

MEGA ISQ™

by MEGA'GEN



I. The Original Technology from Osstell **MEGA ISQ™**

Description		Ref.C	
MEGA ISQ		OSSTELL-ISQ	
Smart Peg	AnyOne type	OSSTELL-AO77	
	AnyRidge type	OSSTELL-AR67	
	AnyRidge Octa 1 type	NC	OSSTELL-96
		RC	OSSTELL-97
	MiNi type	OSSTELL-87	



Adjust the prosthetic process timing with the objective evidence, ISQ value confidently.



1. Optimal Loading Decision

• When is the right time to load?

The MEGA ISQ System makes easier for dentists to decide when is the optimal time to load implants. It's the ideal substitute for tactile assessment. The decision will always be complicated. Several key clinical parameters and risk factors are involved, which most of them are related to the stability of the implant. Accurate measurements of implant stability therefore provide valuable diagnostic insight that helps ensure successful treatments. At placement, stability can be difficult to quantify objectively by merely relying on tactile perception. Torque measurements are difficult to repeat once the implant has started to integrate and can therefore not provide a baseline for subsequent comparisons. The invasive torque method may even damage the healing if used for monitoring osseointegration.

2. Early warnings- Preventing Failure

• Early warnings instead of failure

A failed treatment result the patient to suffer and considerable costs for both the patient and the dentist. A precise and reliable diagnostics tool like MEGA 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 avoid an early-loading protocol. Similarly, a significant decrease in stability indicates a potential problem and should be considered as 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. 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.

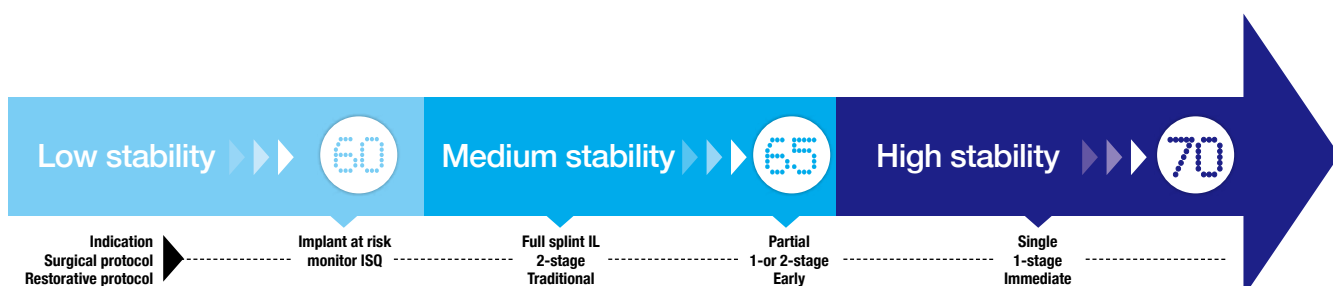
3. Quality Assurance

• Diagnostics add quality

Because MEGA ISQ helps the dentist to 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. MEGA ISQ also facilitates communications – between surgeon and prosthodontist, as well as among 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.

▼ Warranty

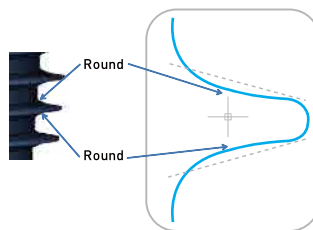
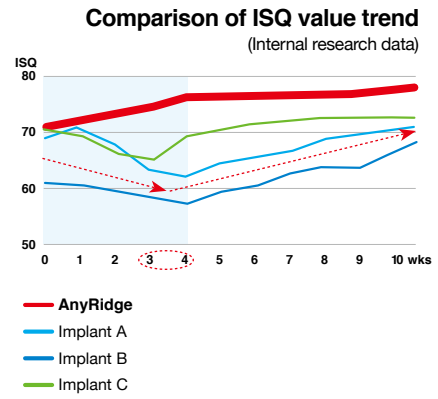
MEGA ISQ is covered by a 12-month warranty from the purchasing date. Users always have free access to MegaGen by phone and e-mail, should questions arise that are not covered by the operating manuals.



4. Perfect Matching

• Innovative KnifeThread design and accurate diagnostic

AnyRidge® fixtures do not depend on the cortical bone for initial stability. Decreased stress on the cortical bone helps to prevent a bone resorption following fixture placement. Thanks to the AnyRidge®'s unique knife thread and super self-tapping design, better initial stability can be attained in any compromised bone situation. It offers progressive bone condensing, ridge expansion, maximized compressive force resistance and minimized shear force production.



KnifeThread®

• Round faced and thin thread design

- Less insertion torque
- Excellent initial stabilization
- Resistance to compressive force
- Minimal shear force creation
- Higher BIC

5. Comfortable, Fast, Easy

Obtaining an exact measurement of an implant stability using the MEGA ISQ is a completely non-invasive procedure. It can normally be performed in a few seconds. An experimentation shows that patients find it both comfortable and reassuring.

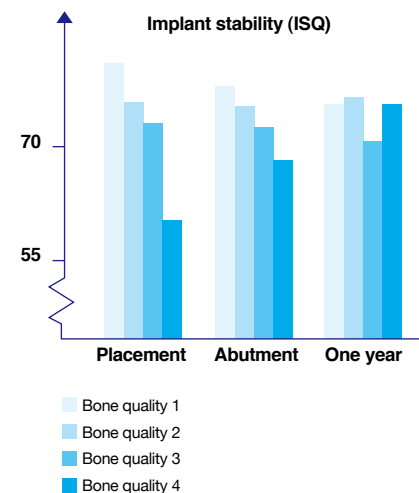
1. The SmartPeg is attached to an implant. It screws into the implant's inside thread effortlessly.
2. The hand-held probe stimulates the SmartPeg magnetically, without actually being connected to it – or even touching it.
3. An ISQ value is generated and shown on the display. It reflects the level of stability on the universal ISQ scale – from 1 to 100. The higher the ISQ value, the more stable the implant.



6. Stability Development in Different Bone Quality

High initial stability (ISQ values 70 and above) tends not to increase with time even if the high mechanical stability will decrease and to be replaced by a developed biological stability. Lower initial stability will normally increase with time due to the lower mechanical stability being enforced by the bone remodeling process (osseointegration). Values such as ISQ 55 or lower should be taken as a warning sign and actions to improve the stability might be considered (larger implant diameter, prolonged healing time etc.)*

* Implant stability measurements using Resonance Frequency Analysis.



The SmartPeg is a small, precision-crafted metal rod that should be assembled with the implant (or abutment) while a measurement is being performed. It's easy to mount and requires minimal space in the patient's mouth. It is for a single-use and delivered in sterile 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.

Early Loading Guide with AnyRidge® & MEGA ISQ™

Protocol for an objective evidence of Implant stability

Published in the Dental News April 7 through 28, 2014.

1. **Loading Time Determining Criteria and Conditions for Early Loading** _ *Dr. Chang Hoon Han*
2. **Clinical Case Report 1** _ *Dr. Chang Hoon Han*
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4. **New Protocol for an Objective Evidence of Implant Stability** _ *Dr. Kwang Bum Park*

OVER

10

YEARS

The AnyRidge Way

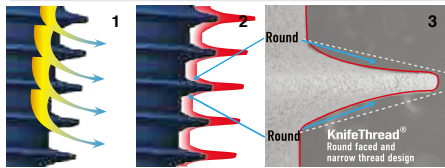
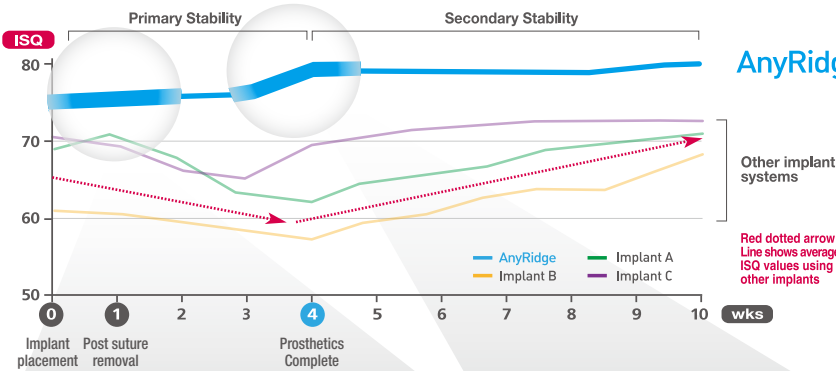
IMPLANT PARADIGM SHIFT SINCE 2009

AnyRidge is Perfect for Early(Immediate) loading with Mega-ISQ

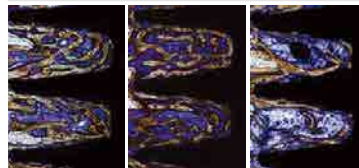
Complete Prosthetic Process in Only 4 Weeks

With Confidence! Objective Evidence with ISQ Values

Experience stable or increasing ISQ values continuously when using AnyRidge implants.



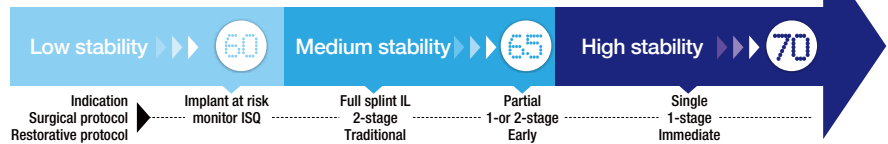
- Stable dispersion of stress with Buttress Thread shape
- Easier Insertion with Sharp Thread shape
- Increase the surface area of the round side compared with the straight side.



Test result after 4Ws with rabbit
 XPEED Surface Treatment presents much faster & stronger Osseointegration than RBM or S-L-A

Using Mega-ISQ enable accurate and objective assessment of implant stability which, in conjunction makes leading to predictable outcomes.

When is the right time to load?



Have you made the PARADIGM SHIFT yet?

Do it the AnyRidge Way

Excellent primary stability with Knifethread®

- For smooth insertion & stronger primary stability
- No cutting edge for minimal invasion
- Perfect results with any bone condition

Excellent secondary stability with Xpeed®

- Faster & stronger osseointegration
- Surface technology incorporating Ca²⁺ ions on S-L-A treated surface
- 100% acid-residue-free surface

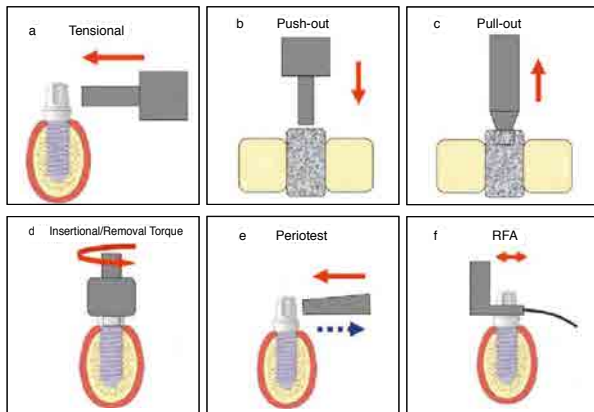


1. Loading Time for Determining Criteria and Conditions for Early Loading - Dr. Chang Hoon Han

Loading Time

To assess stability and osseointegration level of implants, many experiments were done including the tensional test, push-out/pull-out test, histomorphometric analysis, removal torque test, radiographic analysis, cutting resistance measurements, insertion torque test, percussion test, periotest, and Resonance Frequency Analysis (RFA). First let's go over some of the methods that can easily be used clinically.

The percussion test is the simplest method to use clinically. It assesses the status of implant with the characteristics of sound by tapping the mount of implant or abutment using a dental instrument. However it relies on subjective judgment. Thus, it has the disadvantage of not being able to assess the stability of implant accurately. The radiographic test provides an important information on the pre-op bone quality and quantity, and can relatively easily measure the changes of marginal bone surrounding the implant. However, its downside is that it is difficult to standardize resolutions, grey-scale, and radiograph taking method for an accurate interpretation.



Next, there is the Periotest (Siemens AG, Bensheim, Germany) to measure the mobility of a natural tooth by assessing the damping effect of PDL. The periotest values (PTV) range -8 ~ +50. However, the values of successful implants are around -5~+5 which mean its sensitivities low, and there is a considerable variation of values depending on such things as the height of abutment, and the position and direction of the force applied.



(Figure 1) Periotest®



(Figure 2) Periotest® M

A More objective method would be the Resonance Frequency Analysis (RFA). In early days, the second generation of Osstell™ was cumbersome to use as it required connection of L-shaped transducer to the implant.



(Figure 3) Osstell™



(Figure 4) The application of Osstell™ electronic transducer to the implant

Loading Determining Criteria and Conditions for Early Loading

More recently developed Osstell™ Mentor and the most recently launched the fourth generation Osstell™ ISQ or Mega ISQ use a small magnetic resonance rod called Smartpeg™ making clinicians measure the stability of implants more simply.



(Figure 5) Osstell Mentor™



(Figure 6) MegaGen Mega ISQ™

Principles of measuring implant stability using the RFA devices of the third or later generations will be discussed. First, we need to check and get ready for the type of Smartpeg prefabricated for each type of implant system. Smartpeg is connected to an implant using a Smartpeg Mount which is a screwdriver specific to the implant whose stability we are going to measure. Then, when the probe on the RFA device is brought near to the magnetic material on the top of Smartpeg, a magnetic field is formed between the coil in the probe connected to the device and the Smartpeg. Now the device senses the vibration from the Smartpeg and displays it with a number from 1 to 100. The value is called a Implant Stability Quotient (ISQ).

Usually the ISQ values at the time of implant placement are 55~75 in maxilla and 65~85 in mandible. ISQ value of an implant is less than 60 at the time of implant placement can be considered as low in stability, and the surgeon should try to select a bigger diameter implant or implant designed for high initial stability. Successfully osseointegrated implants show over time the ISQ values of 60 ~ 85 in maxilla and 70 ~ 95 in mandible.

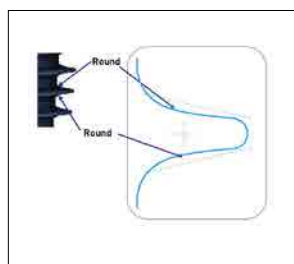


Generally 5 to 10 Ncm of force is recommended to connect Smartpeg to an implant. If an excessive force is applied, the screws on the Smartpeg will be damaged and error rate of the measured values will rise.

Manufacturers of Smartpegs recommend to discard after a use, and explain that the more they use, the more unstable the measurements would become. However, a local study on the reuse of Smartpegs concludes that ISQ values do not change even as they were used repeatedly 400 times of connecting and disconnecting the Smartpegs, and can be used as long as the screw lines remain intact and magnetism stay unchanged. Another local study on the reuse of Smartpegs shows two or more of high steam sterilization pressure reduces the stability of ISQ values. The auSmarThor of this paper also experiences that Smartpegs can be reused after disinfection by a low temperature plasma sterilizer, provided their screw lines are not damaged and magnetism is not lost.

These RFA devices are very useful to determine a loading time with changes of the initial stability of an implant and can be measured repeatedly during a treatment period. Also, RFA devices are required for a long term maintenance of implants as implant stability changes can be continuously monitored.

Implant stability can be divided into two categories primary and secondary stability. The primary stability is a mechanical stability obtained at the time of implant placement and is affected by bone quality and quantity at the implant site, as well as the form, diameter, and length of an implant, and placement method. The secondary stability refers to the implant stability resulting from the bone regeneration and remodeling in the interface between the implant and the tissue after the implantation. The primary stability obtained shortly after the implant placement gradually decreases while the secondary stability increases. The total stability is lowered with a dipping phenomenon. As demonstrated by many studies, ISQ values representing the stability of an implant go down until week 3 after the implant placement, fluctuate slightly up to week 6 to 8, and then slowly go up afterwards. So, it has been reported that an implant should not be loaded around 3 week, but recent studies report that immediate or early loading can be tried when the bone quality at the implant site is favorable and the initial stability at the time of implant placement is good. For a successful immediate or early loading, implants with the thread design and surface that can provide high initial stability and minimize the stability dipping should be chosen.

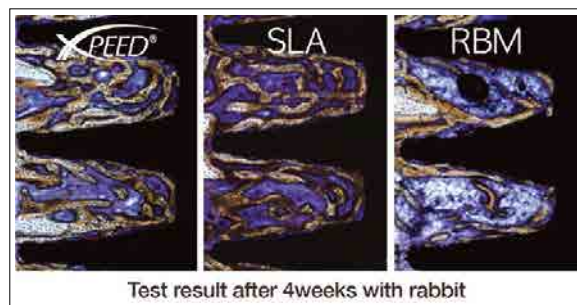


(Figure 7) KnifeThread®

on the surrounding bone.

The auSmarThor uses the implant design that has narrow threads (knife threads) of the rounded face, which facilitates high initial stability at the time of implant placement. The KnifeThread® design structure does not damage the unique architecture of cancellous bone and can minimize the compressive force

Also, the implant surface is treated with XPEED®, to process neutralization in the final step to remove the possibility of residual acid which has been a problem in the existing SLA surface treatment. Calcium ions on the fixture surface form a calcium titanate nano-structure layer by a chemical reaction in uniform 0.5µm thickness, solving the problem of surface peeling during the placement or absorption of coated layer after the placement. So better BIC and removal torque values can be achieved compared to other RBM or SLA surface treatments.



(Figure 8) XPEED® surface treatment

This design and surface treatment minimize the dipping of stability and shorten the time necessary for osseointegration making them a good choice for immediate or early loading.

2. Clinical Case Report 1 - Dr. Chang Hoon Han

One of the methods that can most objectively assess the level of clinical implant stability and osseointegration is Resonance Frequency Analysis (RFA) using the Osstell™ device.

The Osstell™ device indicates the Implant Stability Quotient (ISQ) values are from 1 to 100. The primary stability, the mechanical stability obtained at the time of implant placement, gradually decreases while the secondary stability by a bone remodeling in surrounding bone slowly increases, creating the dipping phenomenon where the total stability goes down. As reported by many studies, ISQ values representing implant stability go down until week 3 after implant placement, fluctuate slightly up to week 6 to 8, and then slowly go up afterwards.

However the implants with a thread design and a surface that can minimize the compressive force on the surrounding bone do not have large post-op ISQ value reductions and the stability is maintained. If such implants are used clinically, immediate or early loading can be done because they can minimize the stability dipping and less time necessary for osseointegration. For successful immediate or early loading, we need to pay attention to insertion torque together with ISQ values at the time of placement, and more than 45 N/cm of insertion torque and 75 or higher ISQ values are recommended. Let's look at some cases of immediate or early loading in light of insertion torque and ISQ value changes.

Case 1 : 60 years of age / Male

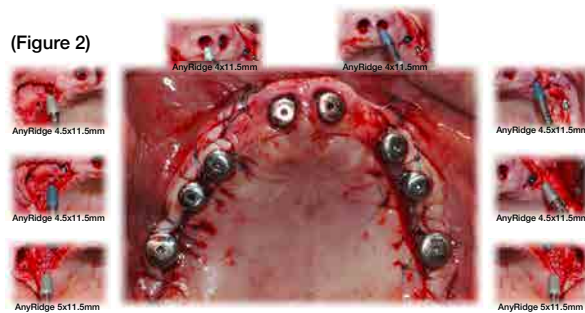
The patient was a 60 years old man and it was planned to place implants 4 months after the bilateral sinus graft (figure 1). Eight implants were placed on the upper jaw in a one stage approach with immediate placement after extraction for the central incisor area (figure 2).

ISQ values were measured right after the placement and also at one week intervals using Osstell™. The initial stability at numbers 16, 24 and 26 where sinus lift was performed was low and ISQ values were also lower than other regions.

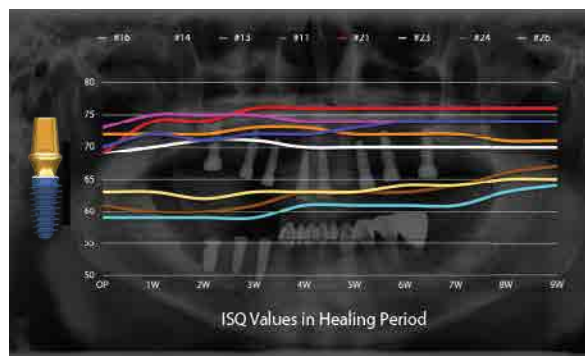
However as time progressed, the stability did not go down much and maintained, and from week 3 continuously went up. In the upper central incisor area where immediate placement was performed, the initial stability was high and the ISQ values continuously increased as well from about 70 post-op (figure 3). Final prosthesis was delivered at 9 week post-op (figure 4), and the results have been good during the follow-up period without distinct symptoms (figure 5).



(Figure 1)



(Figure 2)



(Figure 3)



(Figure 4)

(Figure 5)

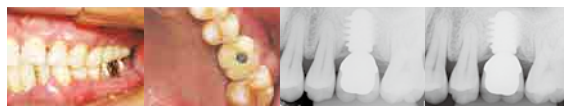
Case 2 : 43 years of age / Male

The patient was a 43 years old male. Despite various attempts the broken implant screw at number 26 could not be removed, so it was decided to explant the whole fixture (figure 6). As the previous implant diameter was 5mm, the fixture was pulled out with a 6mm diameter trephine drill, and 8mm implant was immediately placed. The insertion torque at the time of placement was 50 N/cm and the ISQ value was 75 (figure 7). Impression was taken at 1 week post-op and the final prosthesis was delivered at week 2. The ISQ values at week 1 and at the time of prosthesis delivery were 75, little difference from the immediate post-op (figure 8). During the follow-up period, good results were observed without any particular symptoms (figure 9).



(Figure 6)

(Figure 7) AnyRidge 8x10 mm
IT 50N / ISQ 75



(Figure 8) OP + 2 weeks, SQ 75 → 75 (Figure 9) OP + 2 weeks,
OP + 16months

Case 3 : 47 years of age / Female

A 47 years old female patient lost the upper left first molar region. The pre-op CT showed relatively favorable bone quality and quantity. A 6 mm diameter implant was placed and the insertion torque was 50 N/cm and ISQ value was 72 at the time of placement (figure 10).

Impression was taken right after surgery, final prosthesis was delivered one week later, and the ISQ value increased to 77 (figure 11). During the follow-up period, good results were observed without any particular symptoms (figure 15).



(Figure 10) AnyRidge 6x10 mm, IT 50N / ISQ 72

(Figure 11) OP + 1 week, ISQ 72 → 77 / OP + 1 weeks

(Figure 12) OP + 19 months

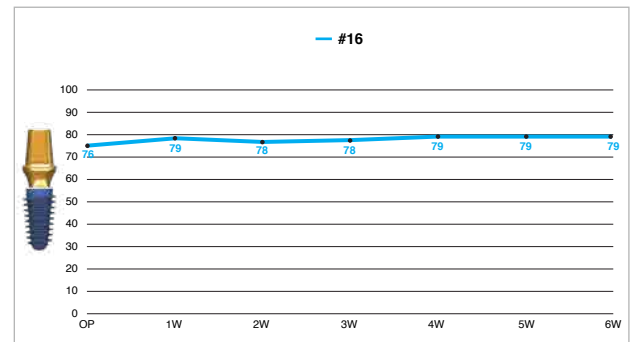
Case 4 : 41 years of age / Female

A 41 year old female patient lost the upper right first molar region. The pre-op CT showed relatively favorable bone width and the height of the residual bone was about 6mm. Sinus lift was performed using a crestal approach and simultaneously 4.5x10mm implant was placed. The insertion torque was 45 N/cm and ISQ value was 76 at the time of placement (figure 13). Impression was taken right after surgery and final prosthesis was delivered one week later, and the ISQ value increased to 79 (figure 14). At one week intervals after the delivery of the final prosthesis, the prosthesis was disconnected and changes in ISQ values under loading were checked. The ISQ values were confirmed to be stable with no big changes even after the loading (figure 15).



(Figure 13) AnyRidge 4.5x10 mm, IT 45N / ISQ 76

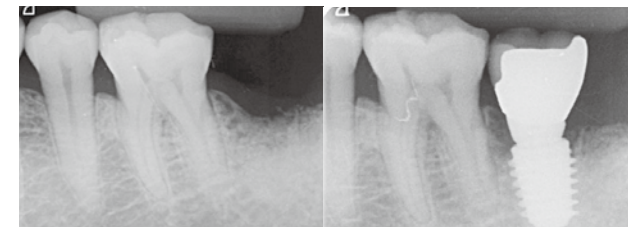
(Figure 14) OP + 1 week, ISQ 76 → 79



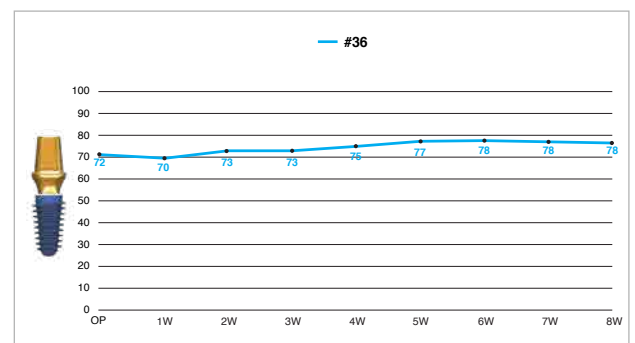
(Figure 15) ISQ Value in Healing Period

Case 5 : 56 years of age / Male

A 56 years man received the final prosthesis 1 week post-op in the lower left second molar region (figure 16). At one week intervals after the delivery of final prosthesis, the prosthesis was disconnected and changes in ISQ values under loading were checked. The ISQ values were confirmed to be stable without big changes even after the loading (figure 17).



(Figure 16) OP + 1 week



(Figure 17) ISQ Value in Healing Period

3. Clinical Case Report 2 - Dr. Seung Yeup Lee

No clear objective criteria is established regarding appropriate implant loading time after surgery. The reality is most clinicians rely on radiographs or their data based on their experiences for a specific surgery. A rule of thumb for the loading time is 3 to 6 months for the upper jaw and 2 to 4 months for the lower. Then, what are the more objective decision criteria for implant loading time?

One of the methods that can most objectively assess the level of clinical implant stability and osseointegration is mostly Resonance Frequency Analysis (RFA) using Osstell™ device. The Osstell™ device indicates the Implant Stability Quotient (ISQ) values from 1 to 100.

The primary stability, the mechanical stability obtained at the time of implant placement, gradually decreases while the secondary stability by bone remodeling in the surrounding bone slowly increases after implant placement creating the dipping phenomenon where the total stability goes down. As reported by many studies, ISQ values go down until week 3 after the placement of an implant, fluctuate slightly up to week 6 to 8, and then slowly go up afterwards. Then, can we determine the implant loading time based on ISQ values as they represent implant stability? If there is no dipping phenomenon where ISQ values gradually decrease after placing the implant and the values are stable above a certain level without decreasing or even increasing, would immediate or early loading be possible?

To put the conclusion first, ISQ values are one of the important objective indicators to determine the implant loading time, but it cannot be the absolute criteria. In other words, the high immediate post-op ISQ values cannot guarantee the success of immediate or early loading. Even so, the ISQ values measured after a certain period of wound healing after surgery may have some clinical implications. If that is the case, what factors other than ISQ values need to be considered for immediate or early loading? First is the implant thread design and surface that can obtain high initial stability and minimize the compressive force on the surrounding bone. In fact, implants with such design show no considerable reduction in ISQ values in the initial stage after placing implants and the stability is maintained or even increased. If these implants are clinically applied, they would minimize the dipping of stability and reduce osseointegration time which makes immediate or early loading possible.

Along with the implant design, one of the important factors to be considered for immediate or early loading is the ITV (Insertion TorqueValue) at the time of placement. It may be even more important than ISQ values. Based on successful clinical results of immediate loading, 45 N/cm or higher insertion torque, and 75 or higher ISQ values are recommended. Next is the bone density. This should be considered together with ITV. Appropriate ITVs can be obtained by clinically modifying the drilling sequence when implants are inserted through accurately determining the bone density. Lastly, patient's occlusal factors and eating habit including a parafunction should also be taken into account.

Let's look at some clinical cases for factors we need to consider for immediate or early loading.



(Figure 1) Generally initial stability obtained at the time of placement varies depending on bone quality and loading time is roughly determined based on the stability.



(Figure 2) If we can achieve high initial stability at the time of implant placement regardless of bone quality, we can start loading almost at similar time which would benefit both patients and surgeons.

Case 1

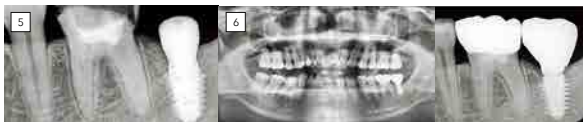
The patient was a 30 years old man. An Implant was planned for the lower left second molar region which was extracted three years ago. As oral and radiograph examination revealed sufficient bone width and quantity, flapless surgery was planned using a surgical stent. The immediate post-op ISQ values were very high with 80 or above on both buccal and lingual sides, so the initial stability was excellent. Therefore, a customized abutment and a temporary crown fabricated considering the final prosthesis from the diagnostic stage of surgery were connected. As the patient complained about a little discomfort three weeks later, loading was immediately stopped since the new ISQ measurements were lower than 60. Two month post-op, the ISQ value was above 75 again and stable, so the final prosthesis was delivered.



(Figure 3) Initial Visit



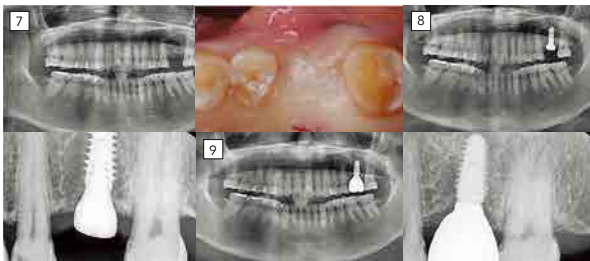
(Figure 4) Immediate Post-op, ISQ value: B/86, L/88



(Figure 5) 3 Weeks Post-op, ISQ value: B/56, L/59
 (Figure 6) 2 Months Post-op, ISQ value: B/75, L/78

Case 2

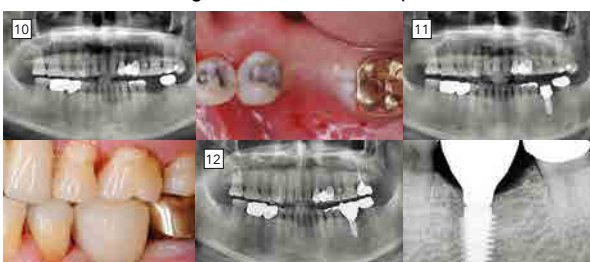
An implant was planned in the upper left first molar region for a female patient in her 50s. Oral examination and radiograph showed sufficient vertical as well as horizontal bone quantity and well preserved keratinized tissue, therefore flapless surgery with a surgical stent was processed. Both immediate post-op buccal and lingual ISQ values low, below 70, so immediate or early loading was not chosen. According to the conventional healing protocol, we waited 3 months and measured the ISQ values again which were 75 or above. As the values were stable, the implant was loaded with the customized abutment and temporary crown. Based on the stable ISQ measurements, final prosthesis was delivered after that.



(Figure 7) Initial Examination, (Figure 8) Immediate Post-op
 (Figure 9) 4 months post-op, ISQ value: B/75, L/76

Case 3

A male patient in the 40s presented a slight deficient keratinized tissue but had enough vertical and horizontal bone quantity. So flapless implant placement surgery with a surgical stent was planned for the lower left first molar region. The immediate post-op ISQ values were high with 75 or higher both buccally and lingually. A customized abutment and a fabricated temporary crown considering the form of the final prosthesis from the diagnostic stage for the surgery were connected. The values were maintained without distinct decreases as time went by. Final prosthesis was delivered 4 week post-op. Favorable results were obtained during the 7 month follow-up.



(Figure 10) Initial Examination
 (Figure 11) Immediate post-op, ISQ value : B/78, L/78
 (Figure 12) 7 months follow-up, ISQ value : B/77, L/79

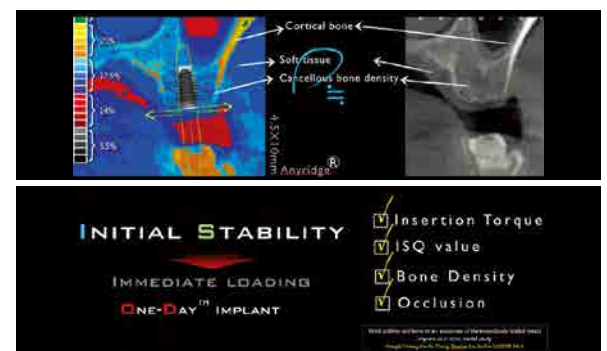
Discussion



◀ (Figure 13) CT Views of Each

What are the differences among the cases? Although in all three cases of the implant treatment were successful, the first two cases can be view as failures in terms of immediate and early loading. As stated before, ISQ values are important but not absolute. Among the determining factors of immediate or early loading, So, other factors to achieve strong ITV (initial torque value) should be considered to perform a modified drilling protocol based on the accurate estimation of the bone density in addition to the ISQ values. Lastly proper adjustment of occlusion is also important. The best way to determine the bone density would be CT. Carl Misch (in 1988) introduced it as the most useful method to determine cortical bone thickness and trabecular bone pattern.

However, the black and white image on the conventional CT provides lake of information to determine accurate bone for density. So, color coding relative density differences in anatomical structures with various colors would be of great help for clinicians to identify the relative bone density.



(Figure 14) Case 2. Color Coding using R2GATE software

The second case is color coded using R2GATE software for more accurate determination of relative density differences of the anatomical structures with color details compared to the conventional CT view (Figure 14).

As in the figure, the bone density at the implant site is estimated to be not high.

There still remain numerous issues in applying immediate loading, that is, the One Day Implant treatment in all cases. However, highly predictable treatment is definitely possible if implants with the thread design and surface that can achieve high initial stability, yet minimize the compressive force on the surrounding bone are used to maintain proper ITV, Stable ISQ values and occlusion can be appropriately controlled.

4. New Protocol for an Objective Evidence of Implant Stability - Dr. Kwang Bum Park

In a series of articles for the last three weeks, Dr. Chang Hoon Han and Dr. Seung Yup Lee have shown objective ways to determine implant stability in bone and relevant clinical cases. It is well known that implants can be loaded earlier than before thanks to the advancement of implant design and surgical approaches, and the improvement of innovative surface treatment techniques. We are not really surprised or greatly impressed when we see speakers talk about 2 month or 3 month loading in a lecture or symposium. because many people have already published enough data on immediate loading.

In spite of that, if we look back on what individuals have been doing in clinics, we need to contemplate on how often we really have used the immediate or early loading. No matter what others say, we, clinicians, prefer to remain in the comfort zone using familiar method that we are used to do and think to minimize side effects the best way. Breaking the habit is challenging. The loading protocol concept that professor Branemark had proposed, waiting 3 months for mandible and 6 months for maxilla is still vivid and alive among us, 50 years after the introduction of the concept.

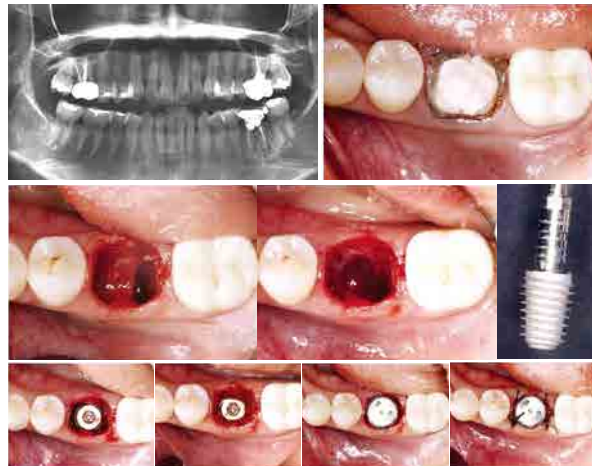
Let's have a look at one more Chang Hoon Han's case. When would you start loading in this case? Many people basically might think we need to wait for 6 months as it is maxilla but can load 'a little earlier' because the bone density looks pretty good on the radiograph.



Here, two 4.0x10.0mm implants were placed with one stage surgical approach as the stability was excellent without any particular bony defect. Since you saw the surgical situation, can you determine the loading time? Many doctors I have met until now answered they would load at month 3. Even that is a great progress as the average 6 months has been reduced to 3 months!



In this case, Dr. Chang Hoon Han delivered the final prosthesis in just 6 weeks in single crowns and not splinted! Many readers may think it is possible, but not many are ready to adopt this protocol in their clinics immediately. Why is that? I think it is because of lack of solid objective criteria that can guarantee successful results.



▲ AnyRidge implant system and Mega-ISQ should be ready. The patient's lower number 36 is extracted due to cracks and implant treatment is planned.

An implant was placed immediately after extraction which would be customarily done. 6.0x11.5mm implant was placed and superior stability was obtained despite it was fixed only by the buccal and lingual septal bone. After grafting the mesial and distal socket defect with allograft, and connecting the healing abutment, one-stage surgery was performed. When can you start loading in this case?



Pre-op 6 Weeks Post-op 3 Months Post-op

These are pre-op, 6 weeks and 3 months post-op intraoral radiographs. Are they ready loaded based on these pictures? Certainly bone is regenerated on month 3 but how much confidence can these pictures give us for loading?



5 Months Post-op 8.5 Months Post-op 1.5 Year Post-op Month





In the end, the provisional crown was delivered at day 118, over 5 month post-op, and the final prosthesis was connected at 8.5 months. The results were also excellent during the follow-up.

Even though the auSmarThor realizes better than anybody else the AnyRidge implant compared to other existing implant systems is superior in terms of initial stability, AnyRidge does not lower but maintains the ISQ from the time of placement and facilitates osseointegration faster thanks to its Xpeed surface treatment, he did not attempt to load because of his attitude to play safe and not to risk any side effects. Any clinician can understand it.

Comparison in loading time between EZplus & AnyRidge

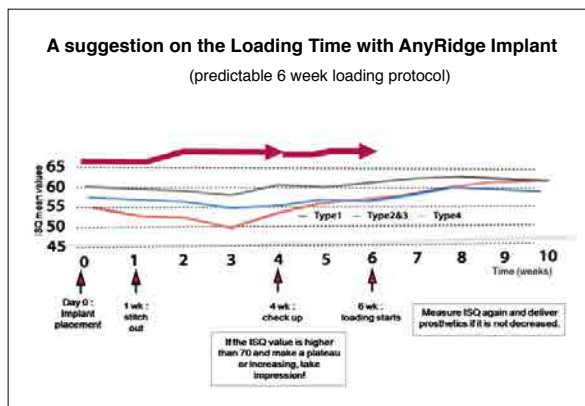
Ez plus (without ISQ)	Case	Average Loading Time(D)
Max. Implant	11	125.6
Mand. Implant	9	105.8
Total	20	124.5

AnyRidge (without ISQ)	Case	Average Loading Time(D)	AnyRidge (with ISQ)	Case	Average Loading Time(D)
Max. Implant	10	129.6	Max. implant	4	84.8
Mand. Implant	9	112.8	Mand. implant	9	53.8
Total	19	121.8	Total	13	80.1

(Table 1)

(Table 1) compares the average loading time of EZ Plus and AnyRidge. The number of days from placement to loading was calculated from twenty randomly selected cases and the results are surprising that similar loading time is habitually used even in cases where the stability was found to be good during surgery. Compared to this, when ISQ values began to as an objective indicator, the loading time was cut almost by one third which was as much as 4 to 5 weeks. This proves again that old habits die hard. Now how about determining the loading time more objectively doing away from the habits? By doing so, I believe we can reduce the number of visits per patient considerably, and save your time as well. This will eventually show you a new way to step ahead of your competitors. On average of 10 to 12 visits are required for the existing treatment pattern from a surgery to completion of a prosthesis delivery based on the auSmarThor's personal experience, but the visits were reduced by half, 6 to 7 visits.

(Table 2) describes the auSmarThor's loading protocol that was used clinically. Although the One-Day Protocol of immediate loading right after implant placement using the R2Gate and Eureka System is already established and the success rate has been around 95% in about 2,000 cases for the last 2 years, I understand number of people feel the preparatory stage rather complicated. Then, what about trying this protocol shown with the graph? It will definitely reduces the patient's number of visits greatly, shortens the treatment time for you and contribute to your business quite a lot



(Table 2)

AnyRidge implant system and Mega-ISQ should be ready. The first ISQ values are measured on the day of implant placement right after surgery which requires just 2 to 3 minutes of clinic time. And ISQ is measured again at week 1 when the patient comes back to take the stitches out. This also takes less than 5 minutes, a simple step that can be often done by an assistant. The ISQ values are measured again at week 4 when soft tissue is almost healed. Now three ISQ values from a patient are prepared.

Impressions can be taken if these 3 values are almost similar or increasing over time. Today intraoral scanners are available, so precise digital impressions can be taken easily without the need for you to pay much attention to it.

Usually it takes at about 1 or 2 weeks to prepare customized abutments and prosthesis. At most, 2 weeks will be enough at the most. When the patient comes back 6 week post-op, ISQ values are measured one more time. If the values are not smaller than those at week 4, prosthesis can be confidently delivered. It is not important whether it is temporary or final. The stability of implant is already confirmed, so we can certainly proceed the prosthesis. If you repeat this procedure a few times, your confidence in using the One-Day Implant will grow. Today implants are much different from those 2 or 3 decades ago. With a little attention and positive mindset to incorporate new changes, we will be able to make the implant procedures much more interesting and effective which will contribute more to our business.

※ The clinical cases here are contained in 'How to get a reliable ISQ value' in the clinical cases of www.R2GATE.com.

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