Osstell ISQ.

The objective way to measure implant stability.

www.osstell.com

OSSTELL

Three reasons why you need Osstell ISQ.

Tiziano Testori, Dr, Private Practice, Como, Italy
"I use Osstell as a quality assurance tool for documentation and for communication within my team, with referrals and with my patients."

With a success rate above 95%, who needs diagnostics?

Implant treatments are one of the most predictable dental therapies, with near-perfect success rates.

However, the nature of these treatments is evolving. Today, more patients ask for immediate loading of their implants. And patients who in the past might have been considered unsuited for implants ask to be treated, too.

This naturally puts greater requirements on the dentists and the technology. Allowing early loading, and successfully treating risk patients – despite the less favorable odds – create a need for more capable diagnostic tools.

Osstell ISQ is such a tool. It's a complete diagnostics system for determining dental implant stability. It provides the treating dentist with the accurate, consistent and reliable stability measures needed for making informed load decisions, avoid failures and give patients added quality assurance.

1. Optimal loading decisions
2. Early warnings – preventing failure
3. Quality assurance

1. When is the right time to load? Osstell ISQ helps you decide.

The Osstell ISQ system makes it easier for dentists to decide when is the optimal time to load implants. It's the ideal complement to their own tactile assessment.

The decision will always be a complex one. Several key clinical parameters and risk factors are involved – most of them related to the stability of the implant.

Accurate measurements of implant stability therefore provide valuable diagnostic insight that helps ensure successful treatments. There is compelling evidence that high levels of primary stability indicate that immediate loading can be successful. While low primary stability suggests that loading should be postponed – allowing more time to heal and a chance to monitor progress.

At placement, stability can be difficult to quantify objectively by merely relying on tactile perception. Torque measurements can't really provide a baseline for subsequent comparisons – as they are difficult to repeat once the implant has started to integrate. The invasive torque method may even damage the healing if used for monitoring osseointegration.

Tactile or torque techniques share one major disadvantage when used at the second stage: they can basically only detect whether the implant is stable or not stable. They are unable to actually measure the stability and determine the degree of osseointegration.

The Osstell ISQ Meter addresses this dilemma in a unique way. Not only does it measure and quantify the primary implant stability with unparalleled accuracy. In a two-step treatment – still the predominant scenario – it also provides secondary measures. This makes it possible to monitor osseointegration over time and determine the optimal time for loading the implant.

2. Early warnings instead of failure.

A failed treatment results in considerable suffering for the patient and considerable costs for both the patient and the dentist. A precise and reliable diagnostics tool like Osstell ISQ reduces the risk of failure.

Each implant patient is unique and must be judged by his/her own characteristics. Factors affecting the outcome of loading include the patient's age, the density and volume of the bone – as well as the degree of osseointegration.

Dentists sometimes encounter patients whose initial stability score is low. The reason could be that they have had to undergo a bone graft. In such higher-risk situations, most surgeons would refrain from using an early-loading protocol.

Similarly, a significant decrease in stability indicates a potential problem and should be considered an early warning. The surgeon may prefer to unload the implant – or perhaps place additional implants – and then wait until stability increases.

Thanks to the accuracy of ISQ measurements, surgeons can make a more well-informed choice of protocol for each patient. And by comparing initial and secondary stability readings, they can detect and act on any unexpected development during healing and osseointegration.

This makes the treatment of high-risk patients easier and more predictable – allowing more of these patients to be treated and more of their treatments to be successful.

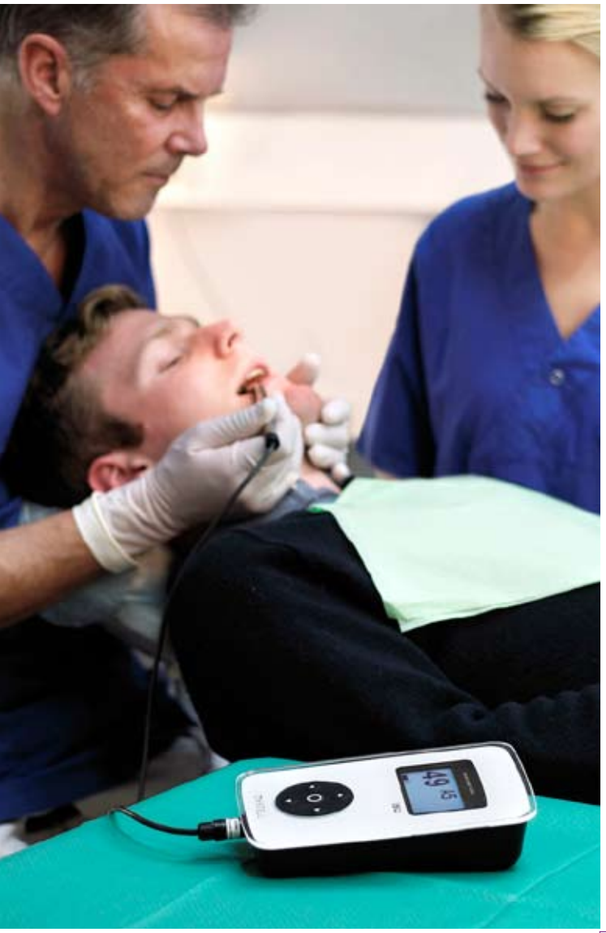
3. Diagnostics add quality.

Because Osstell ISQ helps the dentist decide when to load and avoid failure in high-risk situations, it becomes a quality-assurance system for the clinic. Most patients intuitively understand the stability measures and how they govern when to load an implant and when to wait. This increases their sense of confidence, security and quality.

Osstell ISQ also facilitates communications – between surgeon and dentist, as well as between different clinics. They can now compare treatments and results in an objective manner, and transfer valuable knowledge and experience among themselves or to dentists in training.

ISQ. The blessings of a universal scale.

Peter Andersson, Dr, Private Practice, Feltre, Italy
"I use Osstell to follow ISQ for implants in compromised situations, and for quality assurance."



ISQ (Implant Stability Quotient) is a measurement scale for use with the RFA (Resonance Frequency Analysis) method of determining implant stability. It's a mapping of resonance frequencies (kHz), presented as a clinically useful scale of 1-100 ISQ.

Here is how ISQ works and what it achieves.

The Osstell ISQ meter stimulates a SmartPeg mounted on the implant, by emitting magne¬tic pulses. These cause the SmartPeg to resonate with certain frequencies depending of the stability of the implant. The resonance is picked up by Osstell ISQ meter.
The SmartPegs have been calibrated in such a way that they all show comparable values for the same degree of stability, even when measuring implants from different systems.

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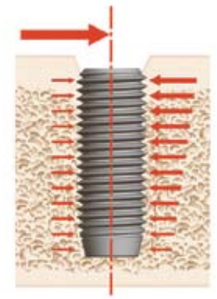
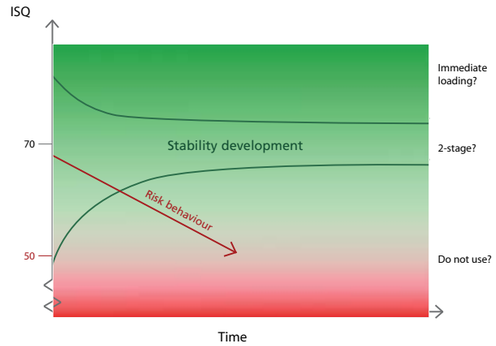
The ISQ scale makes it possible to establish a standard clinical range within which stability values should fall to make a successful treatment outcome most likely. Several studies have been conducted based on RFA measurements and the ISQ scale. They provide valid indications that the acceptable stability range lies between 50 and 90 ISQ.

ISQ values have also been used to generate the graph shown here, which has proven useful for determining if an implant is sufficiently stable at any stage of the treatment process.



The lateral stability of an implant depends on the rigidity of the bond between the implant surface and the surrounding bone. This rigidity can easily be measured.



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ISQ®

Find out more about the universal ISQ scale by visiting www.isq-dentalimplants.com

It's comfortable, fast and easy to use.

Obtaining exact implant stability measures using the Osstell ISQ Meter is a completely non-invasive procedure. It can normally be performed in a few seconds. Experience shows that patients find it both comfortable and reassuring.

1. The SmartPeg is attached to an implant. It screws effortlessly into the implant's inside thread.

2. The hand-held probe stimulates the SmartPeg magnetically, without actually being connected to it – or even touching it.

3. An ISQ value is generated and shown on the display. It reflects the level of stability on the universal ISQ scale – from 1 to 100. The higher the ISQ value, the more stable the implant.

Meet the meter. And the people behind it.

The instrument kit
The actual meter (1 BELOW) is attractively designed, compact and very easy to use. Measurement results are clearly visible on the large display. They are also stored in memory and can be transferred to a Windows PC using a standard USB cable (7). The meter is powered by a rechargeable battery and is delivered with a measurement probe (2), a mains plug (3), a testing device (5) and user manuals.

The SmartPeg
The SmartPeg (4) is a small, precision-crafted metal rod that attaches to the implant (or abutment) while a measurement is being performed. It's easy to mount and requires minimal space in the patient's mouth. SmartPegs are available for most major implant systems. They are single-use and delivered sterile in boxes of five units.

In non-homogenous bone, the SmartPeg automatically resonates in two perpendicular directions – thus providing a correct value for the highest as well as the lowest stability direction of the implant.

James Rynar, Dr
"Osstell helps me making the decision when to load my implants".

The Data Manager
The Data Manager (6) is an optional software application that allows measurements to be received and analyzed by a standard Windows PC.

Technical data

Rated power:	5 VA, Type FW 7660M/05
Instrument size:	195 x 120 x 45 mm
Package size:	280 x 240 x 63 mm
Instrument weight:	0.4 kg
Total gross weight:	1.0 kg

Diagnostics by Osstell – a personal commitment.

Osstell AB develops and produces high-quality instruments and tools for dental diagnostics.
Our company was founded in 1999 by two scientists – a dentist and an engineer. They shared a frustration of not being able to determine implant stability in an accurate, objective and consistent way – beyond their own dexterity and tactile skills.

They developed the innovative RFA technology and

a universal measuring scale – ISQ. Today, the Osstell ISQ Meter, in its current and earlier generations, is used by more than 5,000 clinicians all over the world.

Osstell is based in Gothenburg, Sweden. We manufacture our products there and market them globally through distributors and direct channels.

We are 12 employees – each of us personally committed to the worldwide adoption of our unique diagnostics solution and to the continuous growth of our company. To succeed, we make sure our customers get the unrelenting support and service they deserve.

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Warranty
Every Osstell ISQ is covered by a global 24-month warranty. Users always have free access to Osstell support by phone and e-mail, should questions arise that are not covered by the operating manuals.

Availability
Osstell ISQ is available globally through certified resellers. Please refer to the reseller list provided on Osstell's web site, www.osstell.com

Scientific references.

More than 130 scientific reports and papers on the measurement of dental implant stability have been published around the world. Some of these are listed below. More can be found on Osstell's website, www.osstell.com.

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Implant stability measurements using resonance frequency analysis: Biological and biomechanical aspects and clinical implications
Periodontology 2000; Vol. 47, 2008, 51–66

P Valderrama, T Oates, A Jones, J Simpson, J Schoolfield, D Cochran
Evaluation of Two Different Resonance Frequency Devices to Detect Implant Stability: A Clinical Trial
J Periodontol; 2007 78:262-272.

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Osstell Mentor: Measuring Dental Implant Stability at Placement, Before Loading and After Loading
Dental Implantology Update; 2007, vol 18, no 7

S Peev
Application of Platelet Rich Plasma as an Accelerator of the Secondary Stability of Immediate-loaded implants
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Use of Resonance Frequency Analysis to optimize implant therapy
Starget; 4, 2006

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Resonance frequency analysis of dental implant stability during the healing period
Med Oral Patol Oral Cir Bucal; 2008 Apr1;13(4):E244-7.

M Atsumi, S Park, H Wang
Methods Used to Assess Implant Stability: Current Status
Int J Oral Maxillofac Implants; 2007, 22:743-754

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A Review of Nondestructive Test Methods and Their Application to Measure the Stability and Osseointegration of Bone Anchored Endosseous Implants
Critical Reviews in Biomedical Engineering, 1998, 26(4):275-291

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