

Supportive Periodontal Therapy: Principles, Evidence and Clinical Implications

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ABSTRACT

Supportive Periodontal Therapy (SPT) represents the maintenance phase of periodontal care, essential for preventing recurrence of periodontitis following active treatment. It includes regular monitoring, biofilm removal, reinforcement of oral hygiene, and management of risk factors. SPT is critical for sustaining periodontal stability and preventing tooth loss, especially in patients with systemic or behavioural risk factors. This review outlines the objectives, components, evidence, and clinical implementation of SPT. While retrospective studies affirm its effectiveness in maintaining periodontal health, high-quality clinical trials are limited, and optimal protocols—such as recall intervals and adjunctive measures—remain to be clearly defined. Patient compliance, risk-based scheduling, and interprofessional collaboration are key to achieving long-term success. Future research should focus on personalised, evidence-based maintenance strategies integrating modern diagnostic tools and digital support systems.

INTRODUCTION

Periodontal disease, particularly periodontitis, is a chronic inflammatory condition affecting the supporting structures of teeth and remains a leading cause of tooth loss worldwide. Following successful active therapy, the long-term stability of periodontal health largely depends on the maintenance phase, commonly termed **Supportive Periodontal Therapy (SPT)**. SPT aims to prevent disease recurrence, preserve the dentition, and maintain functional and esthetic outcomes.^{1–3} Without structured maintenance, treated periodontitis often relapses due to re-colonisation of pathogenic biofilm, poor plaque control, or unmanaged risk factors. This review discusses the rationale, components, evidence, and clinical implications of SPT, highlighting its role as a cornerstone of periodontal care.

Rationale and Objectives of SPT

Periodontitis exhibits a cyclical nature with phases of remission and exacerbation. Even after successful therapy, residual pockets and susceptible sites may serve as foci for re-infection.⁴ The **primary objectives** of SPT are:

- to maintain stable attachment levels and probing depths;
- to prevent recurrence or progression of periodontal destruction;
- to control plaque biofilm and calculus accumulation;
- to monitor systemic and local risk factors;
- to ensure early detection of recurrent disease or new lesions.⁵

Axelsson and Lindhe demonstrated that long-term adherence to maintenance reduced tooth loss and disease recurrence compared to non-compliant patients.⁶ Thus, SPT should be viewed not as an optional phase but as an integral part of comprehensive periodontal therapy.

Components of Supportive Periodontal Therapy

SPT is multifactorial, integrating professional care, patient participation, and continuous evaluation:

1. **Re-evaluation and Risk Assessment** – Each visit should include a review of medical and dental history, smoking habits, glycaemic control, medications, and periodontal parameters such as probing depths, bleeding on probing, and mobility.⁷

2. **Professional Mechanical Debridement** – Regular supragingival and subgingival scaling removes biofilm and calculus. Persistent sites (>5 mm) may require re-instrumentation or local antimicrobial therapy.⁸
3. **Reinforcement of Oral Hygiene** – Motivation, behavioural reinforcement, and individualised plaque control instructions are crucial.⁴
4. **Recall Interval** – Traditional 3–6 month intervals are widely accepted, but frequency should be customised based on patient risk, disease severity, and systemic status.⁹
5. **Adjunctive Therapies** – Chlorhexidine rinses, probiotics, photodynamic therapy, or host-modulation agents have been explored, though their additional benefit in SPT remains inconclusive.¹⁰

Evidence for Effectiveness of SPT

The importance of SPT is well established in observational and long-term studies. Wilson (1991) demonstrated that patients who attended regular maintenance visits exhibited significantly less attachment loss and tooth loss compared to irregular attendees.¹ Retrospective analyses by Axelsson et al. (2004) also confirmed that structured maintenance reduced tooth loss over 30 years.⁶

Despite strong observational evidence, systematic reviews highlight a lack of robust randomised controlled trials. The Cochrane review by Manresa et al. (2018) found limited RCTs comparing maintenance strategies, concluding that while SPT is beneficial, optimal protocols require further clarification.⁴ A two-year RCT by Costa et al. (2019) reported that patients receiving subgingival instrumentation during maintenance exhibited slightly better reduction in deep pocket sites compared to prophylaxis alone, though overall stability was maintained in both groups.⁸

Collectively, evidence supports SPT as **essential for periodontal stability**, but more high-quality studies are required to refine its evidence base.

Factors Influencing Success of SPT

SPT outcomes depend on patient, clinical, and systemic factors:

- **Compliance** – Regular attendance and consistent oral hygiene significantly improve prognosis. Non-compliance leads to higher relapse rates.¹¹
- **Smoking** – Smokers exhibit poorer responses and greater risk of disease recurrence.¹²
- **Systemic Conditions** – Diabetes mellitus, immunodeficiencies, and stress negatively influence outcomes.
- **Residual Pockets** – Sites with probing depths ≥ 5 mm are at higher risk of breakdown.⁸
- **Professional Supervision** – Specialist monitoring may improve results, but well-trained general dentists can effectively deliver SPT.
- **Recall Frequency** – Customising intervals according to risk profiles is more effective than fixed schedules.⁹

Clinical Implementation and Challenges

For clinicians, implementing SPT involves establishing a patient-specific, risk-based maintenance plan. Each session typically includes:

- review of medical history and risk factors,
- comprehensive periodontal charting,
- mechanical debridement,
- reinforcement of home care, and
- re-evaluation of disease stability.

Patient motivation remains a major challenge. Financial constraints, lack of awareness, and treatment fatigue often result in missed appointments. Clinicians should emphasise that SPT is a **lifelong preventive phase** rather than an optional service. Digital reminders, motivational interviewing, and simplified recall systems can enhance adherence.

FUTURE DIRECTIONS

Emerging trends in SPT focus on **personalised and technology-assisted care**. Artificial intelligence-based risk calculators, remote monitoring via mobile apps, and chairside biomarkers (e.g., saliva-based MMP-8 or IL-1 β assays) may soon help tailor recall intervals and predict relapse. Research is also exploring novel adjuncts such as photobiomodulation, probiotics, and local host modulation agents to enhance maintenance outcomes.^{13, 14}

Future trials should assess cost-effectiveness, patient-reported outcomes, and quality-of-life measures to ensure evidence-based and patient-centred SPT protocols.

CONCLUSION

Supportive Periodontal Therapy is a cornerstone of periodontal care, designed to preserve the therapeutic gains achieved during active treatment. Although the concept is well established, variability exists in recall frequency, intervention strategies, and patient compliance. Current evidence supports the necessity of regular maintenance, with outcomes strongly influenced by patient adherence, smoking status, and systemic health. A risk-based, individualised approach—integrating patient motivation, clinical expertise, and modern diagnostics—remains the most practical strategy. Strengthening patient education and improving evidence through high-quality trials will ensure long-term periodontal stability and tooth retention.

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