To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present>

Search Strategy:
1 exp Mentha piperita/ (245)
2 (peppermint$ or "mentha piperita").tw. (1007)
3 1 or 2 (1045)
4 limit 3 to dentistry journals (19)
5 exp Oral Health/ (10943)
6 exp Oral Hygiene/ (16065)
7 exp Tooth Diseases/ (146134)
8 (tooth or teeth or dental$ or dentist$ or mouth).tw. (332454)
9 exp Halitosis/ (1122)
10 halitosis.tw. (892)
11 (breath adj2 odor$).tw. (93)
12 5 or 6 or 7 or 8 or 9 or 10 or 11 (406152)
13 3 and 12 (30)
14 4 or 13 (40)
15 (hypersen$ or anaphyla$).tw. (80542)
16 14 not 15 (38)
17 (peppermint adj flav$).tw. (21)
18 16 not 17 (29)
19 limit 18 to english language (26)

Abstract
OBJECTIVE: Cancer chemoprevention is defined as the use of chemicals or dietary components to block, inhibit, or reverse the development of cancer in normal or pre-neoplastic tissue. Mentha extract (ME) has antioxidant and antiperoxidant properties. This study was held to investigate the protective and anticancer effect of Mentha leaves aqueous extract on oral epithelium of mice tongues.

DESIGN: A total of 80 Egyptian albino mice were divided into three groups. Group I served as control (not subjected to any kind of treatment), and groups II and III were subjected to two-stage chemical carcinogenesis through topical application of dimethylbenz[a]anthracene (DMBA) followed by formaldehyde on dorsal and ventral surfaces of tongues for 9 weeks. Mentha leaves extract was administrated to group III at the same time of cancer induction. Histological changes were assessed in H&E sections at 3-week intervals. The anticarcinogenic effect of Mentha piperita was tested using immunostain with anticaspase antibody.

RESULTS: The oral administration of ME reduced the appearance of dysplastic cellular changes with 61% and inhibited tumor incidence with 100%. Group I showed moderate-to-strong cytoplasmic caspase expression. At 6-week interval, group II showed weak-to-moderate caspase expression, while sections from group III showed moderate-to-strong caspase expression. High significant statistical difference in the total score of caspase 3 expression was found between specimens obtained from animals sacrificed at 6 weeks in groups I, II, and III (P = 0.001**).

CONCLUSION: Our study demonstrated that Mentha piperita has inhibited the initiation and promotion of oral dysplastic lesions.
Institution
Haghgoo,Roza. Department of Pediatric Dentistry, Dental School, Shahed University, Tehran, Iran.
Abbasi,Farid. Department of Oral Medicine, Dental School, Shahed University, Tehran, Iran.

Title
Evaluation of the use of a peppermint mouth rinse for halitosis by girls studying in Tehran high schools.

Source

Abstract
BACKGROUND AND AIM: Oral malodor is one of the most common complaints among dental patients. It often creates serious personal and social embarrassment for the afflicted individual. Therefore, a dentist must be able to diagnose the etiology of halitosis and treat it or refer an individual to a specialist. The aim of this study was to evaluate the prevalence of halitosis and the effect of a peppermint mouth rinse on it.

MATERIALS AND METHODS: This study was performed in two steps. At the first step, in a cross-sectional study, 504 students who were 14-18 years old were examined to define the students who suffered from halitosis, and then at the second step, the selected 84 students with halitosis were divided into two groups randomly. A total of 43 students in group 1 received a peppermint mouth rinse and 41 students in another group were given placebo. The students in two groups washed their mouth with 15-20 ml of the given solutions three times in a 1-week period (after breakfast, after lunch or on returning to home, before sleeping) and didn't eat anything for 30 min after rinsing. After 1 week, the students were examined again.

RESULTS: The prevalence of halitosis was 24.4% totally. In the mouth rinse group, after 1 week 23 students didn't exhibit halitosis, and 11 students in the placebo group were halitosis positive. A chi-square test showed that this difference was significant.

CONCLUSION: Based on the results of this study, it can be said that a peppermint mouth rinse can reduce halitosis.

Authors
Singh A; Daing A; Dixit J.

Authors Full Name
Singh, A; Daing, A; Dixit, J.

Institution
Singh,A. Department of Periodontology, Faculty of Dental Sciences, C.S.M. Medical University (Erstwhile KGMC), Lucknow, Uttar Pradesh, India. draparna24@yahoo.in

Title
The effect of herbal, essential oil and chlorhexidine mouthrinse on de novo plaque formation.

Source

Abstract
BACKGROUND: Brushing and flossing are the most widely accepted procedures, the ‘gold standard’, for controlling bacterial plaque, but these mechanical methods have limitations. Based on results derived from several clinical trials, essential oil (EO) mouthrinse (Listerine®) and a chlorhexidine mouthrinse have been accepted by ADA to be used as an adjunct to routine mechanical oral hygiene measures however, both of them are associated with side effects, therefore, the present study was undertaken to evaluate the antiplaque efficacy of a new herbal formulation as compared to an EO and chlorhexidine rinse.

MATERIALS AND METHOD: The study was a single blind parallel randomized controlled trial involving four groups. 48 volunteers refrained from all oral hygiene measures for 4 days, but rinsed instead twice daily with 10 ml of a herbal (HM), EO, chlorhexidine (CHX) or a placebo (PL) solution. Plaque index and plaque area (PA) was assessed on Day 4.

RESULTS: The HM and EO showed a significant inhibition of plaque regrowth compared to PL (P<0.001), but the lowest values of PI and PA were obtained with CHX. Statistically significant difference in plaque parameters was observed when CHX was compared to HM and EO, and HM to EO rinse.

CONCLUSION: The new herbal mouthrinse had a promising plaque inhibitory potential but it not as efficacious as chlorhexidine in preventing plaque regrowth.Copyright © 2012 John Wiley & Sons A/S.
Antimicrobial activity of commercially available essential oils against Streptococcus mutans.

**INTRODUCTION:** Many essential oils have been advocated for use in complementary medicine for bacterial and fungal infections. However, few of the many claims of therapeutic efficacy have been validated adequately by either in vitro testing or in vivo clinical trials.

**OBJECTIVE:** To study the antibacterial activity of nine commercially available essential oils against Streptococcus mutans in vitro and to compare the antibacterial activity between each material.

**METHODOLOGY:** Nine pure essential oils; wintergreen oil, lime oil, cinnamon oil, spearmint oil, peppermint oil, lemongrass oil, cedarwood oil, clove oil and eucalyptus oil were selected for the study. Streptococcus mutans was inoculated at 37°C and seeded on blood agar medium. Agar well diffusion assay was used to measure antibacterial activity. Zone of inhibition was measured around the filter paper in millimeters with vernier caliper.

**RESULTS:** Cinnamon oil showed highest activity against Streptococcus mutans followed by lemongrass oil and cedarwood oil. Wintergreen oil, lime oil, peppermint oil and spearmint oil showed no antibacterial activity.

**CONCLUSION:** Cinnamon oil, lemongrass oil, cedarwood oil, clove oil and eucalyptus oil exhibit antibacterial property against S. mutans.

**CLINICAL SIGNIFICANCE:** The use of these essential oils against S. mutans can be a viable alternative to other antibacterial agents as these are an effective module used in the control of both bacteria and yeasts responsible for oral infections.
To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

**BDA LIBRARY MEDLINE SEARCH**

**USE OF PEPPERMINT IN DENTISTRY**

To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

21325845
Status
MEDLINE
Authors
Hitz Lindenmuller I; Lambrecht JT.
Authors Full Name
Hitz Lindenmuller, Irene; Lambrecht, J Thomas.
Institution
Hitz Lindenmuller, Irene. Clinic for Oral Surgery, Oral Radiology and Oral Medicine, School of Dentistry, Basel University, Basel, Switzerland.
Title
Oral care. [Review]
Source
Abstract
Adequate dental and oral hygiene may become a challenge for all users and especially for elderly people and young children because of their limited motor skills. The same holds true for patients undergoing/recovering from chemo-/radiotherapy with accompanying sensitive mucosal conditions. Poor dental hygiene can result in tooth decay, gingivitis, periodontitis, tooth loss, bad breath (halitosis), fungal infection and gum diseases. The use of a toothbrush is the most important measure for oral hygiene. Toothbrushes with soft bristles operated carefully by hand or via an electric device help to remove plaque and to avoid mucosal trauma. A handlebar with a grip cover can be helpful for manually disabled patients or for those with reduced motor skills. In case of oral hygiene at the bedside or of patients during/after chemo-/radiotherapy a gauze pad can be helpful for gently cleaning the teeth, gums and tongue. The use of fluoride toothpaste is imperative for the daily oral hygiene. Detergents such as sodium lauryl sulphate improve the cleaning action but may also dehydrate and irritate the mucous membrane. The use of products containing detergents and flavouring agents (peppermint, menthol, cinnamon) should therefore be avoided by bedridden patients or those with dry mouth and sensitive mucosa. Aids for suitable interdental cleaning, such as dental floss, interdental brushes or dental sticks, are often complicated to operate. Their correct use should be instructed by healthcare professionals. To support dental care, additional fluoridation with a fluoride gel or rinse can be useful. Products further containing antiseptics such as chlorhexidine or triclosan reduce the quantity of bacteria in the mouth. For patients undergoing or having undergone radio-/chemotherapy, a mouthwash that concomitantly moisturizes the oral mucosa is advisable.Copyright © 2011 S. Karger AG, Basel.

**Vo J; Chudasama DN; Rinchuse DJ; Day R.**

**Authors Full Name**
Vo, Jossette; Chudasama, Dipak N; Rinchuse, Donald J; Day, Richard.
**Institution**
Vo,Jossette. School of Orthodontics, Jacksonville University, Jacksonville, Florida, USA.
**Title**
A clinical trial to evaluate the effects of prophylactic fluoride agents on the superelastic properties of nickel-titanium wires.
**Source**
**Abstract**
AIM: To study the effects of a prophylactic fluoride regimen on the mechanical properties of nickel-titanium (Ni-Ti) archwires under clinical conditions.
**METHOD:** The unloading properties of 100 Ni-Ti wires were tested after being used intraorally for 6 weeks using two protocols. Thirty-three wires were evaluated after the use of fluoride-containing Crest toothpaste (sodium fluoride 0.243%, 0.15% w/v fluoride ion) and Equate fluoride rinse (sodium fluoride 0.05%, fluoride ion 0.0226%). Another 33 wires were examined after a nonfluoridated natural toothpaste (Tom's of Maine; calcium carbonate, xylitol, myrrh, propolis, sodium lauryl sulfate, carrageenan, spearmint and peppermint oils, glycerin, and water) was used. Another 34 Ni-Ti wires served as a control; they were tested as received. Statistical analyses were carried out with a linear-mixed model (analysis of variance [ANOVA]).
**RESULTS:** Force degradation occurred within both groups of intraorally used wires but not in the unused archwires. When compared to unexposed wires, those with fluoride exposure exhibited slightly higher force degradation at 3.1 and 3.0 mm deflection, but they displayed less force degradation at 0.5 and 1.0 mm deflection.
**CONCLUSIONS:** Topical fluoride regimens decreased the unloading property of Ni-Ti wires at higher deflections but increased it at lower deflections.Copyright © 2010 Quintessence Publishing Co, Inc.

**Publication Type**
Clinical Trial. Comparative Study. Journal Article.
**Date Created**
20100616
**Year of Publication**
2010
USE OF PEPPERMINT IN DENTISTRY

To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

2009

<8>
Unique Identifier
19473851
Status
MEDLINE
Authors
Warnke PH; Becker ST; Podschun R; Sivananthan S; Springer IN; Russo PA; Wiltfang J; Fickenscher H; Sherry E.
Authors Full Name
Warnke, Patrick H; Becker, Stephan T; Podschun, Rainer; Sivananthan, Sureshan; Springer, Ingo N; Russo, Paul A J; Wiltfang, Joerg; Fickenscher, Helmut; Sherry, Eugene.
Institution
Warnke, Patrick H. Department of Oral and Maxillofacial Surgery, University of Kiel, Germany. warnke@mkg.uni-kiel.de
Title
The battle against multi-resistant strains: Renaissance of antimicrobial essential oils as a promising force to fight hospital-acquired infections.
Source
Abstract
Hospital-acquired infections and antibiotic-resistant bacteria continue to be major health concerns worldwide. Particularly problematic is methicillin-resistant Staphylococcus aureus (MRSA) and its ability to cause severe soft tissue, bone or implant infections. First used by the Australian Aborigines, Tea tree oil and Eucalyptus oil (and several other essential oils) have each demonstrated promising efficacy against several bacteria and have been used clinically against multi-resistant strains. Several common and hospital-acquired bacterial and yeast isolates (6 Staphylococcus strains including MRSA, 4 Streptococcus strains and 3 Candida strains including Candida krusei) were tested for their susceptibility for Eucalyptus, Tea tree, Thyme white, Lavender, Lemon, Lemongrass, Cinnamon, Grapefruit, Clove Bud, Sandalwood, Peppermint, Kunzea and Sage oil with the agar diffusion test. Olive oil, Paraffin oil, Ethanol (70%), Povidone iodine, Chlorhexidine and hydrogen peroxide (H(2)O(2)) served as controls. Large prevailing effective zones of inhibition were observed for Thyme white, Lemon, Lemongrass and Cinnamon oil. The other oils also showed considerable efficacy. Remarkably, almost all tested oils demonstrated efficacy against hospital-acquired isolates and reference strains, whereas Olive and Paraffin oil from the control group produced no inhibition. As proven in vitro, essential oils represent a cheap and effective antiseptic topical treatment option even for antibiotic-resistant strains as MRSA and antymycotic-resistant Candida species.
Publication Type
Journal Article.
Date Created
20090901
Year of Publication
2009

<9>
Unique Identifier
18729251
Status
MEDLINE
Authors
Rasooli I; Shayegh S; Taghizadeh M; Astaneh SD.
Authors Full Name
Rasooli, Iraj; Shayegh, Shojaedin; Taghizadeh, Massoud; Astaneh, Shakiba Darvish Alipoor.
Institution
Rasooli, Iraj. Department of Biology, Shahed University, Opposite Imam Khomeini's Shrine, Tehran-Qom Highway, Tehran, Iran. rasooli@shahed.ac.ir
Title
Phytotherapeutic prevention of dental biofilm formation.
Source
Phytotherapy Research. 22(9):1162-7, 2008 Sep.
Abstract
The antimicrobial and biofilm formation preventive properties of Mentha piperita and Rosmarinus officinalis essential oils and chlorhexidine were assessed against Streptococcus mutans and Streptococcus pyogenes. 26 and 20 compounds were identified by GC and GC-MS analysis in hydrodistilled oils from M. piperita and R. officinalis, respectively. The minimal bactericidal concentrations (MBC) of the M. piperita and R. officinalis oils and chlorhexidine were (6000, 2000, 8000 ppm) and (1000, 4000, 1000 ppm) for S. mutans and S. pyogenes, respectively. The decimal reduction time (D) of S. mutans exposed to the oils at their MBC levels was 2.8 min while chlorhexidine showed a longer time. The D values of S. pyogenes on exposure to the MBC levels of M. piperita and R. officinalis oils and of chlorhexidine were 2.14, 4.28 and 2.8 min, indicating a higher efficacy of M. piperita oil. Biofilm formation was performed by growing S. mutans culture with and without essential oils in LB medium in polystyrene tubes. In vitro biofilm inhibitory properties were in the order M. piperita > R. officinalis > chlorhexidine. In vivo experiments on the antibiofilm properties revealed that all concentrations of the oils were significantly (p < 0.001) more effective than chlorhexidine. In conclusion, essential oils may be considered as safe agents in the development of novel antibiofilm agents.
Publication Type
Journal Article. Research Support, Non-U.S. Gov't.
Date Created
20080910
Year of Publication
2008

<10>
Unique Identifier
18491764
BDA LIBRARY MEDLINE SEARCH

USE OF PEPPERMINT IN DENTISTRY

To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

Status
MEDLINE

Authors
Bhatavadekar N; Khandelwal N; Bouquot JE.

Authors Full Name
Bhatavadekar, Neel; Khandelwal, Namita; Bouquot, Jerry E.

Institution
Bhatavadekar, Neel. Department of Periodontics, University of Texas Dental Branch at Houston, Houston, Texas, USA.

Title
Oral and maxillofacial pathology case of the month. Plasma cell gingivitis.

Source

Publication Type
Case Reports. Journal Article.

Date Created
20080521

Year of Publication
2008

Unique Identifier
18404563

Status
MEDLINE

Authors
Shayegh S; Rasooli I; Taghizadeh M; Astaneh SD.

Authors Full Name
Shayegh, Shojaedin; Rasooli, Iraj; Taghizadeh, Massoud; Astaneh, Shakiba Darvish Alipoor.

Institution
Shayegh, Shojaedin. Department of prosthetics, College of Dentistry, Shahed University, Tehran, Iran.

Title
Phytotherapeutic inhibition of supragingival dental plaque.

Source

Abstract
The effect of various food-simulating solvents on the hardness of denture teeth after varying storage times, using a Martens hardness test was determined. Martens hardness (HM) was assessed at baseline and during storage up to 1 month in distilled water (DW), peppermint oil (PO), heptane (HT) and 75% ethanol (ET) for four commercially-available denture teeth; Vivodent (VIV), Double-cross-linked Postar (DCL), Orthosit (ORT), Candulor porcelain (POR) and two polymer based experimental denture teeth; Experimental 1 (EXP1); a hybrid nanocomposite with two different sized silanlated filler particles and Experimental 2 (EXP2); containing an organic copolymer based upon urethanedimethacrylate and polymethyl methacrylate. Hardness [mean (sd)] at baseline was: VIV 142 (1), DCL 142 (1), ORT 209 (9), POR 2926 (101), EXP1 285 (11), and EXP2 146 (12). One-way ANOVA using Tukey's test on polymer-based materials showed that the hardness values of EXP1 were significantly higher than those of VIV, DCL and EXP2 (P < 0.05). Moreover, EXP1 had a significantly higher hardness value than ORT (P < 0.05). Except for EXP1, all polymer based materials showed a significant drop in hardness after storage in ET (P < 0.05). Specimens
stored in water, heptane and peppermint oil showed minor fluctuations in hardness, which were not statistically significant.

**Editorial Information**

**BDA LIBRARY MEDLINE SEARCH**

**USE OF PEPPERMINT IN DENTISTRY**

To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

**Abstract**

The aim of this study was to explore the effect of an essential oil solution on levels of malodour and production of volatile sulphur compounds (VSC) in patients nursed in intensive care unit (ICU). Thirty two patients received 3 min of oral cleaning using an essential oil solution (mixture of tea tree, Melaleuca alternifolia, peppermint, Mentha piperita and lemon, Citrus limon) on the first day, and Tantum (benzydamine hydrochloride) on the second day. Two trained nurses measured the level of malodour with a 10 cm visual analogue scale (VAS) and VSC with a Halimeter before (Pre), 5 min after (Post I) and 1 h following treatment (Post II). The level of oral malodour was significantly different following the essential oil session, and differed significantly between two sessions at Post I (p < 0.005) and Post II (p < 0.001). Differences between the two sessions were significant (Tantum, p < 0.001; essential oil, p < 0.001) in the level of VSC and significantly lower in the essential oil session than Tantum at the Post II (p < 0.05). These findings suggest that mouth care using an essential oil mixture of diluted tea tree, peppermint and lemon may be an effective method to reduce malodour and VSC in intensive care unit patients.

**Source**


**Title**

Reduction of mouth malodour and volatile sulphur compounds in intensive care patients using an essential oil mouthwash.

**Authors**

Hur MH; Park J; Maddock-Jennings W; Kim DO; Lee MS.

**Institution**

Hur, Myung-Haeng. School of Nursing, Eulji University, Daejeon, South Korea.

**Source**


**Title**

Pavlov's cockroach: classical conditioning of salivation in an insect.

**Authors**

Watanabe H; Mizunami M.

**Institution**

Watanabe, Hidehiro. Graduate School of Life Sciences, Tohoku University, Sendai, Japan.

**Abstract**

Secretion of saliva to aid swallowing and digestion is an important physiological function found in many vertebrates and invertebrates. Pavlov reported classical conditioning of salivation in dogs a century ago. Conditioning of salivation, however, has been so far reported only in dogs and humans, and its underlying neural mechanisms remain elusive because of the complexity of the mammalian brain. We previously reported that, in cockroaches Periplaneta americana, salivary neurons that control salivation exhibited increased responses to an odor after conditioning trials in which the odor was paired with sucrose solution. However, no direct evidence of conditioning of salivation was obtained. In this study, we investigated the effects of conditioning trials on the level of salivation. Untrained cockroaches exhibited salivary responses to sucrose solution applied to the mouth but not to peppermint or vanilla odor applied to an antenna. After differential conditioning trials in which an odor was paired with sucrose solution and another odor was presented without pairing with sucrose solution, sucrose-associated odor induced an increase in the level of salivation, but the odor presented alone did not. The conditioning effect lasted for one day after conditioning trials. This study demonstrates, for the first time, classical conditioning of salivation in species other than dogs and humans, thereby providing the first evidence of sophisticated neural control of autonomic function in insects. The results provide a useful model system for studying cellular basis of conditioning of salivation in the simpler nervous system of insects.

**Source**


**Title**

Reduction of mouth malodour and volatile sulphur compounds in intensive care patients using an essential oil mouthwash.

**Authors**

Hur MH; Park J; Maddock-Jennings W; Kim DO; Lee MS.

**Institution**

Hur, Myung-Haeng. School of Nursing, Eulji University, Daejeon, South Korea.

**Source**


**Title**

Pavlov's cockroach: classical conditioning of salivation in an insect.

**Authors**

Watanabe H; Mizunami M.

**Institution**

Watanabe, Hidehiro. Graduate School of Life Sciences, Tohoku University, Sendai, Japan.

**Abstract**

Secretion of saliva to aid swallowing and digestion is an important physiological function found in many vertebrates and invertebrates. Pavlov reported classical conditioning of salivation in dogs a century ago. Conditioning of salivation, however, has been so far reported only in dogs and humans, and its underlying neural mechanisms remain elusive because of the complexity of the mammalian brain. We previously reported that, in cockroaches Periplaneta americana, salivary neurons that control salivation exhibited increased responses to an odor after conditioning trials in which the odor was paired with sucrose solution. However, no direct evidence of conditioning of salivation was obtained. In this study, we investigated the effects of conditioning trials on the level of salivation. Untrained cockroaches exhibited salivary responses to sucrose solution applied to the mouth but not to peppermint or vanilla odor applied to an antenna. After differential conditioning trials in which an odor was paired with sucrose solution and another odor was presented without pairing with sucrose solution, sucrose-associated odor induced an increase in the level of salivation, but the odor presented alone did not. The conditioning effect lasted for one day after conditioning trials. This study demonstrates, for the first time, classical conditioning of salivation in species other than dogs and humans, thereby providing the first evidence of sophisticated neural control of autonomic function in insects. The results provide a useful model system for studying cellular basis of conditioning of salivation in the simpler nervous system of insects.
To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

---

**Peppermint oil in irritable bowel syndrome. [Review] [25 refs]**

**Authors**
Grigoleit HG; Grigoleit P.

**Authors Full Name**
Grigoleit, H G; Grigoleit, P.

**Institution**
Grigoleit,H G. Dr.Grigoleit@t-online.de

**Title**
Peppermint oil in irritable bowel syndrome. [Review] [25 refs]

**Source**

**Abstract**
In a literature search 16 clinical trials investigating 180-200 mg enteric-coated peppermint oil (PO) in irritable bowel syndrome (IBS) or recurrent abdominal pain in children (1 study) with 651 patients enrolled were identified. Nine out of 16 studies were randomized double blind cross over trials with (n = 5) or without (n = 4) run in and/or wash out periods, five had a randomized double blind parallel group design and two were open labeled studies. Placebo served in 12 and anticholinergics in three studies as comparator. Eight out of 12 placebo controlled studies show statistically significant effects in favor of PO. Average response rates in terms of "overall success" are 58% (range 39-79%) for PO and 29% (range 10-52%) for placebo. The three studies versus smooth muscle relaxants did not show differences between treatments hinting for equivalence of treatments. Adverse events reported were generally mild and transient, but very specific. PO caused the typical GI effects like heartburn and anal/perianal burning or discomfort sensations, whereas the anticholinergics caused dry mouth and blurred vision. Anticholinergics and 5HT3/4-ant/agonists do not offer superior improvement rates, placebo responses cover the range as in PO trials. Taking into account the currently available drug treatments for IBS PO (1-2 capsules t.i.d. over 24 weeks) may be the drug of first choice in IBS patients with non-serious constipation or diarrhea to alleviate general symptoms and to improve quality of life. [References: 25]

**Publication Type**
Journal Article. Review.

**Date Created**
20050826

**Year of Publication**
2005

---

**The effects of prolonged gum chewing on salivary flow rate and composition.**

**Authors**
Dawes C; Kubieniec K.

**Authors Full Name**
Dawes, C; Kubieniec, K.

**Institution**
Dawes,C. Department of Oral Biology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Avenue, Winnipeg, Man., Canada R3E 0W2. colin_dawes@umanitoba.ca

**Title**
The effects of prolonged gum chewing on salivary flow rate and composition.

**Source**

**Abstract**
OBJECTIVE: To determine the effect of gum chewing for 2 h on salivary flow rate and composition.

**DESIGN:** Five male and five females each collected whole saliva at intervals over a 2 h period on three separate days, prior to which they collected unstimulated saliva for 5 min. For one 2 h session they continued to collect only unstimulated saliva while for the others one tablet of Wrigley's Extra peppermint- or fruit-flavoured (peach) gum was chewed continuously. Flow rates were calculated and the saliva was assayed for pH and for Na, K, Ca, Cl, inorganic P and protein concentrations. The data were subjected to repeated-measures ANOVA and Duncan tests.

**RESULTS:** When only unstimulated saliva was collected, there was no significant change in salivary flow rate over the 2 h. With the chewing gums the flow rate increased initially and then, after 35-40 min, fell to similar plateau values which remained significantly higher than the initial unstimulated flow rate and significantly higher than the flow rate at the corresponding time intervals when only unstimulated saliva was collected. With both gums the salivary pH from 2 min to 2 h was significantly higher than that of unstimulated saliva. The changes in the salivary electrolyte and protein concentrations due to the flow rate increase elicited by the chewing gum were largely as expected from previous studies on parotid and submandibular saliva.

**CONCLUSION:** During prolonged chewing gum use, both salivary flow rates and pH remained significantly above the values for unstimulated saliva.

**Publication Type**
Clinical Trial. Journal Article. Research Support, Non-U.S. Govt.

**Date Created**
20040615

**Year of Publication**
2004
To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

Aromatherapy with peppermint, isopropyl alcohol, or placebo is equally effective in relieving postoperative nausea.

To determine whether aromatherapy can reduce postoperative nausea, the investigators studied 33 ambulatory surgery patients who complained of nausea in the PACU. After indicating the severity of nausea on a 100-mm visual analogue scale (VAS), subjects received randomized aromatherapy with isopropyl alcohol, oil of peppermint, or saline (placebo). The vapors were inhaled deeply through the nose from scented gauze pads held directly beneath the patients' nostrils and exhaled slowly through the mouth. Two and 5 minutes later, the subjects rated their nausea on the VAS. Overall nausea scores decreased from 60.6 +/- 4.3 mm (mean +/- SE) before aromatherapy to 43.1 +/- 4.9 mm 2 minutes after aromatherapy (P <0.005), and to 28.0 +/- 4.6 mm 5 minutes after aromatherapy (P < 10^-6). Nausea scores did not differ between the treatments at any time. Only 52% of the patients required conventional intravenous (IV) antiemetic therapy during their PACU stay. Overall satisfaction with postoperative nausea management was 86.9 +/- 4.1 mm and was independent of the treatment group. Aromatherapy effectively reduced the perceived severity of postoperative nausea. The fact that a saline "placebo" was as effective as alcohol or peppermint suggests that the beneficial effect may be related more to controlled breathing patterns than to the actual aroma inhaled.

Nicotine replacement therapy relieves withdrawal symptoms, significantly improving smoking cessation rates. Oral transmucosal nicotine (OT-NIC) is a novel nicotine delivery system consisting of a lozenge (OT-NIC unit) containing 4 mg of nicotine, which is dissolved in the cheek pouch, releasing nicotine for absorption through the buccal mucosa. Theoretical advantages of OT-NIC include that it does not require special chewing methods or interfere with dental work, it provides sensory oral effect, and it can be dosed to effect. This study aimed to determine the preliminary safety and efficacy of OT-NIC for suppression of nicotine withdrawal symptoms over 8 days of smoking abstinence and to assess flavor preference, sensory characteristics, and acceptability. In an open-label, within-subjects design, 11 smokers used three different flavors of OT-NIC ad lib in response to withdrawal symptoms and craving. On days 1 and 8, withdrawal symptoms were measured with pre- and postadministration scores for each of the first three OT-NIC units used (three different flavors presented in random order). Flavor preference, desire to smoke, sensory characteristics, acceptability, and overall OT-NIC performance were rated at the end of each day. A generalized estimating equation analysis was conducted to account for the repeated-measures design. Use of OT-NIC resulted in a significant decrease in a composite withdrawal score aggregating scores from all eight symptoms (decline of 57 units in a possible range of 4, p<0.01). Withdrawal scores for anxiety, craving, difficulty concentrating, impatience, and restlessness significantly decreased. Depressed mood, increased appetite, and irritability did not change. Order of flavor preference was peppermint over cinnamon over plain. Acceptability and ratings for sensory characteristics were favorable, and OT-NIC was well tolerated with no serious adverse effects. In conclusion, OT-NIC showed promise as a potential new aid for smoking cessation.
Peppermint oil reduces gastric spasm during upper endoscopy: a randomized, double-blind, double-dummy controlled trial.  

**BACKGROUND:** GI endoscopy without general anesthesia causes a hyperperistaltic state in the stomach, which frequently necessitates the use of antispasmodic agents, such as hyoscine-N-butyli bromide, but these drugs have side effects. Peppermint oil is harmless and acts locally to inhibit GI smooth muscle contraction.

**METHODS:** A randomized double-blind, double-dummy, controlled trial was conducted in 100 patients to compare the antispasmodic effects of hyoscine-N-butyli bromide administered intramuscularly and a placebo solution administered intraluminally by means of the endoscope, and also the effects of a placebo solution administered intramuscularly with those of a peppermint oil solution administered intraluminally. The percent change in diameter of the pyloric ring before and after the administrations was defined as the opening ratio, and the percent change in diameter between the maximally and minimally opened pyloric ring states was defined as the contraction ratio. Time until disappearance of the antral contraction ring(s) in the gastric antrum and side effects of the drugs were also determined.

**RESULTS:** The opening ratio was significantly higher in the peppermint oil administration group than in the hyoscine-N-butyli bromide injection group. The contraction ratio after peppermint oil administration was significantly lower than that after hyoscine-N-butyli bromide injection. The time required for disappearance of the antral contraction ring(s) was shorter in the peppermint oil group (97.1 +/- 11.4) than in the hyoscine-N-butyli bromide group (185.9 +/- 10.1 s; p < 0.0001). No significant side effects were associated with peppermint oil, whereas hyoscine-N-butyli bromide injection produced side effects such as dry mouth, blurred vision, and urinary retention.

**CONCLUSIONS:** Peppermint oil solution administered intraluminally can be used as an antispasmodic agent with superior efficacy and fewer side effects than hyoscine-N-butyli bromide administered by intramuscular injection during upper endoscopy.
RESULTS: The most frequent allergic patch test reactions were caused by nickel (14.6%), ammoniated mercury (13%), mercury (10.3%), gold (7.7%), benzoic acid (4.3%), palladium (4.2%) and cobalt (4.1%). 2-hydroxyethyl methacrylate (2.8%) provoked most of the reactions caused by (meth)acrylates. Menthol, peppermint oil, ammonium tetrachloroplatinate, and amalgam alloying metals provoked no (neither allergic nor irritant) patch test reactions.

CONCLUSION: Patch testing with allergens in the dental screening series, including (meth)acrylates and mercury, needs to be performed to detect contact allergy to dental products. Copyright 2001 by W.B. Saunders Company.

Title
An ex vivo investigation into the effects of chemical solvents on the debond behaviour of ceramic orthodontic brackets.

Source

Abstract
The problems of ceramic bracket debond have been well documented. A peppermint oil material has been marketed previously as a debonding agent. This study assessed ex vivo the effects of peppermint oil application on the debond behaviour of ceramic brackets compared with ethanol and acetone which are recognized softening agents. Intrigue brackets were bonded to 100 extracted premolar teeth. Groups of 20 bonded teeth were then placed in a test solution, control (distilled water), peppermint oil (5 minutes and 1 hour), acetone (1 hour), and ethanol (1 hour). The teeth were debonded using an Instron, Universal Testing Machine and debond forces recorded. The site of bond failure along with the adhesive remnant index was recorded for each tooth. One hour placement in peppermint oil produced the lowest mean and maximal debond forces (77 and 114 N, respectively). Weibull analysis showed that the probability of failure at 100 N was increased for the 1-hour peppermint group at 88 per cent compared with 52 per cent for the control. Placement in peppermint oil produced the lowest levels of retained resin. There was no evidence of enamel fracture with any of the groups, but bracket fracture remained a problem.

Publication Type
Comparative Study. Journal Article.

Date Created
19980512
Year of Publication
1998

Unique Identifier
7664971
Status
MEDLINE
Authors
Rogers SN; Pahor AL.
Authors Full Name
Rogers, S N; Pahor, A L.
Institution
Rogers,S N. Department of Otorhinolaryngology and Head and Neck Oncology, Dudley Road Hospital, Birmingham, UK.
Title
A form of stomatitis induced by excessive peppermint consumption.
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY, TO REQUEST THIS ARTICLE FROM THE LIBRARY GO TO: https://www.bda.org/library/journals-articles/Documents/photocopy-request-form.pdf
Abstract
This paper reports on a form of stomatitis and glossitis associated with extremely prominent circumvalate papillae in two patients who consumed excessive amounts of mint-flavoured sweets.
Publication Type
Case Reports. Journal Article.
Date Created
19951012
Year of Publication
1995

Unique Identifier
7634781
To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

**Title**

**Contact sensitivity to menthol and peppermint in patients with intra-oral symptoms.**

**Source**

Contact Dermatitis. 32(5):281-4, 1995 May.

**Abstract**

We report 12 cases of contact sensitivity to the flavouring agents menthol and peppermint oil in patients presenting with intra-oral symptoms in association with burning mouth syndrome, recurrent oral ulceration or a lichenoid reaction. The patients were referred from the Glasgow Dental Hospital over a 4-year period for assessment of the possible contribution of contact sensitivity to their complaints. 5 patients with burning mouth syndrome demonstrated contact sensitivity to menthol and/or peppermint, with 1 patient sensitive to both agents, 3 positive to menthol only and 1 to peppermint only. 4 cases with recurrent intra-oral ulceration were sensitive to both menthol and peppermint. 3 patients with an oral lichenoid reaction were positive to menthol on patch testing, with 2 also sensitive to peppermint. 9 of the 12 cases demonstrated additional positive patch test results. After a mean follow-up of 32.7 months (range 9-48 months), of the 9 patients that could be contacted, 6 patients described clearance or improvement of their symptoms as a consequence of avoidance of menthol/peppermint.

**Title**

**Effects of a commercial orthodontic debonding agent upon the surface microhardness of two orthodontic bonding resins.**

**Source**


**Abstract**

The bonding techniques employed in orthodontic practice differ from those used in restorative dentistry for, upon the completion of treatment, the appliance is removed. This necessitates breaking the resin/enamel bond. Ideally a smooth, undamaged enamel surface free from all traces of bonding agent should result. Regrettably, however, this ideal is rarely achieved. This investigation assessed the effects of a commercial debonding agent (P-de-A, Oradent Ltd, Eton, Berks, UK), derived from peppermint oil, upon the surface microhardness of two orthodontic resins (Orthodontic Concise and Transbond, both 3M, St Paul, MN, USA). Twenty discs (10 mm diameter x 1.25 mm deep) of each resin were fabricated and, following 1 week's storage in distilled water at 37 degrees C, were allocated to application groups composed of four specimens. The mean initial surface hardness of each group was then determined prior to the application of P-de-A for one of: 30, 60, 90, 120 and 180 s. The hardness was then remeasured. One-way analyses of variance were performed upon the mean initial and final hardness data and revealed only a significant (P < 0.05) reduction in surface hardness following the 180 s application of P-de-A to Orthodontic Concise. We were therefore unable to find little evidence to suggest that the agent facilitates debonding by a softening mechanism and further work is required to elucidate the means whereby orthodontic debonding and 'clean-up' of residual composite, as reported by others, is facilitated.
To request copies of any of these articles please use one of our request forms. Articles can be emailed or posted for a charge of £3.00 each.

**The antimicrobial activity of essential oils and essential oil components towards oral bacteria.**

*Source*  

**Abstract**  
A method for reproducibly determining minimal inhibitory concentrations and minimal bactericidal concentrations of plant extracts towards fastidiously and facultatively anaerobic oral bacteria, predicated upon measurements of optical densities in microtitre plate wells, was devised. The antimicrobial properties of some botanical oils were surveyed; of these, Australian tea tree oil, peppermint oil, and sage oil proved to be the most potent essential oils, whereas thymol and eugenol were potent essential oil components.

**Contact allergy to toothpaste flavors.**

*Source*  

**Abstract**  
Toothpaste flavors are fragrance mixtures. Oil of peppermint and spearmint, carvone and anethole are ingredients with a low sensitizing potential, but they are used in almost every brand of toothpaste and caused seven cases of contact allergy in a 6-year period at Gentofte Hospital. Toothpaste reactions are rare due to several reasons; local factors in the mouth, the low sensitizing potential of the flavors generally used, and the lack of recognition. It is emphasized that the toothpaste battery for patch testing has to be relevant and changed according to the consumers' and manufacturers' taste and fashion.