporting the mean scores at the 6 to 8 week assessment.

Risk of bias in included studies

The quality assessment of the studies was done based on randomisation, blinding and descriptions of withdrawals and drop outs (Jadad 1998). All six included studies were described as randomised and double blind but the description of the randomisation procedure and the measures taken to secure double blinding were unclear in all of them, resulting in unclear allocation concealment. Only one of the studies had a description of the withdrawals (Nagata 1994) (Additional Table 1).

Effects of interventions

All six studies measured dentine hypersensitivity by both tactile (methods a or b) and air blast assessments. Three of the studies also included subjective assessments (Nagata 1994; Schiff 1994; Silverman 1996) and one also included thermal assessments (Schiff 1994). In total these six studies were based on 390 participants.

Tactile assessment (method a) (not included in the meta-analysis)

The mean difference at 6 to 8 weeks for the one study (Nagata 1994) where tactile sensitivity was measured by method a (ordinal scale), was -0.65 (95% confidence interval (CI): -1.07 to -0.23), indicating that the test toothpaste significantly reduced sensitivity. There was evidence of possible baseline imbalance between the groups, with the test toothpaste group having a higher initial mean value, however this would tend to reduce any difference between the groups.

Tactile assessment (method b) (Comparison 1, Outcome 1.1)

There was no evidence of baseline imbalance for any of the five studies that were included in the meta-analysis for tactile sensitivity measured by method b (continuous variable). The standardised mean difference at 6 to 8 weeks was 1.19 (95% CI: 0.79 to 1.59, Chi^2 for heterogeneity = 11.6 (df = 4), P = 0.02) indicating that the test toothpaste reduced sensitivity.

Air blast assessment (Comparison 1, Outcome 1.2)

There was no evidence of baseline imbalance for any of the six studies which were included in the meta-analysis for air blast. The standardised mean difference at 6 to 8 weeks was -1.25 (95% CI: -1.65 to -0.85, Chi^2 for heterogeneity = 15.66 (df = 5), P = 0.008), indicating a reduction in sensitivity in the test toothpaste group.

Thermal assessment (not included in the meta-analysis)

Only one study (Schiff 1994) measured thermal stimulation for dentinal hypersensitivity and this study had good baseline balance between study groups. The 6 to 8 week mean difference was -1.10 (95% CI: -1.64 to -0.55), indicating a significant difference between the groups favouring the test toothpaste.

Subjective assessment (Comparison 1, Outcome 1.3)

Three studies included a subjective measurement for dentine hypersensitivity. For two of these studies (Schiff 1994; Silverman 1996) the baseline measurements were balanced between study groups but this information was not available for the third (Nagata 1994). The meta-analysis for the three studies led to a standardised mean difference of -0.67 (95% CI: -1.44 to 0.10, Chi^2 for heterogeneity = 12.8 (df = 2), P = 0.002), failing to detect a significant difference between the mean subjective assessments.

DISCUSSION

Trials on dentine hypersensitivity are hampered by the problems of measuring a subjective phenomenon such as pain. This is reflected in the fact, that a variety of methods have been employed in existing trials. The degree of standardisation attempted in the different studies varies and it is not known whether some of the methods are more valid than others.

The present review only includes studies that provide sufficient data for meta-analyses. Whether this might have biased the results is difficult to estimate.

In spite of the fact that the studies measured sensitivity on an ordinal scale, all data were analysed using parametric methods, as no methods of meta-analysis of ordinal data are available.

The meta-analysis showed significant differences in mean sensitivity scores assessed by tactile methods, air blast and thermal stimulation, but not for the subjective assessment. However, it must be stressed that the findings are based on only six studies involving a fairly small number of patients (390). In particular, the studies employing subjective assessment involved only 108 patients.

AUTHORS' CONCLUSIONS

Implications for practice

Professionals should be aware of the fact that the evidence generated by this review is based on a small number of individuals. Furthermore, the effect varies with methods applied for assessing the sensitivity.

Implications for research

More large, well designed and well conducted randomised controlled trials (RCTs) are needed.

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Poulsen S, Errboe M, Hovgaard O, Worthington HW. Potassium nitrate toothpaste for dentine hypersensitivity. *Cochrane Database of Systematic Reviews* 2000, Issue 1. [DOI: 10.1002/14651858.CD001476]

* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Nagata 1994

Methods	12 weeks, parallel, double blind, randomised
Participants	36 completing out of 36
Interventions	5% potassium nitrate versus 0% potassium nitrate
Outcomes	tactile, air blast and subjective
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Schiff 1994

Methods	12 weeks, parallel, double blind, randomised
Participants	58 completing out of 67

Schiff 1994 *(Continued)*

Interventions	5% potassium nitrate and 0.243% sodium monofluoride phosphate versus 0% potassium nitrate and 0.243% sodium monofluoride phosphate
Outcomes	thermal, tactile, air blast and subjective sensitivity
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Schiff 1998

Methods	8 weeks, parallel, double blind, randomised
Participants	39 completing out of 48
Interventions	5% potassium nitrate and 1,500 ppm sodium monofluoride phosphate versus 0% potassium nitrate and 1,500 ppm sodium monofluoride phosphate
Outcomes	tactile and air blast
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Schiff 2000 (2)

Methods	8 weeks, parallel, double blind, randomised
Participants	80 completing
Interventions	5% potassium nitrate and 0.243% sodium fluoride versus 0.243% sodium fluoride
Outcomes	tactile and air blast
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Silverman 1996

Methods	8 weeks, parallel, double blind, randomised
Participants	110 completing
Interventions	5% potassium nitrate versus 0% potassium nitrate
Outcomes	tactile, cold air, and subjective
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Sowinski 2000

Methods	8 weeks, parallel, double blind, randomised
Participants	67 completing
Interventions	5% potassium nitrate and 0.243% sodium fluoride versus 0.243% sodium fluoride
Outcomes	tactile and air blast
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

ppm = parts per million

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Brook 1994	Abstract
Chesters 1992	Incomplete data
Collins 1984	Incomplete data
Conforti 2000	Different fluoride concentration in test and comparison toothpastes

Study	Reason for exclusion
Cronin 1993	Abstract
Gillam 1996	Different fluoride concentration in test and comparison toothpastes
Gillam 1996, Abstr	Abstract (of Gilham 1996)
Hodosh 2001	No potassium-free comparison group
Hu 2004	No potassium-free comparison group
Jackson 1987	Abstract
Lecointre 1986	Tactile, thermal, and air blast sensitivity measures combined into one measurement
Manochehr-Pour 1984	Incomplete data
Perlich 1994	Abstract
Salvato 1989	Abstract
Salvato 1991	Letter to the Editor
Salvato 1992	Different fluoride concentration in test and comparison toothpastes
Schiff 2000	No potassium-free comparison group
Schwarz 1987	No information on randomisation
Sidi 1991	Abstract
Silverman 1985	Incomplete data
Silverman 1988	Abstract
Silverman 1994	Incomplete data
Sowinski 2000 (2)	No potassium-free comparison group
Sowinski 2001	Different fluoride concentration in test and comparison toothpastes
Tarbet 1980	Not clear if it was randomised
Wara-aswapati 2005	No data available at 6 to 8 weeks
West 1996	Abstract
West 1997	Different fluoride concentration and compounds in test and comparison toothpastes
Yates 2005	No potassium-free comparison group
Youssef 1995	Article not obtainable
Zimmer 1998	Different fluoride concentration and compounds in test and comparison toothpastes

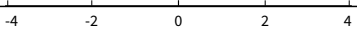
DATA AND ANALYSES

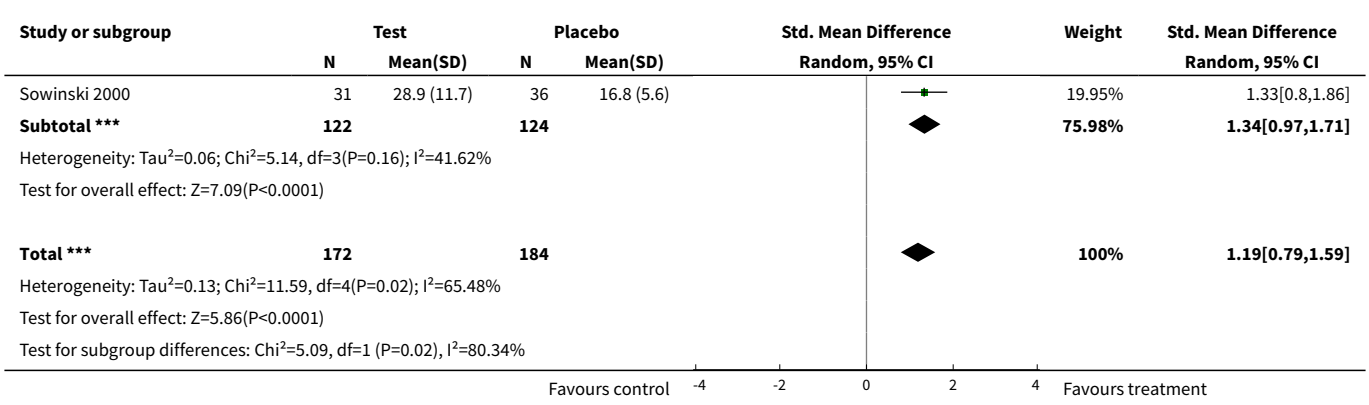
Comparison 1. Potassium containing toothpaste (update)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Tactile	5	356	Std. Mean Difference (IV, Random, 95% CI)	1.19 [0.79, 1.59]
1.1 Potassium nitrate, no fluoride versus no potassium nitrate, no fluoride	1	110	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.33, 1.11]
1.2 Potassium nitrate, plus fluoride versus no potassium nitrate, plus fluoride	4	246	Std. Mean Difference (IV, Random, 95% CI)	1.34 [0.97, 1.71]
2 Air blast	6	392	Std. Mean Difference (IV, Random, 95% CI)	-1.25 [-1.65, -0.85]
2.1 Potassium nitrate, no fluoride versus no potassium nitrate, no fluoride	2	146	Std. Mean Difference (IV, Random, 95% CI)	-1.18 [-1.88, -0.48]
2.2 Potassium nitrate, plus fluoride versus no potassium nitrate, plus fluoride	4	246	Std. Mean Difference (IV, Random, 95% CI)	-1.30 [-1.88, -0.72]
3 Subjective	3	206	Std. Mean Difference (IV, Random, 95% CI)	-0.67 [-1.44, 0.10]
3.1 Potassium nitrate, no fluoride versus no potassium nitrate, no fluoride	2	146	Std. Mean Difference (IV, Random, 95% CI)	-1.01 [-1.53, -0.49]
3.2 Potassium nitrate, plus fluoride versus no potassium nitrate, plus fluoride	1	60	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.41, 0.60]

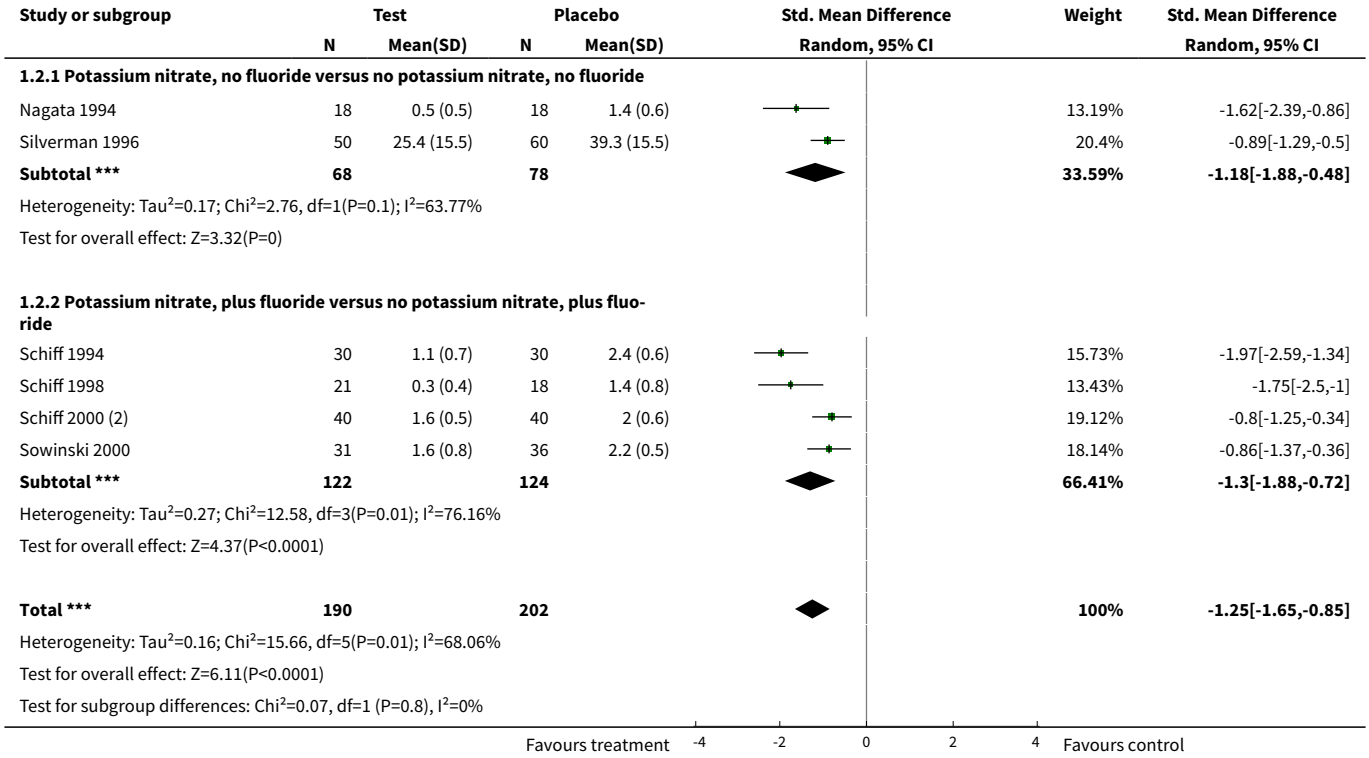
Analysis 1.1. Comparison 1 Potassium containing toothpaste (update), Outcome 1 Tactile.

Study or subgroup	Test N	Test Mean(SD)	Placebo N	Placebo Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.1.1 Potassium nitrate, no fluoride versus no potassium nitrate, no fluoride							
Silverman 1996	50	43.5 (16.4)	60	31.6 (16.2)		24.02%	0.72[0.33,1.11]
Subtotal ***	**50**		**60**			**24.02%**	**0.72[0.33,1.11]**
Heterogeneity: Tau²=0; Chi²=0, df=0(P<0.0001); I²=100%							
Test for overall effect: Z=3.64(P=0)							
1.1.2 Potassium nitrate, plus fluoride versus no potassium nitrate, plus fluoride							
Schiff 1994	30	23 (9.7)	30	15.3 (6.8)		19.95%	0.91[0.37,1.44]
Schiff 1998	21	42.1 (11)	18	25 (14.3)		15.79%	1.33[0.63,2.03]
Schiff 2000 (2)	40	30.4 (6.2)	40	21.5 (3.2)		20.29%	1.77[1.25,2.29]

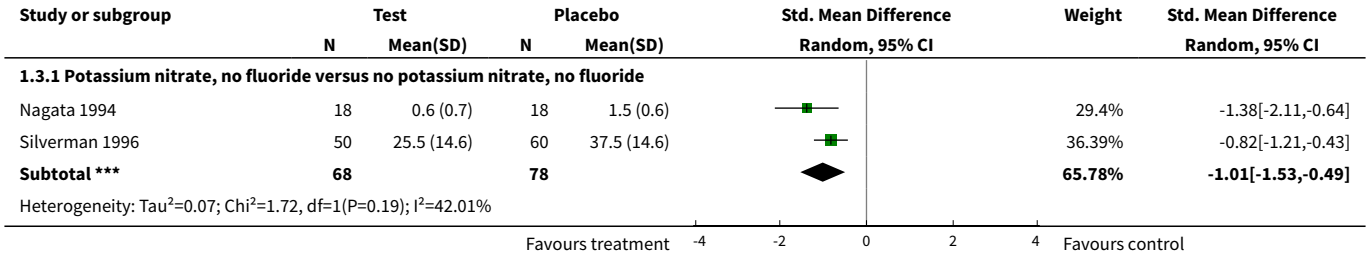


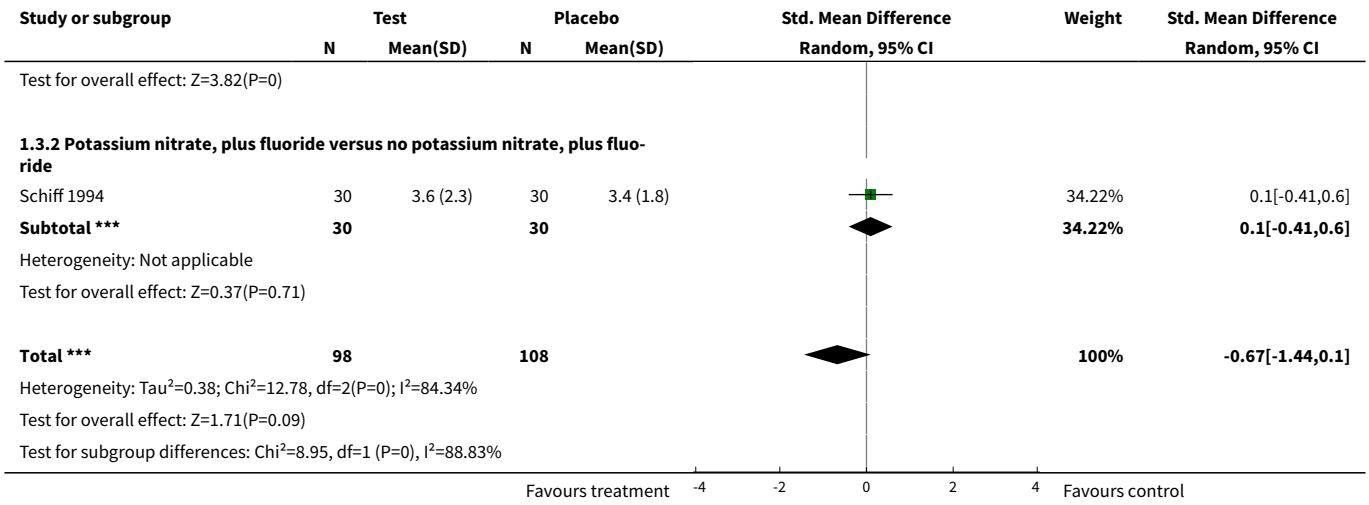


Analysis 1.2. Comparison 1 Potassium containing toothpaste (update), Outcome 2 Air blast.



Analysis 1.3. Comparison 1 Potassium containing toothpaste (update), Outcome 3 Subjective.





ADDITIONAL TABLES

Table 1. Quality assessment of studies included in the review

Study ID	Randomisation procedure	Allocation concealment	Blinding	Withdrawals described
Nagata 1994	Unclear	Unclear	Double	Not described
Schiff 2000 (2)	Unclear	Adequate	Double	Not applicable
Schiff 1994	Unclear	Unclear	Double	Not described
Schiff 1998	Unclear	Unclear	Double	Adequate
Silverman 1996	Unclear	Unclear	Double	Inadequate
Sowinsky 2000	Unclear	Unclear	Double	Not applicable

APPENDICES

Appendix 1. CENTRAL search strategy

(toothpaste* OR tooth paste* OR dentifrice* OR (desensit* AND (agent* OR efficacy OR effect*)) AND ((dentin* OR tooth OR teeth OR root*) AND (hypersensit* OR sensit* OR oversensit*))
Number of hits = 151

Appendix 2. EMBASE/MEDLINE search strategy

(((toothpaste* OR 'tooth paste' OR dentifrice*) OR (desensit* AND (agent* OR efficacy OR effect*))) AND ((hypersensit* OR sensitiv* OR 'oversensit') AND ('dentin' OR ('tooth'/exp OR 'tooth') OR ('teeth'/exp OR 'teeth') OR 'root surface'))) NOT (laser* OR adhesiv* OR endodont* OR bleach* OR whitening OR bond* OR 'caries'/exp)
Number of hits = 296

Appendix 3. PubMed search strategy

(((dentifrice OR dentifrices) OR (toothpaste OR toothpastes OR tooth paste*) OR (desensit* AND (agent* OR efficacy OR effect*))) AND ((dentin OR dentine OR tooth OR teeth OR root*) AND (hypersensitivity OR hypersensit* OR sensitivity OR sensitiv* OR over-sensit*))) NOT (laser* OR adhesiv* OR endodont* OR bleach* OR whitening OR bond* OR caries)
Number of hits = 345

Appendix 4. SCI//EXPANDED, Web of Science search strategy

((dentin* OR tooth OR teeth OR root surface*) AND (hypersensit* OR sensitiv* OR (over SAME sensit*))) AND (toothpaste* OR tooth paste* OR dentifrice* OR (desensit* AND (agent* OR efficacy OR effect*)))
Science Citation Index Expanded (SCI-EXPANDED)--1945-present
((dentin* OR tooth OR teeth OR root surface*) AND (hypersensit* OR sensitiv* OR (over SAME sensit*))) AND (toothpaste* OR tooth paste* OR dentifrice* OR (desensit* AND (agent* OR efficacy OR effect*)))
((dentin* OR tooth OR teeth OR root surface*) AND (hypersensit* OR sensitiv* OR (over SAME sensit*))) AND (toothpaste* OR tooth paste* OR dentifrice* OR (desensit* AND (agent* OR efficacy OR effect*)))
Number of hits = 194

WHAT'S NEW

Date	Event	Description
6 March 2012	Amended	Additional table linked to text.

HISTORY

Protocol first published: Issue 2, 1999
Review first published: Issue 1, 2000

Date	Event	Description
13 August 2008	Amended	Converted to new review format.
23 May 2006	New search has been performed	Searches updated. Two new trials have been added to the review.
22 May 2006	New citation required and conclusions have changed	Substantive amendment. Only studies which reported data that allowed them to be included in the meta-analysis, are included in this review update. The scope for the present review update has been expanded to include all potassium salts. However, no trials of potassium salts other than potassium nitrate, met the inclusion criteria. Two new trials have been added to the review. The results have been slightly changed.

CONTRIBUTIONS OF AUTHORS

Sven Poulsen (SP) prepared the protocol for the first review; Marie Errboe (MAE) developed the search strategy and literature search; MAE, SP and Y Lescay Mevil (YLM) classified the studies to be included or excluded from the review, and recorded the data from included studies. Anne-Marie Glenny (AMG) assisted in the statistical analysis. MAE and SP wrote the review.

DECLARATIONS OF INTEREST

One of the review authors, Sven Poulsen (SP), was rewarded a prize from Zendium Inc., Denmark in 1997.

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Internal sources

- Royal Dental College, Faculty of Health Sciences, University of Aarhus, Denmark.

External sources

- No sources of support supplied

INDEX TERMS

Medical Subject Headings (MeSH)

Dentin Sensitivity [*drug therapy]; Potassium Compounds [*therapeutic use]; Randomized Controlled Trials as Topic; Toothpastes [chemistry] [*therapeutic use]

MeSH check words

Adult; Humans