



# Peri-Implantitis and Its Prevention in Dental Implants

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## ABSTRACT

-Peri-implantitis is an inflammatory condition affecting the soft and hard tissues surrounding dental implants, leading to progressive bone loss and potential implant failure. Prevention is essential, as treatment is often complex and unpredictable. This article outlines the key risk factors, pathogenesis, and evidence-based strategies for preventing peri-implant disease before and after implant placement.

## I. INTRODUCTION

-Dental implants have become a widely accepted and reliable treatment for tooth replacement. However, like natural teeth, implants are susceptible to plaque-induced inflammatory diseases. Peri-implantitis, characterized by inflammation and loss of supporting bone, has become a growing concern in implant dentistry.

-Unlike peri-implant mucositis (a reversible inflammation of soft tissue), peri-implantitis involves irreversible bone loss and may compromise long-term implant stability if not managed. Prevention begins with proper planning, patient education, and long-term maintenance.

## Etiology and Risk Factors

**Peri-implantitis results from a combination of microbial infection and host immune response.**

**The following factors increase susceptibility:**

-Poor oral hygiene and plaque accumulation



-History of periodontitis

-Smoking

-Diabetes mellitus (especially uncontrolled)

-Inadequate keratinized tissue around implants

-Improper implant placement or prosthetic design  
-Cement-retained restorations with excess cement  
-Bruxism or occlusal overload

## Methods (Clinical Approach to Prevention)

### 1. Pre-Implant Evaluation

-Conduct a thorough periodontal and medical evaluation.

-Assess for risk factors such as history of periodontitis, smoking, and systemic diseases.

-Use CBCT and clinical measurements to ensure proper bone and soft tissue volume.

-Emphasize plaque control and patient compliance before implant placement.

### 2. Surgical Phase Precautions

-Choose implant systems with proven surface technology and design.

-Ensure aseptic surgical technique to prevent early contamination.

-Position implants correctly in a prosthetically driven, bone-supported position to avoid biomechanical stress.

-Preserve or augment keratinized gingiva to enhance tissue seal and hygiene access.

### 3. Prosthetic Phase Considerations

-Prefer screw-retained restorations to eliminate the risk of residual cement.

-If cement-retained restorations are necessary, use minimal cement and radiopaque materials to detect excess.

-Ensure passive fit of the prosthesis to minimize micro-movements.

-Design prosthetics for easy access for hygiene, avoiding over-contoured crowns or deep subgingival margins.

### 4. Patient Education and Home Care

-Educate patients on proper brushing and interdental cleaning techniques around implants.

### Recommend:

-Soft toothbrushes or electric brushes



- Interdental brushes with plastic-coated wire
- Water flossers or oral irrigators
- Antimicrobial rinses (e.g., 0.12% chlorhexidine short-term)

### 5. Maintenance and Recall

- Enroll patients in a professional maintenance program with cleanings every 3–6 months based on risk.
- Clinical monitoring includes:
  - Probing depths (avoid excessive force:  $\leq 0.25$  N)
  - Bleeding on probing (BOP)
  - Suppuration
- Radiographic bone level comparison
- Use implant-friendly instruments (plastic or titanium scalers, ultrasonic tips with plastic covers) during maintenance.

### 6. Early Detection and Intervention

- Recognize peri-implant mucositis early and treat with mechanical debridement and patient education.
- If signs of bone loss or bleeding persist, refer for advanced care or consider laser-assisted therapy or local antimicrobials.

## II. DISCUSSION

-Preventing peri-implantitis requires a comprehensive and proactive approach, starting before implant placement and continuing through lifelong care. Educating patients, selecting proper materials and designs, and maintaining excellent hygiene are essential components of prevention.

-Implant success is not only about osseointegration but also about long-term peri-implant health, which depends heavily on plaque control and inflammation management.

## III. CONCLUSION

-Peri-implantitis is a significant complication in implant dentistry, but largely preventable through appropriate risk assessment, surgical and prosthetic planning, patient compliance, and regular maintenance. By prioritizing prevention, clinicians can protect

implant longevity and preserve the patient's oral health investment.

## REFERENCES

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