

CASE STUDY

The 2-Appointment Denture Protocol

Dr. Ankur Gupta



BEFORE



AFTER

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Dentures are the worst. Here's why.

The way I was taught in dental school, an appropriately made high-quality denture requires the following things to be done accurately:

- Reconstruction of the edentulous tissue, vestibular flanges, palatal transition, and muscle attachments
- Construction of the vertical dimension of occlusion (VDO), harmonious to jaw function and phonetics
- Establishment of a highly aesthetic smile line and midline

In order to do this well, I had to use quite a bit of rope wax, green stick compound, pink wax, a buffalo knife, headed spatulas, impression material, bite registration material, and copious amounts of blank stares from my patients as they looked at themselves in the mirror with a bite block in their mouth.

Digital dentistry came along and made the crown & bridge, implant placement, study model, and night guard process much easier, more predictable, streamlined, and quite a bit more fun. However, after a few years of enjoying digital dentistry, I sadly continued to maintain my decades old belief: that dentures are the worst.

This changed in the past few years, as the digital process has now transitioned very nicely toward the fabrication of removables. I'm not going to lie and say that scanners can now beautifully capture the intraoral sea of pink in an attempted intraoral scan, but, by following the steps outlined below, I have found the digital denture-making process to be much more predictable, efficient, free of headaches, and significantly less difficult.

CASE DESCRIPTION

In the following case study, I will illustrate an efficient two-appointment digital workflow for fabricating two different types of dentures for the same patient, including an immediate denture and copy denture. Both workflows leverage the latest digital technology and assistive scanning software to save chair time and simplify what has traditionally been a complex process for restoring the edentulous arch.

PATIENT PRESENTATION

Meet Dave.

Dave is an incredibly kind, warm military veteran who has lived a life of discipline and self-sacrifice, but simply has not had the luck, the background, the know-how or the access to properly take care of his teeth.

At the time that I met him, he was already struggling with many functional and aesthetic problems. Our initial examination and treatment plan resulted in the determination that he would have all of his teeth, which were compromised by caries and periodontitis, removed and replaced with dentures following a completely digital workflow.



At the initial consultation the patient presented with substantial discomfort, functional issues and aesthetic concerns resulting from extensive caries and periodontitis.



Both of the patient's arches were compromised by edentulous spaces and untreatable teeth. A treatment plan was developed to extract the patient's remaining teeth and restore each arch with complete dentures, beginning with immediate dentures for the surgical appointment.

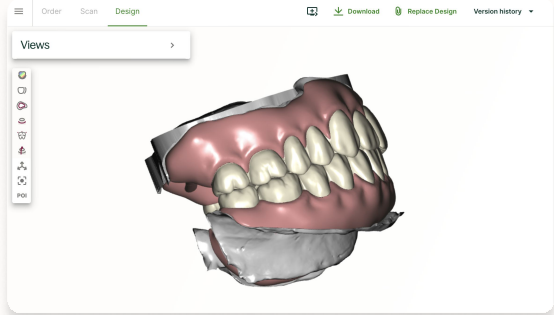
PATIENT EVALUATION AND INITIAL SCANS

Prior to learning of the benefits of digital dentistry, fabrication of Dave's healing denture would have taken at least three appointments. Because he was missing several of his posterior teeth both on the left and right side, it would have been irresponsible for me to simply send upper and lower impressions to the lab without any bite blocks.

The digital process, however, eliminates that step. David's highly dubious bite—essentially, teeth #8-11 occluding with #22-26—would have been very difficult to reconstruct in a lab by holding together stone models. In the chair, however, David's bite was solid, consistent, and reproducible. The digital process allowed me to take an accurate upper and lower scan, along with the bite.

IMMEDIATE DENTURE DESIGN REVIEW AND APPROVAL

Upon receipt of the upper arch, lower arch and bite scans, the lab created high-precision CAD designs, including denture bases, teeth positioning, occlusion and aesthetics to match the characteristics and anatomy of the patient's natural dentition.



After designing the upper and lower dentures based on the initial intraoral scans and specifications provided with the digital case submission, the lab shared a Digital Design Preview, which allows detailed, 360-degree review of the denture designs. After making a few minor adjustments I requested, the lab 3D-printed immediate dentures.

DELIVERY OF THE IMMEDIATE DENTURES

The patient's digital dentures were ready to go at the very next appointment. At the time of teeth extraction, we were able to deliver upper and lower healing dentures that allowed David to smile and function as his extraction sites and soft tissue were given time to heal.



After extracting the patient's teeth, the upper and lower immediate dentures were seated and served the patient's functional needs well.



The patient was pleased with the aesthetics of the immediate dentures, which were delivered following a streamlined, predictable two-appointment workflow.

This completed a simple, efficient two-appointment protocol for delivery of Dave's immediate dentures, and a similar process would be followed to produce his definitive dentures upon healing of the implant sites and soft tissue.

INTRAORAL SCANS FOR COPY DENTURE FABRICATION

Several months and a few relines later, David returned to our office to begin the process of making his permanent dentures. This process, for my entire career, has been daunting, and would have been made worse by the fact that David liked his smile with his temporary dentures.

The reason I say that this is because, using traditional means, there has never been a good way to recreate the midline, VDO, occlusion, smile line and other aspects of an original denture without sending the actual denture to the lab. David is a busy guy, and the thought of going without his dentures for a week or so was unacceptable to him.

Denture reproduction using the digital process is incredibly quick, easy, predictable and fun.

So let's look at his healing dentures:

The bad:

- They had been relined a few times and no longer fit very well
- The occlusion was imperfect, especially on the right side
- The teeth were a bit more yellow than he would like

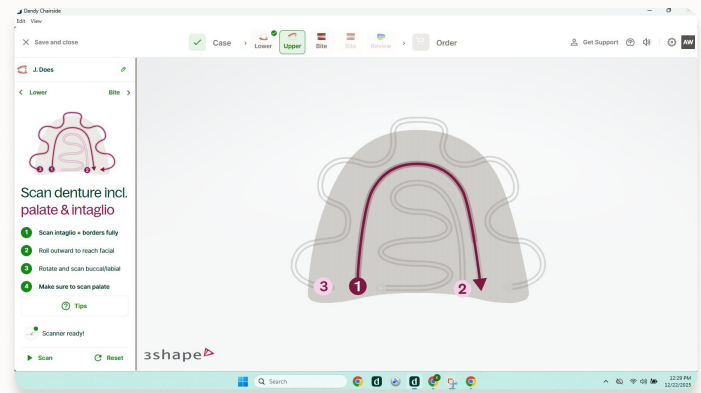
The good:

- The midline was ideal
- VDO was optimal
- Phonetics and aesthetics were acceptable to the patient
- The patient liked the size, shape and contour of the teeth

So, what did I do? First, I had to accurately reproduce the soft tissue features of David's edentulous ridge. This was done very easily by taking a wash impression inside the dentures using light-body PVS material.

Then, instead of sending this wash impression inside the denture to the lab, all I needed to do was take a full 360-degree scan of the dentures. By submitting this scan, the lab was provided with everything that they would normally need—and Dave was allowed to keep his temporary dentures while Dandy fabricated the final dentures:

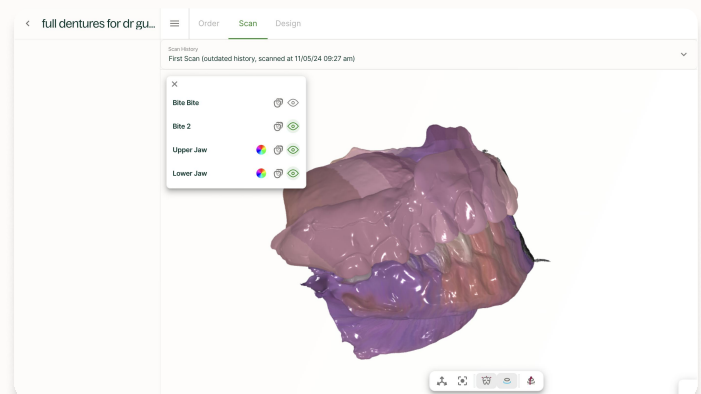
- The patient's midline
- The patient's VDO
- A reproduction of the patient's soft tissue
- Contours, size, and shape of the patient's preferred teeth



The Chairside software included with Dandy's scanning platform guides you through each specific scan you need to capture for the selected lab service—in this case new final dentures produced using the lab's 2-appointment copy denture workflow.



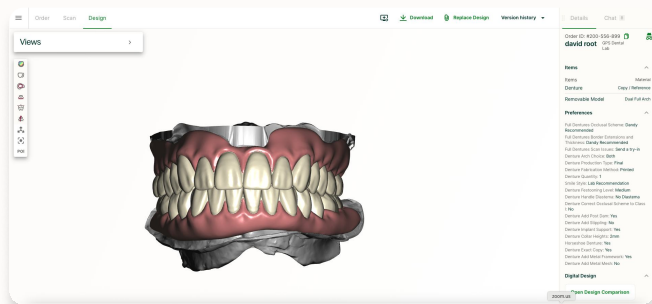
A wash impression was taken with the patient's immediate dentures to capture the patient's soft tissue anatomy post-healing and a 360-degree extraoral scan of each denture was taken to communicate the design modifications to the lab.



We also took a 360-degree extraoral bite scan of the patient's immediate dentures to capture the final VDO, midline and bite, and submitted the case to the lab for the fabrication of copy dentures, which would serve as the patient's definitive restorations.

I wanted to correct the right side of the occlusal relationship, along with the shade, but that could easily be accomplished through the digital platform by telling the lab not to reproduce the dentures exactly. The Dandy platform is incredibly helpful in its case submission by ensuring the final scans are accurate and making it easy to communicate any changes needed to denture designs.

Dave liked his immediate dentures, and he could go home with them while the lab fabricated the final dentures based on the scans of the immediate denture, along with the adjustments I requested in the digital Rx. The lab didn't need the immediate dentures back as they already had the digital designs of the immediate dentures, and was ready to convert those into final dentures after making adjustments based on the wash-impression as well as the final features that I requested.



After reviewing the Digital Design Preview, including the changes requested for lip support, occlusion and shade, I approved the final dentures for fabrication.

DELIVERY OF THE FINAL DENTURES

At the time of final seating, I was provided with excellent, highly aesthetic, durable final dentures that had essentially already been tried in via the immediate dentures with wash impressions. In a fraction of the time, headache and planning—and without the use of any wax—I was able to deliver to Dave a beautiful final case.



The final dentures were delivered and exhibited a precise fit upon seating.



The patient was extremely pleased with the function, aesthetics, and comfort of the final dentures.

Both sets of the dentures provided for Dave, including the immediate dentures for the healing period and the final copy dentures, were produced in only two appointments each, saving valuable time for the clinician and patient alike.

PATIENT BEFORE AND AFTER



DANDY'S TECHNOLOGY

The pain points associated with traditional denture fabrication were avoided with Dandy's fully integrated 2-appointment digital workflow. With assistive scanning technology that guides you through each scan and valuable tools like Digital Design Preview that allow the clinician to QC denture design prior to fabrication of the restoration, the chair time and appointments required to deliver a predictable outcome are greatly reduced.

CONCLUSION AND BEST PRACTICES

With today's intuitive intraoral scanning technology and streamlined digital workflows, denture fabrication no longer has to be frustrating or unpredictable. By eliminating the headaches and constant resets of analog processes, it's now surprisingly straightforward to deliver results patients can truly smile about—with fewer appointments and less stress than I ever thought possible.

This case illustrates how a few straightforward techniques—such as wash impressions, 360-degree extraoral scans, and digital collaboration with the lab—can simplify cases that were once complex, creating a smoother experience for everyone involved.



ABOUT THE AUTHOR

Dr. Ankur Gupta

After completing his General Practice Residency in 2005, Dr. Ankur Gupta started a practice from scratch. Armed with what he considered adequate dental knowledge, hand skills, and a personable demeanor, he watched as his practice floundered, finances became unpredictable, and his lower back and spirit toward his profession became worrisome.

Rather than continue the trend, he made a guinea pig out of his office, family, and self; attempting any and all personal and professional “experiments” in self-improvement.

More than a decade later, Dr. Gupta enjoys excellent new patient numbers and case acceptance, a solution-oriented dental team, a digitally focused practice, and most importantly, a meaningful and positive identity.