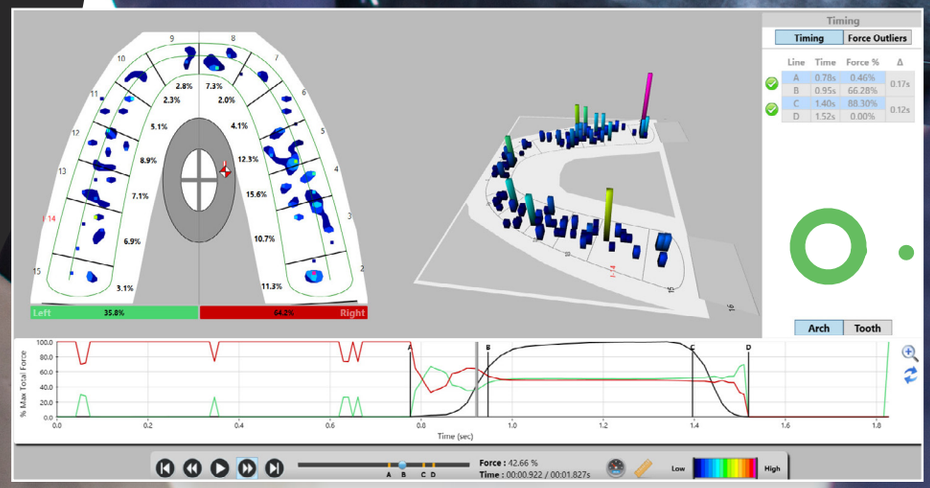
Data Reveals What a Patient Can't Feel:

A Case Report

An Implant Case Summary Provided by
Dr. Chris Stevens, DDS



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CITATION

Stevens, C. "Technology to Control Excessive Occlusal Contact Force in Enhancing Implant Longevity." (January 2016) Dentistry Today, 112-117.

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Patient Overview

A 54-year-old patient had an edentulous space at the #19 area where the first molar was extracted as an emergency about six months previously. He came to the office with a desire for replacement.

- **Had a bridge on the lower right side** and did not like how food became impacted every time he ate. Thus, he searched implants and found our website.
- **There was no convincing him implant replacement was a good option.**
- **Primary concern was the patient's smoking habit.** Smoking does not eliminate the implant option, but I always tell smokers they need to be aware that nicotine and bi-products of cigarettes have an adverse effect on the healing process. But, the patient chose the implant option

The implant prosthesis replaced tooth #19, between two natural teeth.

We used a 4.7 diameter, 10 mm length Legacy 3 (Implant Direct International, LLC) implant. After healing and crown cementation, we used T-Scan to capture the patient's bite force dynamics, so he could check the occlusal load on that crown.

About the Author:
Dr. Chris Stevens
DDS

- Dr. Chris Stevens, DDS has a **dental practice in Sun Prairie, Wisconsin** that focuses on Family Dentistry and Cosmetic Dentistry.
- He graduated from Marquette School of Dentistry in 1981 and began practicing in Sun Prairie, Wisconsin in 1982.
- Dr. Stevens is recognized as an international expert in Cosmetic Dentistry and Full Mouth Reconstruction. He is committed to staying in the forefront of the latest techniques by attending high-level continuing education.
- Dr. Stevens frequently teaches other dentists across the country and abroad, in areas such as Cosmetic Dentistry and Full Mouth Reconstruction, principles of occlusion and diagnosis, and treatment of temporomandibular (TMJ) disorders.
- Dr. Stevens has been an active lecturer since 1989 and has spoken to thousands of care providers, including dentists, physicians, chiropractors, and physical therapists across the country and abroad.

“The Patient was Only 46% of the Way to MIP, with the Implant Taking the High Occlusal Load”

Even more concerning, the high force was applied earlier to the implant than the surrounding natural teeth. Less than a second later into the bite, the implant is still subject to all that force. It’s not until .03 seconds later that the adjacent teeth start to absorb the applied forces in that occlusal area.

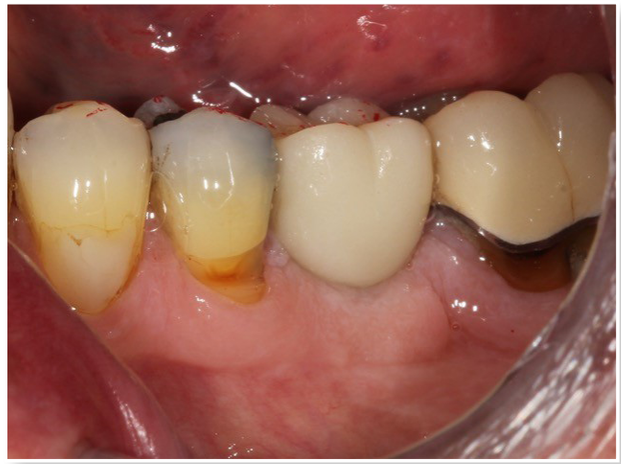

Figure 1: The patient had a mix of natural and porcelain dentition

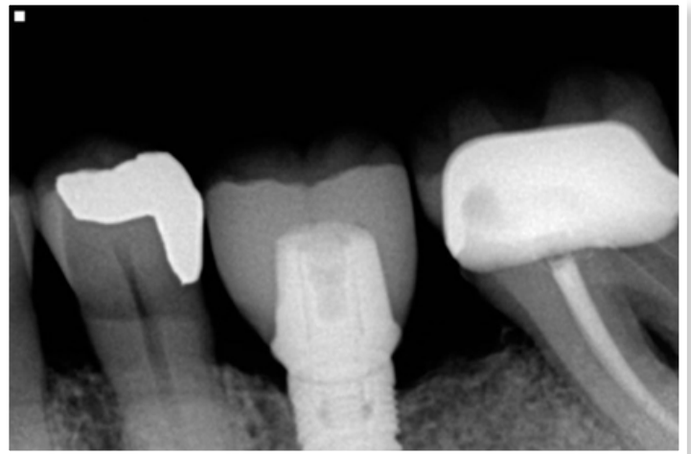

Figure 2: The implant is cradled between two natural teeth

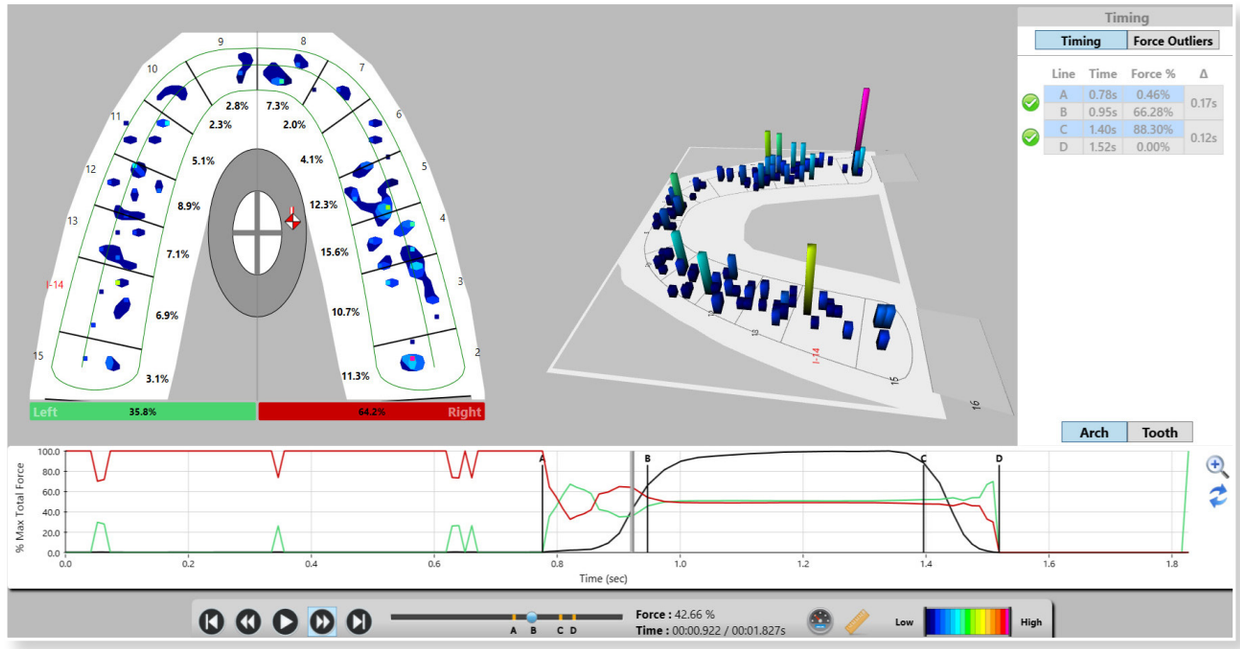

Figure 3: The patient’s implant is loading less than halfway to MIP.

“When the Implant Loads Slightly Later than the Surrounding Teeth, I Call this ‘Cradling.’”

Post adjustment, I take a new movie. This is more what I’m looking for: the anterior and posterior teeth adjacent to the implant take on the initial loading. Even .10 seconds, when we reach MIP, those teeth demonstrate higher forces than the implant—but notice, the implant is still part of the occlusion. When the implant loads slightly later than the surrounding teeth, I call this “cradling.”

This is not my idea of a great occlusal scheme. **The patient can’t even feel it, but over time, the implant will take on repeated high stress and anything could happen—fracture, perimplantitis, bone loss, screw loosening, etc**. But the good news is that I have objective data to see where (and when) the problem is occurring. I can use the T-Scan data to guide my occlusal adjustments on the implant crown.

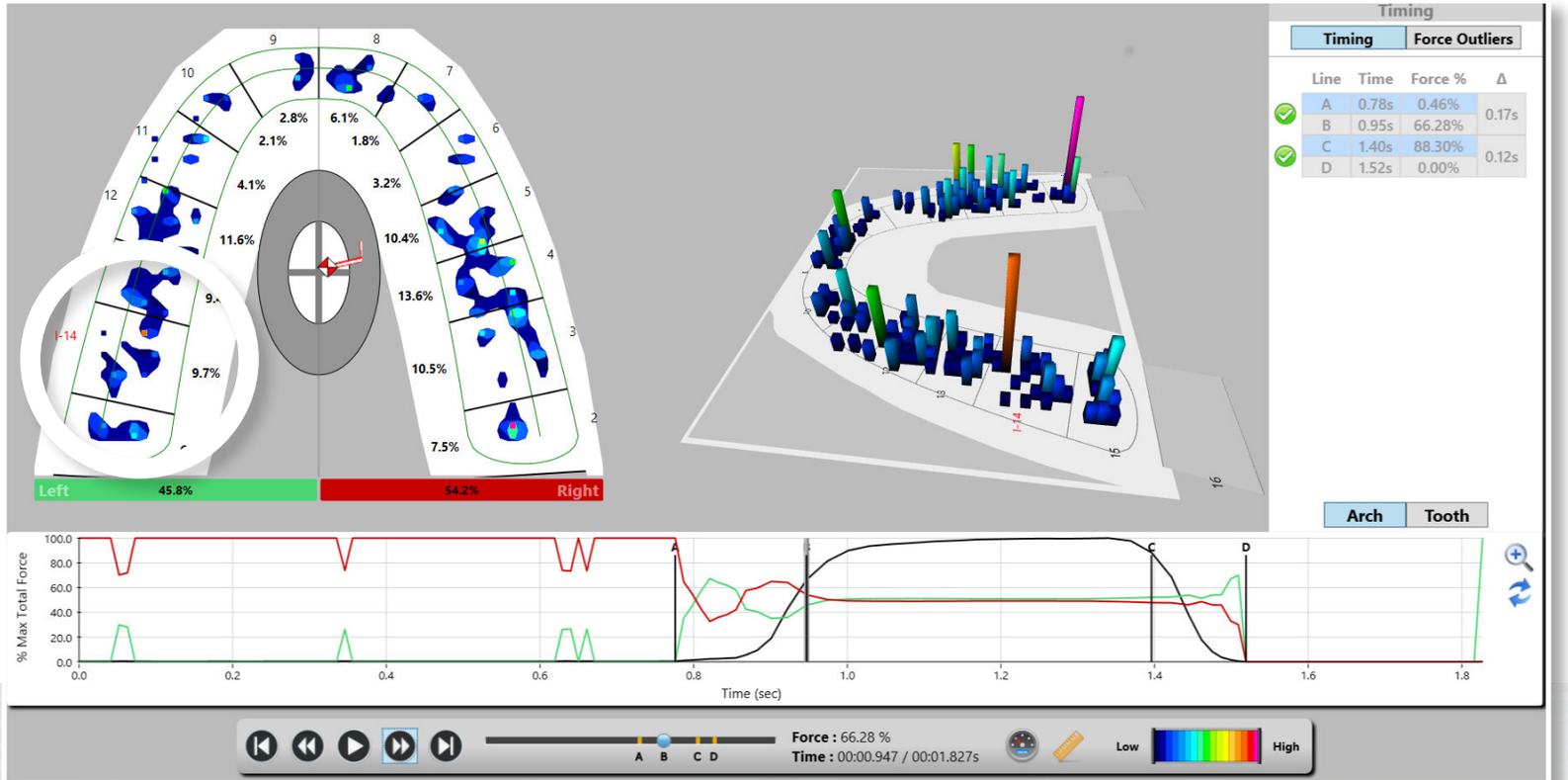

Figure 4: At nearly MIP, the implant begins to take on more force.

“Getting this Occlusal Scheme to Where it Needed to be Requires that Fourth Dimension: **Timing**.”

I was able to time when the implant began to load by identifying how force is distributed over the dentition throughout the course of the bite. I could not do this with the traditional occlusal methods we have today: patient feedback, articulating paper, wax, shim stock foils, imprints, etc. **I’m able to control the occlusal situation of the patient by having objective bite force data to complete the equilibration, ensuring the long term function of the implant, and managing the prosthesis with measurement going forward.**

At recall hygiene appointments, a new movie is taken to insure the occlusal scheme is still favorable for the implant prosthesis. I have found adjustments may need to be made over the life of the implant. However, that quick adjustment saves time, heart muscle, and stomach lining, compared to loose or broken implant prostheses.

I find that patients cannot detect an implant prosthesis pre-maturity with any consistency. **However, when I have completed the computerized occlusal management, they tend to be surprised at how much better the bite feels than before I adjusted.**

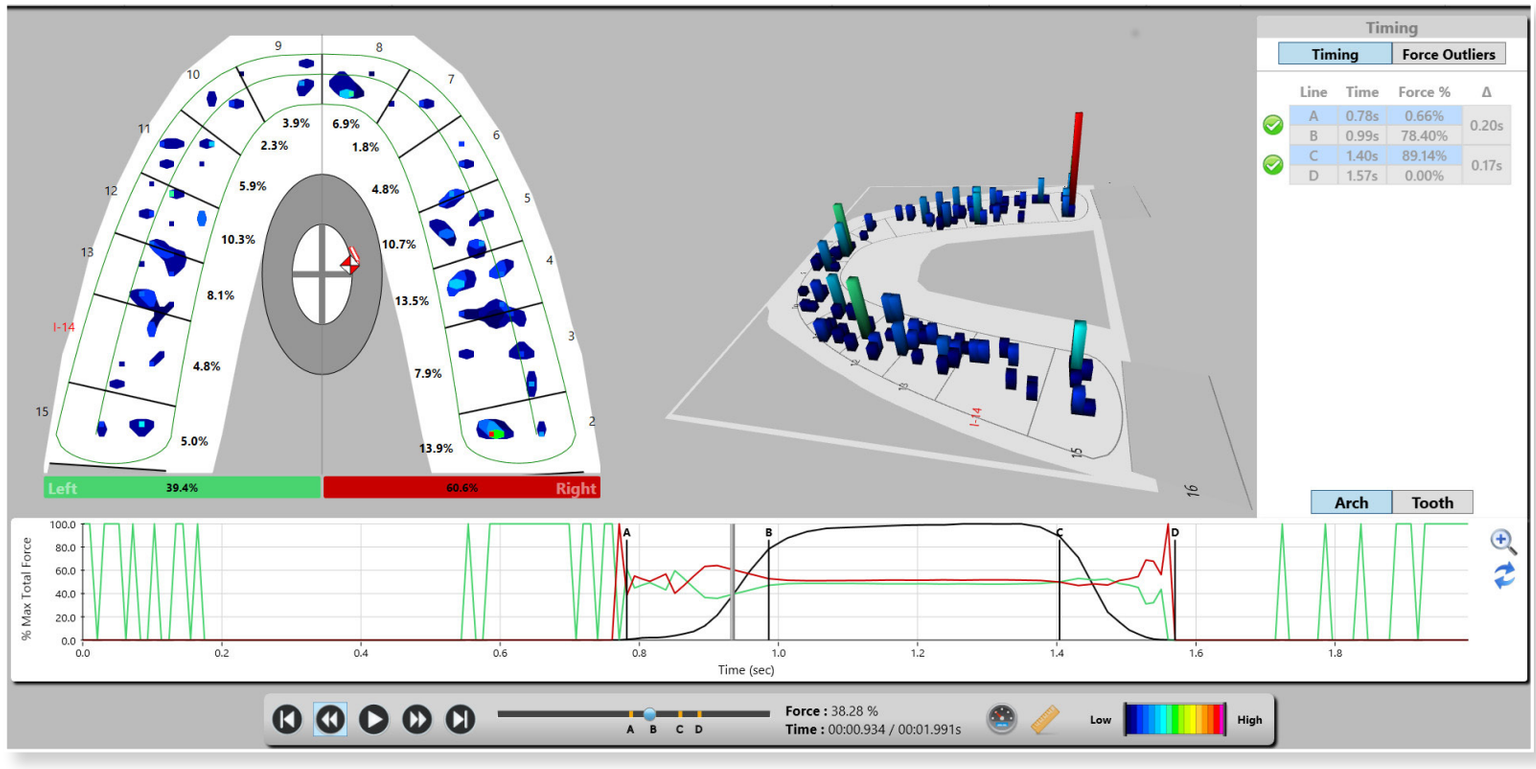

Figure 6: Post-adjustment, Dr. Stevens can see the implant starting to load later than the natural surrounding teeth.

For More Information on T-Scan in Implant Dentistry, Download our Free eBook!

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