

Advances In Prosthodontics™

New Findings & Best Practices for Cosmetic & Restorative Dentistry

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SPECIAL REPORT: CO₂ Laser Dentistry

With the Solea® Laser now in our office, we often feel like Jedi from Star Wars... able to vanquish tooth decay with a wand of laser light! Take that, dark side (caries).

A Note to Our Valued Colleagues:

We are truly excited to have the Solea® CO₂ laser as another way to help your referred patients. At RENU Prosthodontics, many of the patients you kindly refer to us are older adults with complex restorative needs, including root caries, recurrent decay, and restorations that extend subgingivally.

These cases can be challenging in conventional settings — especially when isolation, hemostasis, or patient comfort limit what can be achieved. Due to these challenges, and to better serve your referred patients, we now use the Solea® CO₂ laser, a technology that has meaningfully improved how we restore compromised teeth, while maximizing patient comfort and restorative longevity.

With the Solea® CO₂ laser patients can receive treatment of both hard and soft tissue — where restorations can be produced in the cleanest environment possible — free of any needle, drill, blood, or pain (really).

On the next few pages, you can:

- Learn more about the benefits to patients of the Solea® laser,
- See a case example, and
- Read a journal brief about the effects of CO₂ lasers on hard tissue.



Read more on the next page...

◆ Do you want another opinion on a complex case? Or to talk and share ideas?

There are many ways we can help each other by working together on complex cases and by sharing knowledge and experience.

If you'd like to discuss a treatment, or talk on the phone about how we can help each other, please call or email our office with specific days and times when you're available.

More Examples

Stay informed on new findings and best practices for cosmetic and restorative dentistry.

See more examples of complex cases online:



AdvancedProsthodontist.com
/ RenuPros

FACT SHEET: Background, Treatments, and Main Benefits

by the Specialists of *Renu Prosthodontics*

Solea® is the first CO₂ dental laser to be cleared by the FDA for both hard and soft tissue procedures. It can treat cavities, gums, and even surgical areas with remarkable precision and minimal discomfort. Patients, especially those with dental anxiety, appreciate how this cutting-edge technology transforms dental visits into stress-free, efficient experiences. With the Solea® all-tissue laser in our office, both hard and soft tissue procedures can now be performed quickly, comfortably, and often without the need for needles, drills, or anesthesia.

Solea Laser treatments typically include: Treating cavities and preparing teeth for fillings, crowns, and onlays ... Reducing gum inflammation and encouraging healing ... Detecting early signs of tooth decay ... Relieving tooth sensitivity ... Helping reduce snoring to improve sleep quality.

4 Main Benefits of CO₂ Laser Dentistry for Your Patients

1. Clean, Blood-Free Environment. The CO₂ wavelength is strongly absorbed by water and hemoglobin, making it exceptionally effective at:

- Sealing small blood vessels
- Providing instantaneous hemostasis
- Keeping the operative field dry and visible
- This is especially valuable when restoring lesions near or below the gingival margin

2. Improved Adhesive Conditions. Laser preparation:

- Creates a surface free of smear layer
- Can increase acid resistance of enamel margins
- Helps produce more predictable bonding in challenging locations
- This means a better restorative seal and improved longevity

Solea Laser case example to the right...

Benefits continued on the next page.

CASE EXAMPLE:

Solea Laser for Treating Root Caries



Note: The Solea Laser improved both hard and soft tissue seamlessly! We're also using it for tongue tie releases.

Important: The Solea Laser is just one example of the technology and treatments we can provide. As a state-of-the-art specialty practice we have advanced technology, digital workflows, and an in-house lab to reduce the number of appointments even for comprehensive treatment, while still maximizing function and esthetic outcomes, so your patients can receive the best restorative outcomes — in less time and with more comfort due to modern methods and machines! If you have questions about our prosthodontic protocols, please call us at: **(925) 425-7545**

◆ Do you have a patient in a complex situation?

If you have a question about a case and want another opinion, give our office a call. Or, if there's a case that you want to work together on, please see the enclosed referral info sheet to learn more about what you and your patient can expect when referring to our specialty office. We will take great care of your patient and keep you informed. Dental professionals refer to us as **The Complex Case Specialists™** because we perform complex cases every day.

3. Often No Need for Local Anesthesia

- The Solea laser greatly reduces dentinal sensitivity during preparation.
- For many patients — particularly older adults with medical considerations — we are able to complete treatment:
 - With little or no local anesthetic, and
 - Significantly less vibration, noise, or stress

4. Comfort for Medically Complex Patients

- Older adults often have:
 - Polypharmacy concerns
 - Cardiovascular limitations
 - Cognitive or mobility challenges
 - Anxiety/difficulty tolerating long procedures
- Laser dentistry shortens appointments and reduces physiological stress.

RECAP: What CO₂ Laser Dentistry Means for you and Patients you Refer

Your patients experience:

- ◆ Cleaner, more controlled procedures
- ◆ Less bleeding
- ◆ Less discomfort
- ◆ Fewer injections
- ◆ More durable restorations

You can expect:

- ◆ Improved restorative outcomes
- ◆ A gentle, technologically advanced experience for your patients
- ◆ Thoughtful communication back to your office

We are honored to be part of your patients care and appreciate your trust in our specialty practice.

DENTAL JOURNAL BRIEF

Effects of 9,300 nm Carbon Dioxide Laser on Dental Hard Tissue: A Concise Review

Vicky Wenqing Xue, Irene Shuping Zhao, Iris Xiaoxue Yin, John Yun Niu, Edward Chin Man Lo, Chun Hung Chu. Clin Cosmet Investig Dent. 2021 Apr 30;13:155–161. doi: 10.2147

Abstract: A carbon dioxide laser at 9,300 nm has a high absorption affinity for water and a shallow depth of penetration. It can be used for soft tissue surgery and hemostasis. Besides, it matches well with the absorption characteristic of hydroxyapatite in enamel and dentine. Therefore, the laser possesses a great ability for energy transfer to dental hard tissues. It has a low risk of thermo-damage to the dentine–pulp complex because it has a shallow depth of heat absorption. Hence, the laser is safe for dental hard tissue preparation. A carbon dioxide laser at 9,300 nm can effectively alter the chemical structure of teeth. It increases the ratio of calcium to phosphorus and converts the carbonated hydroxyapatite to the purer hydroxyapatite of enamel and dentine. It can alter the surface morphology of a tooth through surface melting, fusion, and ablation of dentine and enamel. At higher power, it removes caries lesions. It can enhance the success of restoration by increasing the bond strength of dental adhesives to the dentine and enamel. A carbon dioxide laser at 9,300 nm can also be used with fluoride for caries prevention. The advancement of technology allows the laser to be delivered in very short pulse durations and high repetition rates (frequency). Consequently, the laser can now be used with high peak power.

Conclusions: A carbon dioxide laser at 9,300 nm matches the absorption characteristics of hydroxyapatite. The laser energy can be effectively transferred to enamel and dentine. It converts the carbonated hydroxyapatite to the purer hydroxyapatite of enamel and dentine. Because 9,300 nm laser carbon dioxide has a shallow depth of heat absorption in enamel and dentine, it reduces the risk of thermo-damage to the dentine–pulp complex. The laser fosters the effect of fluoride on caries prevention. It enhances bonding of resin to enamel. It can also be used at high power to ablate caries for restorative treatment.

Note: Solea® is a 9,300 nm carbon dioxide laser.

If you have a patient with a complicated dental problem and you would like assistance in helping them, please contact our specialty office. It will be our pleasure to help with diagnosing, planning, or treatment execution for complex cases. **Types of cases we are often referred:** full mouth reconstruction, full arch implants, crowns on all teeth, and replacing missing teeth especially when it's a difficult situation - also custom complete dentures and partial dentures. **When patients are referred,** we refer them back to their general dentist for regular hygiene, unless advised otherwise by the referring office, depending on the patient and treatment. We will be in contact with your office every step of the way. If you have questions about our prosthodontic protocols or want to discuss a case, please call our office at: **(925) 425-7545**

◆ How can a Prosthodontist assist you and your dental team?

We specialize in the treatment of complex cases, usually involving several procedures over months of care. The next time you see a challenging case, please feel free to call us and we can discuss treatment planning or help you with any part of the treatment. Our goal is to be a resource for your office by helping manage difficult and time-consuming procedures, restoring the function and esthetics that the patient desires, then referring them back to your office for their ongoing care.

ABOUT OUR SPECIALTY PRACTICE



Dr. Maggie Chao and Dr. Olivia Nguyen are specialists in prosthodontics and available to help you and your patients with complex cases.

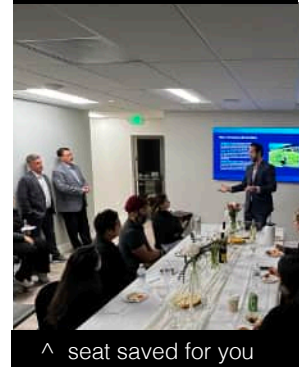
Renu Prosthodontics is a comprehensive, specialty practice that focuses on the restoration and replacement of missing teeth with natural-looking, well-fitted, comfortable prosthetic teeth. The Renu Prosthodontics team has training and private practice experience that make treatments of complex cases more successful, including the following examples:

- Patients with severely worn/damaged teeth, missing all teeth, or with ill-fitting dentures can receive a full arch of natural-looking teeth to restore function & esthetics.
- Patients with congenital defects, a chronic condition, or traumatic injury can receive oral prostheses, which may be a combination of dental implants, crowns, bridges, or veneers.
- Patients with difficult anterior cases in the esthetic zone can receive single or multiple dental implants to replace missing teeth, or veneers or crowns to improve the appearance of their smile.

In addition, Renu Prosthodontics is equipped with an **in-house dental lab**, for your referred patients to receive custom restorations from the best materials using the latest technology. **RENU mission:** Restore smiles, Enhance lives, Nurture trust, and Unite communities through exceptional prosthodontic care!

New Lecture Space

Training events with colleagues!



^ seat saved for you

Our Pledge

When your patient is referred:

- ✓ We will only treat what your patient needs.
- ✓ We will send you updates.
- ✓ We will be part of your team, not take over your patients.

◆ Have you seen a patient in one of these situations?

These are the most common reasons why other dentists refer to a Prosthodontist:

- **Failing Restorations** — Broken or worn prosthetics, or poorly-fitting dentures
- **Implant Complications** — Mal-positioned or loose implants, or multiple systems
- **Severe Wear** — Advanced attrition from grinding or erosion, and collapsed vertical
- **Terminal Dentition** — Perio disease or neglect, requiring extractions and prosthetics
- **Edentulous Problems** — Resorbed ridges or lack of bone, wanting a fixed solution
- **Occlusal Issues** — Advanced mal-occlusion, jaw discrepancies, canted plane
- **Challenging Esthetics** — Un-esthetic restorations, high smile line, high expectations
- **Missing Anteriors** — Central incisors from trauma or laterals from genetics

These “complex cases” may drain your time — how to help these patients:

Prosthodontists can be a resource to ask questions or help properly stage and manage complex treatment, often involving multiple specialists and providers over months of care. They can coordinate repair or replacement of teeth with fixed or removable prosthetics, to give patients ideal function and esthetics, then refer the patient back to you.