

CASE STUDY

Quantitative Percussion Diagnostics (QPD) in a 90-Year- Old Patient with Severe Wear

Real-time data confirms implant health and reassures the patient at two-year follow-up.



Welcome to the New Standard in Diagnostics

At Perimetrics, we believe that better diagnostics lead to better outcomes. From implants to natural teeth, the earlier you can detect subtle changes in stability, the more confidently you can treat—and the longer your work will last.

This case study collection was created to showcase real clinical examples where Quantitative Percussion Diagnostics (QPD) changed the course of treatment, revealed hidden risks, and helped clinicians take proactive steps before failure occurred.

Whether you're looking to improve patient care, reduce costly complications, or enhance your diagnostic confidence, InnerView delivers the insights traditional tools often miss—non-invasively and in just seconds.



Explore what's possible when you can see beneath the surface.



Patient Case: Confirming Implant Health in a 90-Year-Old Hygienist

* The information in this case study pertains to future capabilities, currently under clinical evaluation - Not yet FDA cleared.

Case Study Snapshot



PATIENT:
90-year-old male



VISIT TYPE:
Routine comprehensive exam with InnerView evaluation



FINDINGS:

- Tooth #1: Severe fracture with structural instability
- Tooth #29: Progressive increase in NFE indicating micromobility and risk of further breakdown



HISTORY:
20+ years of routine dental care; active and in good general health; long-term wear with deferred treatment



TECHNOLOGY USED:
InnerView, intraoral exam



OUTCOME:
Tooth #29 was restored with full-coverage ceramic crown following InnerView detection of worsening micromobility; patient opted for proactive intervention after visualizing the trendline

Note: NFE (Normalized Functional Energy) is a proprietary metric used by InnerView to quantify micromobility in teeth and implants – one of the earliest indicators of potential structural risk.

Patient Case: Confirming Implant Health in a 90-Year-Old Hygienist

* The information in this case study pertains to future capabilities, currently under clinical evaluation - Not yet FDA cleared.

Identifying Tooth Instability in a Geriatric Wear Case Before Symptoms Appear

Determining the structural integrity of teeth in patients with severe wear is often challenging, especially in geriatric cases where treatment decisions must balance health concerns, occlusal function, and esthetics.

As teeth wear down over time, fatigue fractures become more common, yet identifying these structural abnormalities remains difficult unless the patient experiences pain on chewing. Typically, pain does not present until the final stages of the crack cycle.

With the introduction of Quantitative Percussion Diagnostics (QPD), clinicians can now assess structural abnormalities in teeth and implants before symptoms appear. QPD measures both the mobility of an entire site (Mobility Score) and localized portions (Normal Fit Error or NFE), providing objective, data-driven insights for treatment planning.

This case study highlights how InnerView was used to evaluate a 90-year-old patient with extensive occlusal wear, leading to a proactive treatment decision that prevented further structural breakdown.

Using InnerView to Identify Structural Instability in Teeth #1 and #29

The patient, a 90-year-old male, had been under routine dental care for 20 years. A former runner and active property manager, he remained in good health and walked two miles daily. Despite the severe wear and discoloration of his teeth, he had long resisted treatment, stating that his condition did not bother him.

From a clinical standpoint, significant wear suggested the likelihood of multiple cracks. Tooth #1 had a severe lingual cusp fracture, and Tooth #29 had an old, inadequately repaired gold onlay that appeared to be leaking.

Tooth #29 had been monitored for years, as the patient deferred treatment, believing there was no immediate need for intervention.

An InnerView diagnostic evaluation was performed to assess the structural integrity of his teeth. Despite his age and extensive wear, only two sites showed significant issues:

- Tooth #1: Severe fracture with structural instability
- Tooth #29: Elevated NFE scores, indicating localized micromobility and potential risk of breakdown

These baseline findings created a starting point for ongoing monitoring and informed the decision to track Tooth #29 closely over time.

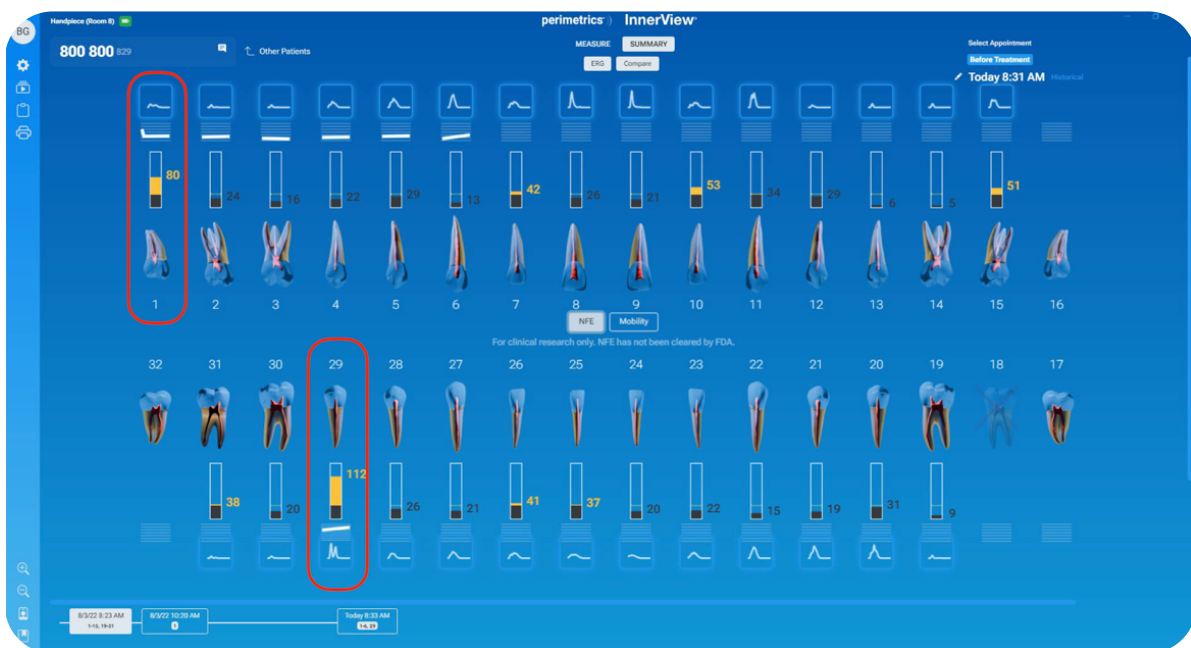


Tooth 29 had a repaired gold only which appeared to be leaking.

InnerView Scan Reveals Progressive Micromobility in Tooth #29

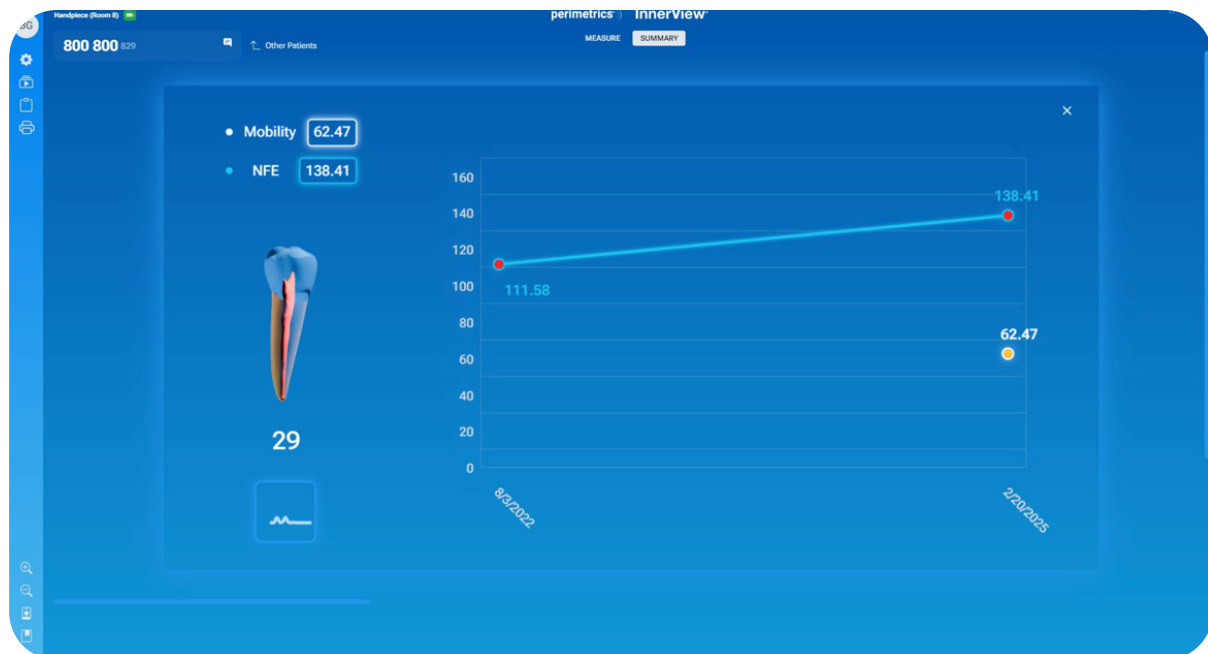
During a follow-up appointment, InnerView's Health Monitoring Trendline revealed a notable increase in the NFE score for Tooth #29 – rising from 112 to 138. This progression indicated increasing micromobility and a higher risk of structural breakdown.

The visual trendline helped the patient understand the urgency of intervention. Treatment included restoring Tooth #1 with a composite restoration and placing a full-coverage crown on Tooth #29 to prevent further damage.



Trendline Data Confirms Worsening Instability in Tooth #29

During a follow-up appointment, InnerView's Health Monitoring Trendline revealed a notable increase in the NFE score for Tooth 29, rising from 112 to 138. This increase signified progressive micromobility, indicating a high risk of further structural breakdown.



During a follow-up appointment, InnerView's Health Monitoring Trendline revealed a notable increase in the NFE score for Tooth 29, rising from 112 to 138.

Seeing the objective data and trendline progression helped the patient understand that intervention was necessary before the situation worsened. He agreed to:

- Restore Tooth 1 with a composite restoration
- Proceed with a full-coverage restoration of Tooth 29

Tooth Preparation: Structural Damage Confirmed

Upon removing the old gold onlay on Tooth 29, significant microleakage was observed on both the mesial and distal box form. Two horizontal cracks were also visible on the buccal cusp.



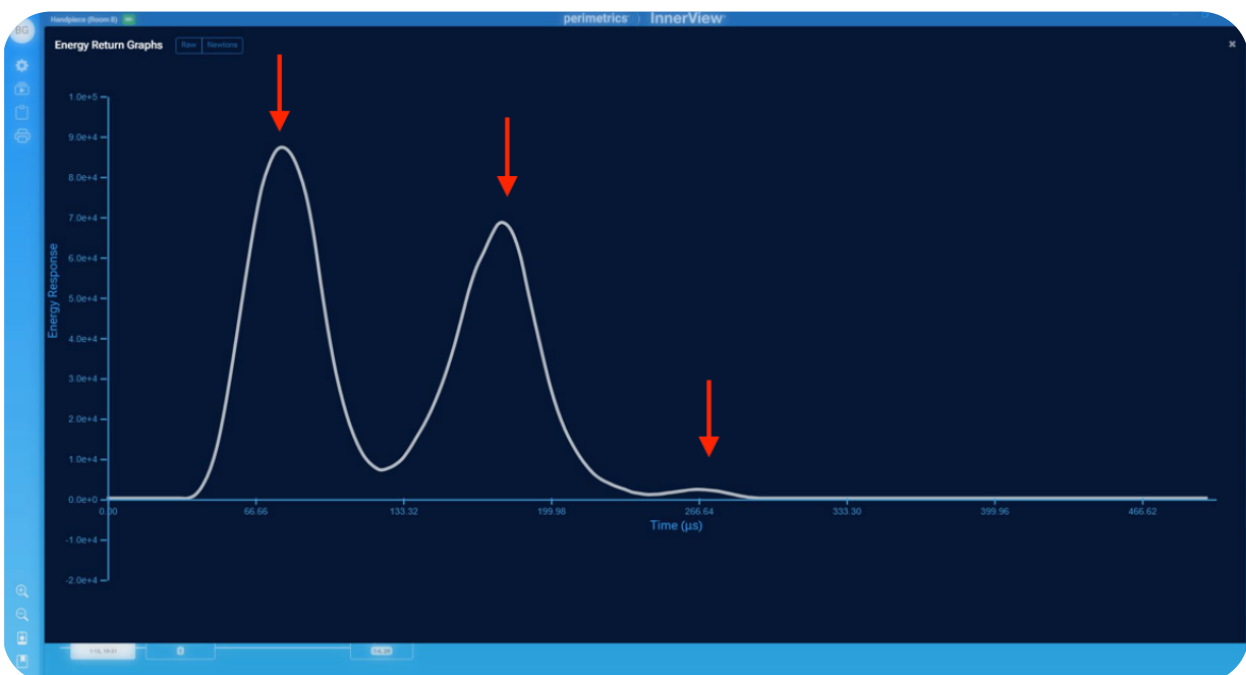
Upon removing the old gold onlay on Tooth 29, significant microleakage was observed on both the mesial and distal box form.

Tooth 29 after initial preparation, after initial preparation exposed two horizontal cracks on the buccal cusp. A full-coverage ceramic restoration was placed to protect the tooth from further breakdown.



To further educate the patient on QPD technology, he was shown the Energy Return Graph (ERG) for Tooth 29. This data visualization provided insight into why his tooth felt stable but was actually at risk.

- The ERG showed three distinct peaks with multiple valleys, a clear sign of excessive movement due to fractures and instability.
- The oscillation duration was much longer than that of a healthy tooth, demonstrating how various damaged structures were shifting.
- Comparing the ERG of Tooth 29 to that of a structurally intact tooth helped the patient immediately grasp the importance of intervention.



The ERG showed three distinct peaks with multiple valleys, indicating excessive movement due to fractures and instability.

With this newfound understanding, the patient felt reassured that he was making the right decision to move forward with treatment.

Key Takeaways: How InnerView Guided Proactive Treatment and Prevention

Objective Data Drives Treatment Decisions

- InnerView provided quantifiable evidence that helped the patient recognize the risk and commit to proactive treatment.

Early Intervention Prevents More Extensive Damage

- By treating Tooth 29 early, the patient avoided a potential emergency situation that could have led to fracture propagation and more complex restorative needs.

Health Monitoring Enables Long-Term Stability

- Regular InnerView assessments allow clinicians to track subtle changes over time, identifying potential risks before they become symptomatic.

The patient left the appointment grateful for the ability to monitor his dental health objectively and relieved that his other severely worn teeth remained structurally sound.

ABOUT THE AUTHOR

Cherilyn Sheets, DDS

Dr. Cherilyn Sheets is an internationally recognized educator, clinician, author, and lecturer. She is Co-Executive Director of the Newport Coast Oral Facial Institute, Chief Clinical Officer for Perimetrics, former Clinical Professor of Restorative Dentistry at the USC School of Dentistry, and a Past President of the American Academy of Esthetic Dentistry and the American Association of Women Dentists.

A Fellow of multiple prestigious academies, Dr. Sheets has authored over 100 articles, co-authored textbook chapters, and received honors including the Gordon Christensen Award for Excellence in Lecturing and USC's Alumnus of the Year Award.

She co-leads research on dental implants and cracked teeth at UCI's School of Engineering and is the Founder of The Children's Dental Center and the National Children's Oral Health Foundation.



**"InnerView will advance how we can diagnose mobility in teeth,
helping clinicians improve patient outcomes."**

- Cherilyn Sheets, DDS & Co-Founder, InnerView

The Future of Dental Diagnostics

This case demonstrates how InnerView provided clinical confidence and reassurance during a routine implant follow-up—delivering real-time data not available through traditional methods.

InnerView enables clinicians to:

- ✓ Monitor implant health noninvasively and in real time
- ✓ Provide visual, data-driven reassurance to patients
- ✓ Track long-term trends in implant and tooth stability

Want to learn more about how InnerView can transform your practice? [Book a 5 minute demo today!](#)



[BOOK A DEMO](#)

See InnerView in action—scan to book a demo!

