

Mastering Occlusion for Implant Crown Success

A Practical Guide for Oral Surgeons

Key Clinical Insights from the Everyday Oral Surgery Podcast

LEARNING OBJECTIVES

After reviewing this material, you will be able to:

1. Define occlusion in implant dentistry as effective load sharing across the restoration and supporting bone.
2. Explain why implants are more vulnerable than natural teeth due to the absence of a periodontal ligament (PDL) and proprioceptive feedback.
3. Apply a systematic shim stock + articulating paper protocol to verify and adjust occlusion in centric closure and excursions.
4. Identify high-risk scenarios (bruxism, angled implants, full-arch cases, anterior restorations) and select appropriate management strategies.
5. Implement proactive maintenance protocols and patient education to reduce preventable implant complications.

CORE CONCEPT: OCCLUSION AS LOAD SHARING

Occlusion refers to how chewing and parafunctional forces are distributed ("load sharing") across teeth, implants, and bone. In implant dentistry this principle is especially critical. Implants lack a periodontal ligament, removing the natural shock absorption and early warning proprioception that natural teeth possess. As a result, uneven or excessive loading can quickly manifest as mechanical problems (loose screws, fractured components, chipped porcelain) or biological complications (crestal bone loss, loss of osseointegration). Many post-restorative implant failures are occlusion-related and largely preventable with careful design, verification, and ongoing monitoring.

KEY INSIGHT

Surgeons are ultimately dependent on the restoring clinician's occlusal skills. A well-placed implant can still fail if the occlusion is poorly managed.

PRACTICAL PROTOCOL: CHECKING IMPLANT OCCLUSION

Use shim stock (8–12 µm) and thin articulating paper. Perform checks with the patient both reclined and upright when feasible. The goal is even load sharing without heavy isolated contacts on the implant restoration.

Phase	Shim Stock Test	Articulating Paper / Observation	Ideal Outcome	If Adjustment Needed
Passive Closure (light contact)	Patient closes lightly onto shim stock held between implant crown and opposing tooth. Shim stock should pull through.	Light, even marks on crown compared with adjacent natural teeth	Shim stock offers equal resistance; no significantly heavier marks on implant	Selective reduction of high spots on the implant crown
Clench / Centric (firm bite)	Patient clenches firmly in centric position, Shim stock should hold.	Even distribution of contact marks across the arch	Simultaneous even contact; no single dominant heavy point on the implant	Adjust to achieve mutual protection or balanced sharing
Excursions (lateral / protrusive)	Observe and test during lateral and protrusive movements	Check for interferences or heavy marks on the implant crown during movement	Implant crown discludes or shares load appropriately (canine guidance or group function)	Adjust contacts so implant is protected in excursion; establish canine rise where indicated

Screw-Retained Preference: Many clinicians now favor screw-retained restorations for retrievability and to eliminate cement-related complications. When using screw-retained crowns, place contacts to minimize torque on the screw access channel and screw itself.

HIGH-RISK SCENARIOS & MANAGEMENT

1. Bruxers / Parafunctional Patients

- Over-engineer the restoration (more implants, splinting, or wider platform where anatomy allows).
- Strongly recommend a well-fitted night guard / occlusal splint with regular compliance checks.
- Monitor these patients closely at every recall; they are at highest risk for screw loosening and porcelain fracture.

2. Angled Implants & Full-Arch Cases

- Account for non-axial loading — forces are not directed down the long axis of the implant.
- Limit cantilevers significantly (e.g., maximum size of a premolar on angled distal implants). Larger cantilevers dramatically increase distal bone loss risk.
- Pay special attention to the distal aspect of angled implants where bone loss often begins.

3. Anterior Implants & Bridges

- Carefully distribute forces across the restoration.
- Leverage natural teeth for anterior guidance where possible (modified group function or canine rise).
- Avoid creating heavy anterior contacts that the implant cannot tolerate long-term.

4. Zirconia Hybrids vs. Traditional Acrylic

- The shift to zirconia has changed occlusal philosophy. Zirconia's strength allows simpler schemes such as canine guidance / canine rise instead of the balanced occlusion traditionally used with acrylic hybrids.
- Equilibrate the provisional prosthesis intraorally before finalizing the definitive zirconia restoration.

MAINTENANCE & FOLLOW-UP PROTOCOL

Occlusion is not static. Natural teeth continue to move and wear over time. Therefore:

- Check occlusion at every hygiene/recall visit (recommend every 3 months for implant patients).
- Use the same shim stock + articulating paper protocol at each visit.
- *"Never trust, verify." Re-check carefully at every visit because small changes can create big problems over time.*
- Document findings and any adjustments made for longitudinal tracking.

PATIENT EDUCATION SCRIPTS

Ready-to-use phrasing for chairside communication:

"We check your implant crown's bite very carefully at every visit because small changes can create big problems over time."

Purpose: Explains the rationale for ongoing checks.

"If you notice any soreness around the implant, a clicking sensation, or feel that the crown is loose, please call us right away. Early adjustment is simple; waiting can lead to more serious issues."

Purpose: Encourages prompt reporting.

"For patients who grind or clench their teeth: A night guard is one of the best investments you can make to protect both your implants and your natural teeth. Consistent use matters."

Purpose: Addresses parafunction directly.

"Regular professional cleanings and good home care keep inflammation low. Inflammation plus heavy biting forces is one of the fastest ways to lose bone around an implant."

Purpose: Links hygiene to biomechanical success.

KEY TAKEAWAYS

1. Occlusion is a primary determinant of long-term implant success — not an afterthought.
2. A repeatable, systematic verification protocol (shim stock + paper in centric and excursions) should be standard of care.
3. High-risk patients (bruxers, angled/full-arch, anterior) require thoughtful design, protective appliances, and closer follow-up.
4. Maintenance visits are opportunities for early intervention; never assume the occlusion remains ideal over time.
5. Patient education and interdisciplinary communication are powerful tools for preventing complications.

6. Most occlusion-related implant problems are preventable with attention to load sharing from planning through lifelong maintenance.

RESOURCES & FURTHER LEARNING

- Everyday Oral Surgery Podcast — Full episode and additional clinical discussions: www.everydayoralsurgery.com | Apple Podcasts | Spotify
- Instagram: @everydayoralsurgery
- Facebook: Everyday Oral Surgery

For deeper study: Continuing education courses on implant prosthodontics, occlusal principles, and full-arch rehabilitation are highly recommended. Search for programs covering biomechanical load management and prosthetic design.

This handout summarizes key clinical principles discussed in the Everyday Oral Surgery podcast episode on mastering occlusion for implant crown success. It is intended for educational purposes and should be used in conjunction with current evidence-based guidelines and individual clinical judgment.