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*Cochrane Database of Systematic Reviews* 2018, Issue 1. Art. No.: CD009376.

DOI: 10.1002/14651858.CD009376.pub2.

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[Intervention Review]

# Supportive periodontal therapy (SPT) for maintaining the dentition in adults treated for periodontitis

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**Editorial group:** Cochrane Oral Health Group.

**Publication status and date:** New, published in Issue 1, 2018.

**Citation:** Manresa C, Sanz-Miralles EC, Twigg J, Bravo M. Supportive periodontal therapy (SPT) for maintaining the dentition in adults treated for periodontitis. *Cochrane Database of Systematic Reviews* 2018, Issue 1. Art. No.: CD009376. DOI: 10.1002/14651858.CD009376.pub2.

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## ABSTRACT

### Background

Periodontitis is a bacterially-induced, chronic inflammatory disease that destroys the connective tissues and bone that support teeth. Active periodontal treatment aims to reduce the inflammatory response, primarily through eradication of bacterial deposits. Following completion of treatment and arrest of inflammation, supportive periodontal therapy (SPT) is employed to reduce the probability of re-infection and progression of the disease; to maintain teeth without pain, excessive mobility or persistent infection in the long term, and to prevent related oral diseases.

According to the American Academy of Periodontology, SPT should include all components of a typical dental recall examination, and importantly should also include periodontal re-evaluation and risk assessment, supragingival and subgingival removal of bacterial plaque and calculus, and re-treatment of any sites showing recurrent or persistent disease. While the first four points might be expected to form part of the routine examination appointment for periodontally healthy patients, the inclusion of thorough periodontal evaluation, risk assessment and subsequent treatment - normally including mechanical debridement of any plaque or calculus deposits - differentiates SPT from routine care.

Success of SPT has been reported in a number of long-term, retrospective studies. This review aimed to assess the evidence available from randomised controlled trials (RCTs).

### Objectives

To determine the effects of supportive periodontal therapy (SPT) in the maintenance of the dentition of adults treated for periodontitis.

### Search methods

Cochrane Oral Health's Information Specialist searched the following databases: Cochrane Oral Health's Trials Register (to 8 May 2017), the Cochrane Central Register of Controlled Trials (CENTRAL) (the Cochrane Library, 2017, Issue 5), MEDLINE Ovid (1946 to 8 May 2017), and Embase Ovid (1980 to 8 May 2017). The US National Institutes of Health Trials Registry ([ClinicalTrials.gov](http://ClinicalTrials.gov)) and the [World Health Organization International Clinical Trials Registry Platform](http://www.who.int/clinicaltrialsregistryplatform) were searched for ongoing trials. No restrictions were placed on the language or date of publication when searching the electronic databases.

## Selection criteria

Randomised controlled trials (RCTs) evaluating SPT versus monitoring only or alternative approaches to mechanical debridement; SPT alone versus SPT with adjunctive interventions; different approaches to or providers of SPT; and different time intervals for SPT delivery.

We excluded split-mouth studies where we considered there could be a risk of contamination.

Participants must have completed active periodontal therapy at least six months prior to randomisation and be enrolled in an SPT programme. Trials must have had a minimum follow-up period of 12 months.

## Data collection and analysis

Two review authors independently screened search results to identify studies for inclusion, assessed the risk of bias in included studies and extracted study data. When possible, we calculated mean differences (MDs) and 95% confidence intervals (CIs) for continuous variables. Two review authors assessed the quality of evidence for each comparison and outcome using GRADE criteria.

## Main results

We included four trials involving 307 participants aged 31 to 85 years, who had been previously treated for moderate to severe chronic periodontitis. Three studies compared adjuncts to mechanical debridement in SPT versus debridement only. The adjuncts were local antibiotics in two studies (one at high risk of bias and one at low risk) and photodynamic therapy in one study (at unclear risk of bias). One study at high risk of bias compared provision of SPT by a specialist versus general practitioner. We did not identify any RCTs evaluating the effects of SPT versus monitoring only, or of providing SPT at different time intervals, or that compared the effects of mechanical debridement using different approaches or technologies.

No included trials measured our primary outcome 'tooth loss'; however, studies evaluated signs of inflammation and potential periodontal disease progression, including bleeding on probing (BoP), clinical attachment level (CAL) and probing pocket depth (PPD).

There was no evidence of a difference between SPT delivered by a specialist versus a general practitioner for BoP or PPD at 12 months (very low-quality evidence). This study did not measure CAL or adverse events.

Due to heterogeneous outcome reporting, it was not possible to combine data from the two studies comparing mechanical debridement with or without the use of adjunctive local antibiotics. Both studies found no evidence of a difference between groups at 12 months (low to very low-quality evidence). There were no adverse events in either study.

The use of adjunctive photodynamic therapy did not demonstrate evidence of benefit compared to mechanical debridement only (very low-quality evidence). Adverse events were not measured.

The quality of the evidence is low to very low for these comparisons. Future research is likely to change the findings, therefore the results should be interpreted with caution.

## Authors' conclusions

Overall, there is insufficient evidence to determine the superiority of different protocols or adjunctive strategies to improve tooth maintenance during SPT. No trials evaluated SPT versus monitoring only. The evidence available for the comparisons evaluated is of low to very low quality, and hampered by dissimilarities in outcome reporting. More trials using uniform definitions and outcomes are required to address the objectives of this review.

## PLAIN LANGUAGE SUMMARY

### Supportive periodontal therapy (SPT) to preserve teeth in people previously treated for periodontitis

#### Background

Periodontitis (gum disease) is a chronic condition caused by bacteria, which stimulate inflammation and destruction of the bone and gum tissue supporting teeth. People treated for periodontitis can reduce the probability of re-infection and disease progression through regular supportive periodontal therapy (SPT). SPT starts once periodontitis has been treated satisfactorily, meaning that inflammation has been controlled and destruction of tissues supporting the tooth (bone and gums) has been arrested. SPT aims to maintain teeth in function, without pain, excessive mobility or persistent infection over the long term. SPT treatment typically includes ensuring excellent

oral hygiene, frequent monitoring for progression or recurrence of disease, and removal of microbial deposits by dental professionals. Although success of SPT has been suggested through a number of long-term, retrospective studies, it is important to consider evidence available from randomised controlled trials (RCTs).

### **Review question**

This review explored the effects of different SPT approaches in adults previously treated for periodontitis.

### **Study characteristics**

We searched the medical and dental literature up to 8 May 2017. We found four relevant studies known as randomised controlled trials (RCTs), with 307 participants aged 31 to 85 years. All participants had previously been treated for moderate to severe chronic periodontitis and enrolled in a SPT programme for at least three months. Studies evaluated participants for at least 12 months after starting their SPT programme.

The studies compared: additional use of an antibiotic (doxycycline in one study, minocycline in another) to professional cleaning (debridement); additional use of photodynamic therapy to debridement only, and SPT provided by a specialist versus a general dentist. We did not identify any RCTs comparing the effects of providing SPT versus monitoring only, the effects of SPT provided at different time intervals or the effects of mechanical debridement using different approaches or technologies.

None of the studies reported tooth loss. However, studies evaluated signs of inflammation and potential periodontal disease progression, including bleeding on probing, clinical attachment level and probing pocket depth.

### **Key results**

The very limited amount of evidence did not provide evidence of one approach being better than another to improve tooth maintenance during SPT. Low- to very low-quality evidence suggests that adjunctive treatments may not provide any additional benefit for SPT compared with mechanical debridement alone. Evidence of very low quality suggests that SPT performed by general dentists under specialised prescription may be as effective as specialised treatment. Overall, there is not enough evidence available to recommend a certain approach or additional treatment in SPT to maintain teeth, promote gum health and prevent relapse.

### **Quality of the evidence**

There were only four small studies, and only one of them was at low risk of bias. We judged the evidence to be of low or very low quality, therefore we cannot be confident in any conclusions drawn from the studies' results.

### **Authors' conclusions**

We found insufficient evidence about the best approaches to SPT, and no RCTs evaluated SPT versus monitoring only. The evidence we found was low to very low quality, and studies used different methods to report their results, making comparison difficult. More studies are needed that report their findings in a uniform manner.