



# Dental Implant Placement in a Patient with a History of Smoking

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Date of Submission: 13-04-2026

Date of Acceptance: 25-04-2026

## Abstract

Dental implant therapy in patients with a history of smoking presents unique clinical challenges due to the negative effects of tobacco on wound healing, osseointegration, and peri-implant tissue stability. Despite these risks, successful outcomes can be achieved with proper case selection, risk assessment, and tailored surgical and maintenance protocols. This article reviews the biological impact of smoking on implant success, outlines clinical considerations, and describes a step-by-step approach for implant placement in smokers, supported by visual references.

## I. Introduction

Dental implants are a predictable solution for replacing missing teeth; however, systemic and behavioral factors such as smoking significantly influence outcomes. Smoking has been associated

with increased rates of implant failure, peri-implantitis, and delayed healing. Understanding these risks allows clinicians to modify treatment plans and improve prognosis.

## Biological Impact of Smoking on Implants

Smoking affects implant success through multiple mechanisms:

- **Reduced blood flow** due to vasoconstriction from nicotine
- **Impaired immune response**, increasing infection risk
- **Delayed osseointegration** due to reduced osteoblastic activity
- **Higher risk of peri-implantitis** and marginal bone loss

## Clinical Case Workflow

### 1. Preoperative Assessment



## How Dentists Measure Bone Density

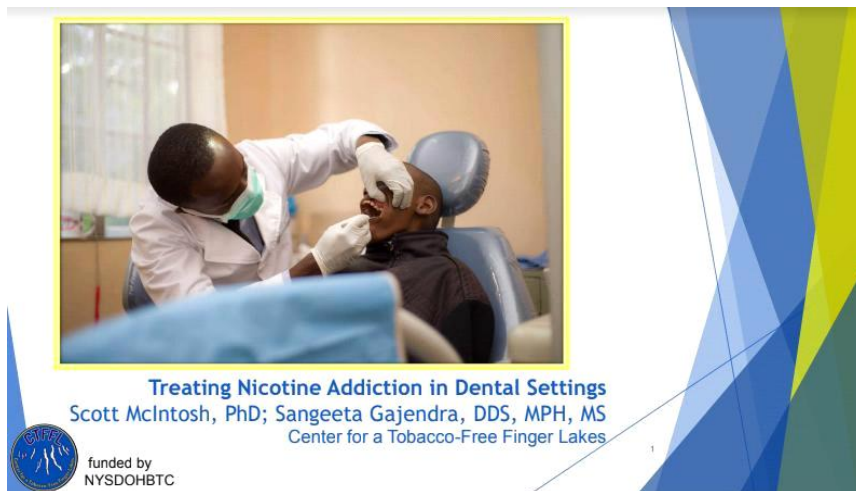
- CBCT Scans and 3D Imaging
- Other Diagnostic Methods (X-rays, CT, Panoramic)
- Assessing Bone Volume and Quality





- Detailed medical and smoking history (pack-years, current vs former smoker)
- Clinical and radiographic evaluation (CBCT preferred)
- Periodontal status assessment
- Patient education and informed consent

## 2. Smoking Cessation Protocol



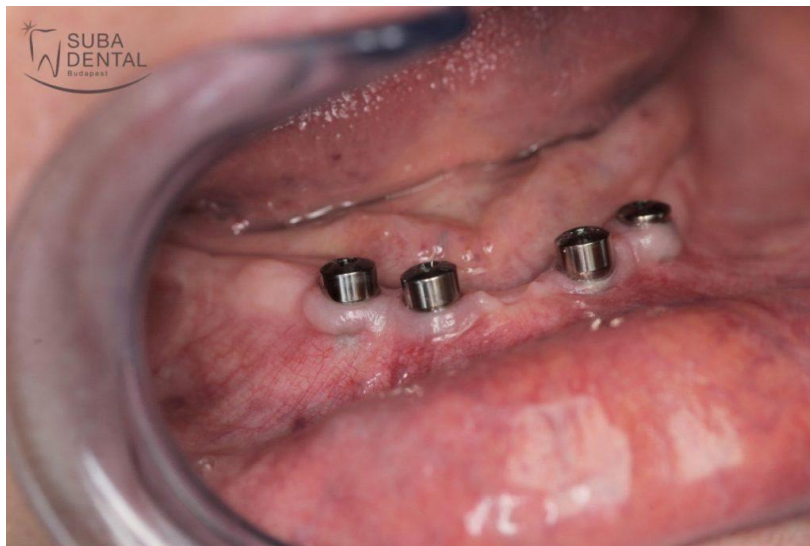
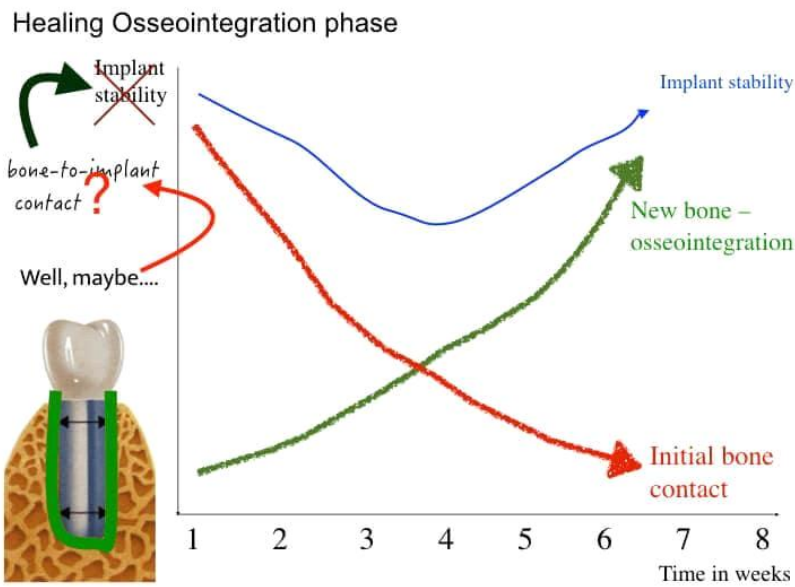
- Ideally discontinue smoking **at least 1–2 weeks before surgery**
- Continue abstinence for **2–3 months postoperatively**
- Consider nicotine replacement therapy or physician referral

## 3. Surgical Implant Placement

- Atraumatic surgical technique
- Minimize heat generation during osteotomy
- Achieve high primary stability
- Consider longer healing periods before loading



#### 4. Healing and Osseointegration





Implants placed in 2008

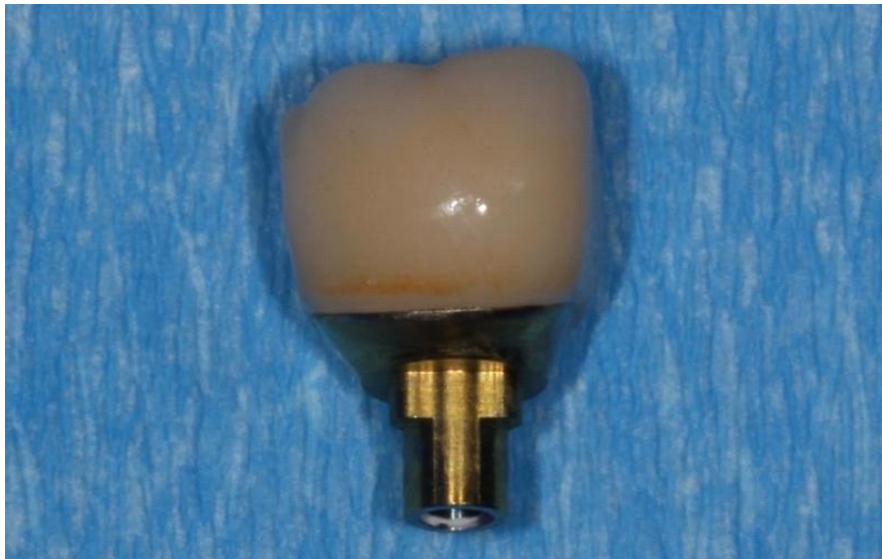


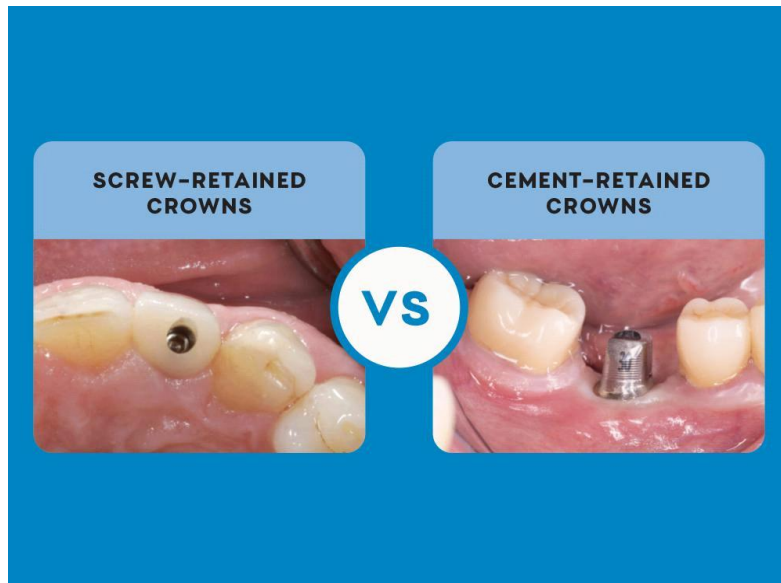
Tissue regeneration completed in 2018. Photo in 2019



- Delayed healing expected in smokers
- Monitor closely for early signs of failure
- Use antimicrobial protocols (e.g., chlorhexidine rinses)

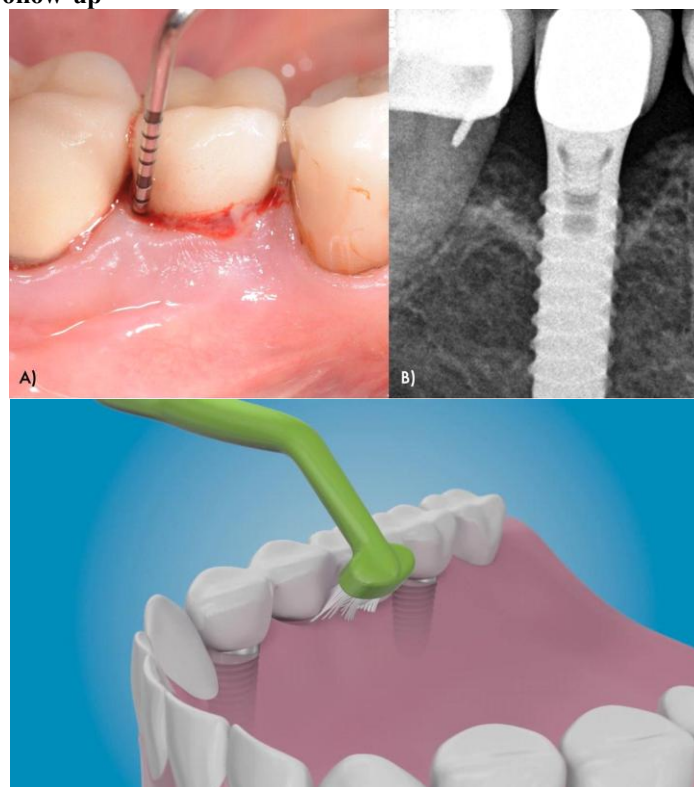
##### 5. Prosthetic Restoration





- Careful occlusal design to reduce overload
- Prefer screw-retained restorations for retrievability
- Ensure proper emergence profile and hygiene access

#### 6. Maintenance and Follow-up



- More frequent recall visits (every 3–4 months)
- Reinforce smoking cessation
- Early intervention for peri-implant inflammation



## II. Discussion

Although smoking is a well-established risk factor, it is **not an absolute contraindication** for implant therapy. Studies indicate that smokers have approximately **2–3 times higher implant failure rates** compared to non-smokers. However, cessation—even temporary—significantly improves outcomes.

Adjunctive strategies such as guided bone regeneration, use of surface-modified implants, and antibiotic prophylaxis may enhance success rates. Clinicians must weigh risks versus benefits and provide individualized care.

## III. Conclusion

Dental implant placement in patients with a history of smoking can be successful when careful planning, patient education, and strict maintenance protocols are followed. Smoking cessation remains the most critical factor in improving implant prognosis. Long-term success depends on both clinician expertise and patient compliance.

### References (PubMed-indexed examples)

- [1]. Bain CA, Moy PK. The association between the failure of dental implants and cigarette smoking. *Int J Oral Maxillofac Implants*.
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- [4]. Levin L et al. Smoking and complications of onlay bone grafts and sinus lift operations. *Int J Oral Maxillofac Implants*.