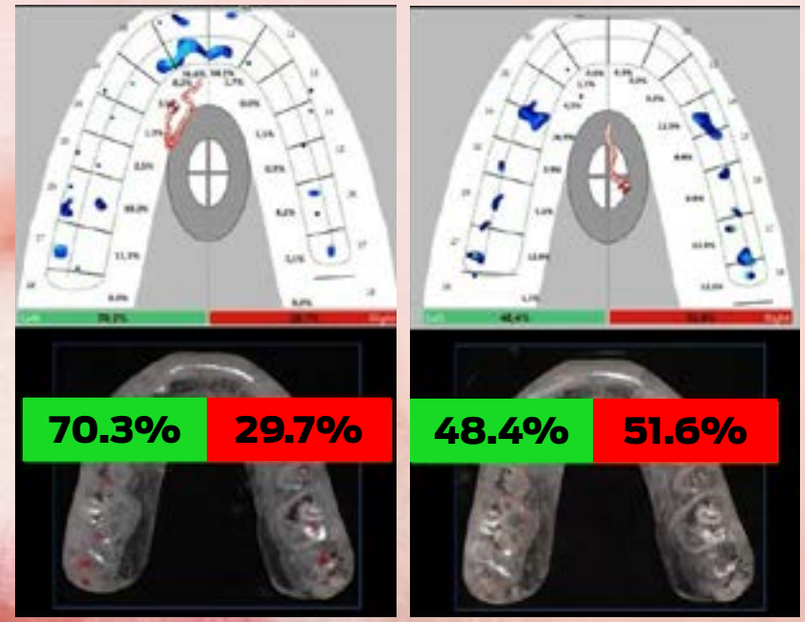
# Experimental Occlusal Splint Adjustment With and Without T-Scan

Which method proved to be more successful for splint equilibration?

A Case Summary Provided by
**Dr. Rosario V.E. Prisco, MD, DDS, CAGS Prosthodontics**

Tekscan™



**CITATION**

This case content was originally presented in a live webinar titled "Checking Occlusion on Implant Prosthesis," presented by Dr. Rosario Prisco.

**Click here** to access this webinar.

# Patient Overview

A 22-year-old female patient in overall good health and a splint user had been suffering with muscular pain for some time.

- T-Scan readings showed that **her occlusion was not well balanced, and she had several early-tooth force contacts.**

- While his usual protocol would be to use T-Scan in his splint equilibration procedures, with the patient's acceptance, **Dr. Prisco decided to try equilibrating her splint based on articulating paper alone.**
    - **Note:** This patient was extremely kind to offer her condition to this experiment.

**About the Author:**
Dr. Rosario V.E. Prisco
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- Currently Professor of Fixed Prosthesis at the University of Foggia, in Italy
- Works as a consultant and his practice is limited to prosthetics and occlusal related problems.
- Has been helping dental students and practitioners better understand implant supported prosthesis patients and the difference with healthy human being with natural dentition. He published papers in the Journal of Prosthetic Dentistry, Journal of Medical Insight, Journal of Periodontology and the International Dental Journal.

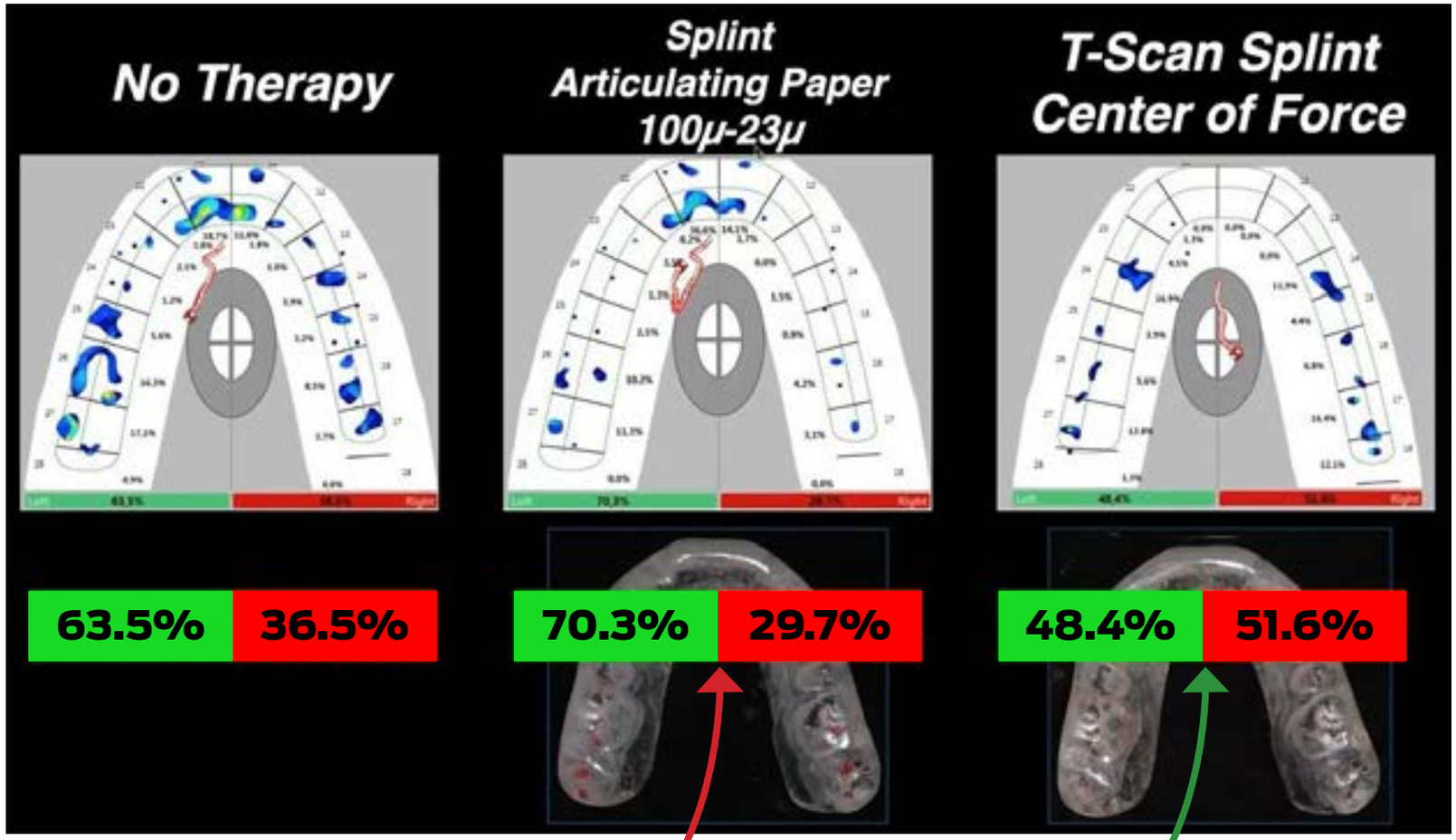
# Refining the Splint to Provide Balanced Occlusion

**Figure 1** displays three views of the T-Scan shown before (left), after the splint was made based on articulating paper (middle), and after creating a splint based on T-Scan data (right). Both the left and right forces are listed as a percentage of overall force for the entire movie. The center of force trajectory is displayed as a red line on the 2D ForceView images.

Before the Splint is applied, the arch balance tilts to the left by 63.5% versus the right at 36.5%. The occlusal balance is misaligned, and we can see that early forces on the anterior teeth are causing more forces to be borne by the front left section of the patient's arch.

Dr. Prisco used 100-23 micron articulating paper to equilibrate the first splint. The patient's occlusion was recorded with this splint in place. After using the T-Scan to verify the splint equilibration, it was discovered that the occlusal imbalance increased from 63.5% to 70.3% on the left, and decreased from 36.5% to 29.7% on the right. **While these results may not be as extreme in other patient cases, it underscores the importance of having access to frame-by-frame moments of the patient's bite.**

**Figure 1:** Occlusal balance and center of force trajectory before splint creation, and after creating splints based on articulating paper data, and T-Scan data.




The splint that was developed based on articulating paper interpretation resulted in **significantly worse occlusal balance and center-of-force trajectory than the control.**

T-Scan's quantitative force & timing data allowed Dr. Prisco to **pinpoint when and where early contacts were occuring**, leading to better results.

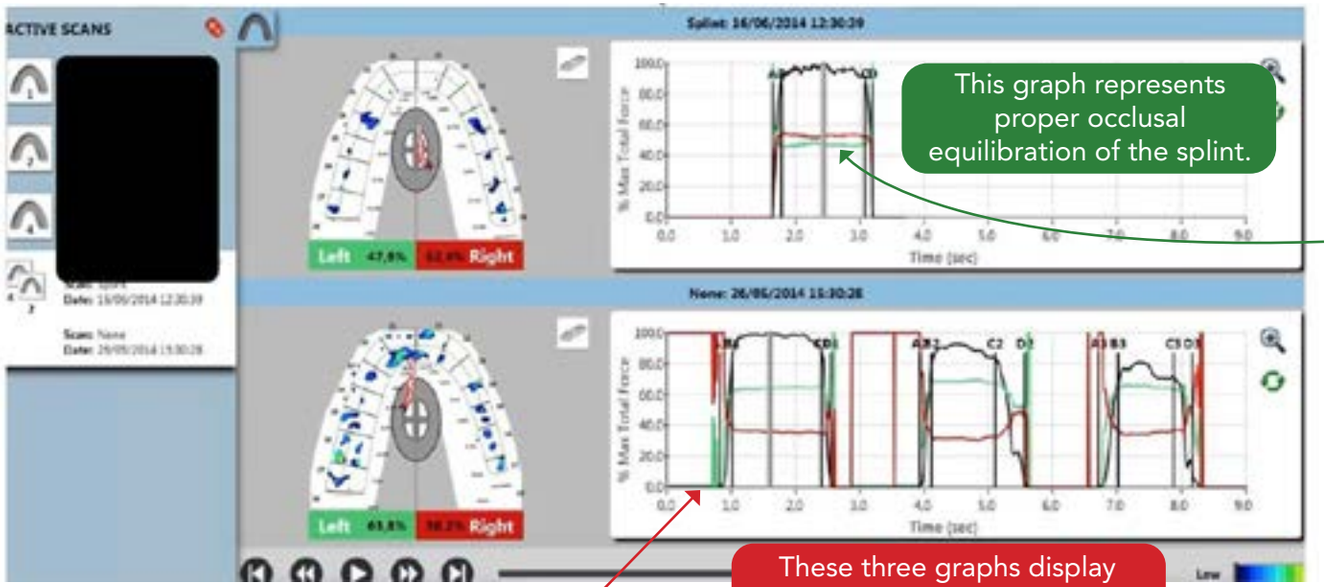
# It's Vital to Know Both When and Where Adjustments are Needed.

When looking at the occlusal equilibration with the T-Scan, Dr. Prisco found that he was able to improve the patient's occlusal alignment dramatically. Looking at the force outliers, he could view the area where, and the timing when, he did not want to have tooth contact.

As a result, he could alter the splint to reduce these contacts, and provide a better occlusal balance for the entire duration of the patient's occlusion.

**This case clearly demonstrates the importance of having access to objective and quantifiable force and timing data for splint equilibration. As dentistry's only verified digital occlusal analysis technology, T-Scan is the best option to collect this vital information that cannot be captured by articulating paper alone.**

**Figure 2:** Example of the splint equilibration process using T-Scan Novus software.



# T-Scan: Dentistry's Only Validated Digital Occlusal Analysis Technology

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