



Compaction Autografting / Condensation

Maintaining Bone Bulk Results In Higher BIC

Enhance Bone Density

Accelerates Bone Healing

Increase Residual Strain

Enhances Osteogenic Activity Through Mechanobiology

Increase Implant Stability

Higher Insertion Torque & ISQ Reduces Micromotion

Connect With Us:



Biomechanical

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Histological

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H9. Slete FB, Olin P, Prasad H. Histomorphometric Comparison of 3 Osteotomy Techniques. *Implant Dent*. 2018 Aug;27(4):424-428.

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H11. Torroni, A, Lima Parente, PE, Witek, L, Hacquebord, JH, Coelho, PG. Osseodensification drilling vs conventional manual instrumentation technique for posterior lumbar fixation: Ex-vivo mechanical and histomorphological analysis in an ovine model. *J Orthop Res*. 2020; 1-7.

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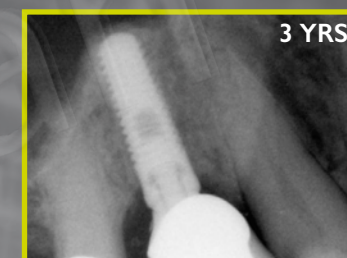
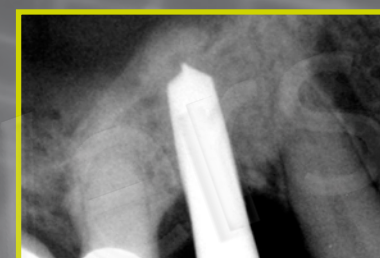
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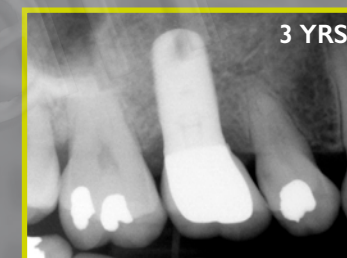
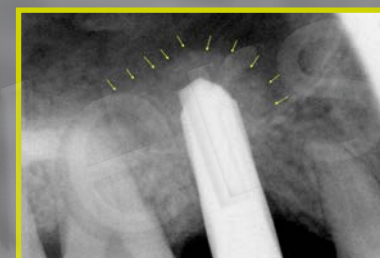
Versatility, It's in Our Name

Densah® Lift Protocol I



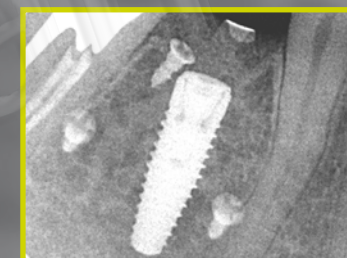
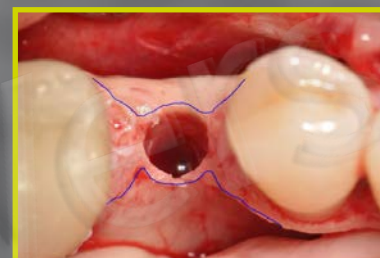
Courtesy of Dr. Salah Huwais

Densah® Lift Protocol II



Courtesy of Dr. Salah Huwais

Ridge Expansion Protocol



Courtesy of Dr. Samvel Bleyan

Ridge Expansion with Modified Ridge Split Protocol



Courtesy of Dr. Salah Huwais

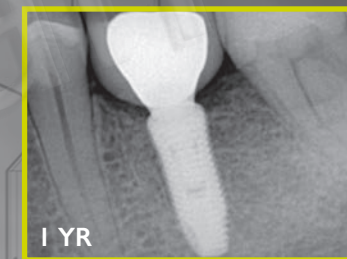
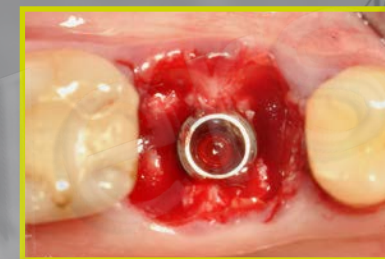
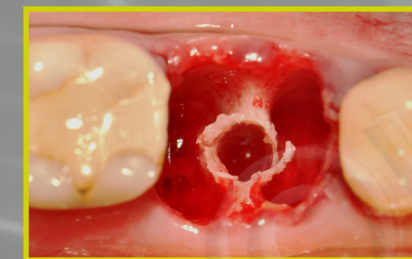
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Immediate Implant Placement Protocol



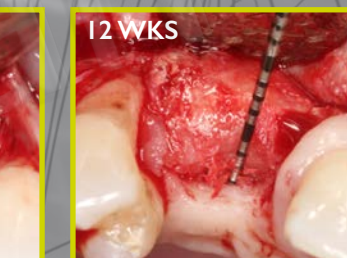
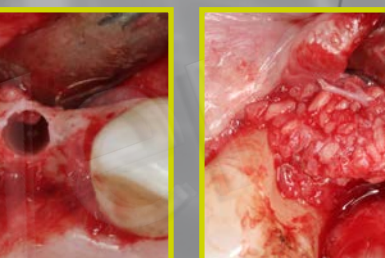
Courtesy of Dr. Salah Huwais

Molar Septum Expansion Protocol



Courtesy of Dr. Samvel Bleyan

Guided Expansion Graft: 2-Stage Augmentation Protocol



Courtesy of Dr. Salah Huwais

Guided Surgery Protocol

Utilize our keyless guided surgery system to facilitate oral surgery.



*Case Provided by Issac Tawil



OSSEODENSIFICATION:

A Paradigm Shift In Implant Osteotomy Preparation

Utilizing Densah® Bur Technology



*Clinician experience and judgement should be used in conjunction with the Densifying Reference Guide recommendation and suggested use protocols.

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The Company Behind The Innovation

Versah® LLC was founded in April of 2014 by Dr. Salah Huwais, a practicing Periodontist in Jackson, Michigan. Dr. Huwais created Versah in order to provide dental implant clinicians with an improved and unique way to prepare osteotomies for implant placement. While placing implants over his 20 years of practice, Dr. Huwais consistently experienced the limitations of excavating bone using conventional drills when preparing osteotomies.

His goal was to create a new instrument and procedure to maintain healthy bone while preparing osteotomies rather than remove it to simply make space. Osseodensification is the procedure that led to the creation of Versah. The procedure is accomplished using the patented instruments Dr. Huwais invented and named the Densah® Burs.

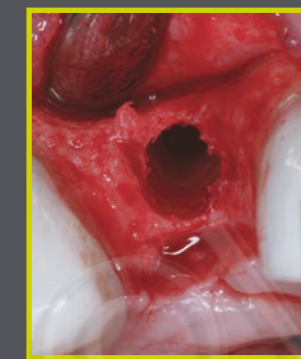
Contrary to drilling away bone, the Densah Burs can be rotated in a non-cutting counterclockwise (CCW) direction at 800 – 1500 rpms and when coupled with irrigation, preserves bone and enhance its plasticity as well as hydrodynamically densify it through compaction autografting or Osseodensification. The result is a consistently cylindrical and densified osteotomy. Consistent osteotomies and densification are important to implant primary stability and to early loading.^{B1-2, H1-1, C1, C5}

Osseodensification has also been reported to enhance dental implants short and long-term success rate regardless of their macro or micro geometry in several clinical scenarios including immediate implant placement, ridge expansion, as well as to facilitate implant placement in conjunction with crestal sinus graft with high success rate.^{C1-11}



The History Of Osteotomy Preparation

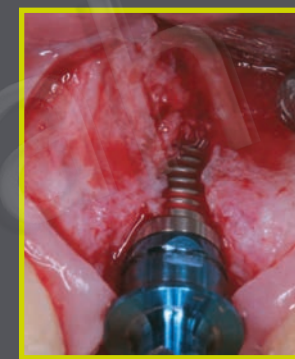
Since the early days of dental implantology, osteotomies have been prepared using standard drills designed for use in industrial applications. These drill designs have proved to be functional for dental applications as implant success rates have been satisfactory over time but osteotomy preparation techniques have still been lacking for various reasons. Standard drill designs used in dental implantology are made to excavate bone to create room for the implant to be placed. The goal in implant placement is to achieve implant stability which is believed to increase implant osseointegration success. This is more important in recent days due to popular immediate loading protocols being implemented into treatment by many clinicians. Removing bone is contrary to achieving the primary stability desired. Standard drill designs, in twist or fluted shapes, cut bone effectively but typically do not produce a precise circumferential osteotomy. Osteotomies may become elongated and elliptical due to chatter of the drills. In these circumstances, the implant insertion torque is reduced leading to poor primary stability and potential lack of integration. Osteotomies drilled into narrow bone sites may produce dehiscence, buccally or lingually, which also reduces primary stability and will require an additional bone grafting procedure which adds cost and healing time to treatment.



1. Osteotomy created with Standard Drilling



2. Small buccal dehiscence after standard drilling



3. Large buccal dehiscence after standard drilling

Densah® Bur Technology
The Innovation That Makes Osseodensification Possible

Densah® Bur Technology: Instantly Familiar Yet Dramatically Different

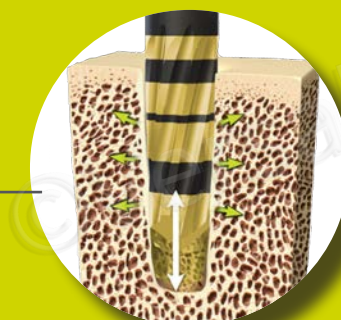
The Densah® Bur uses advanced, patented technology designed to precisely cut bone in the clockwise (CW) direction and also to densify bone in a non-cutting counterclockwise (CCW) direction with copious irrigation. Operating at a counterclockwise speed it is able to preserve bone and gradually densify and expand the bone to prepare the osteotomy which enhances primary stability.¹⁴ The Densah® Bur features multiple flutes within a tapered geometry and is designed to produce a faster feed rate with minimum heat elevation.¹⁴ The chisel edge is narrow to minimize force thrust and employs a point angle designed to reduce chatter. Outward pressure coupled with irrigation at the point of contact creates a hydrodynamic compression wave so that bone is compacted laterally and apically by continuously rotating and concurrently forcibly advancing the Densah® Bur. The taper design allows the surgeon to instantly lift away from contact to enhance irrigation. This, along with real-time haptic feedback, makes the Densah® Bur intuitive for the surgeon to make an instant adjustment to the advancing force.^{18, 19}



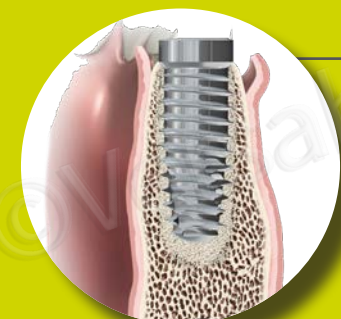
Dual Mode Action
Rotating Counterclockwise the Flute Back Rake Angle Creates Osseodensification (Densifying Mode) Rotating Clockwise the Flute Edges Precisely Cut Bone (Cutting Mode)



Hydrodynamic Compression Wave
Facilitates Trans-Crestal Sinus Augmentation



Haptic Feedback
Real Time Haptic Feedback that is Intuitive to Inform the Surgeon if More or Less Force is Needed in an Instant^{18, 19}



Primary Stability
Compaction Autografting Facilitates Bone Springback Effect Which Enhances Implant Stability^{14, 15, 16, 17}



The Gold Tip™ Design
Tip Design, with the Flutes, Facilitates Compaction Autografting^{18, 19}

*Measure the drilling depth of the Densah® Bur from the widest part of its tip to the indication line. Regardless of the Densah® Bur diameter, the maximum additional tip depth is 1.0 mm. The accuracy of laser markings are tested within +/- .5mm.

Discover the Difference

Osteotomies Created With Standard Drills	Osteotomies Created With Densah® Bur Clockwise Cutting	Osteotomies Created With Densah Bur Counterclockwise Osseodensification
1. Osteotomy prepared in porcine Tibia with standard fluted drills	1. Osteotomy prepared in tibia with Densah Bur rotating clockwise (cutting)	1. Osteotomy prepared in tibia with Densah Burs rotating counterclockwise (Osseodensification)
2. uCT radiograph of the above osteotomy	2. uCT radiograph of the above osteotomy	2. uCT radiograph of the above osteotomy
3. Histology cross section of implant placed in osteotomy prepared using standard drills at Day 0	3. Histology cross section of implant placed in osteotomy prepared using Densah Burs rotating clockwise at Day 0	3. Histology cross section of implant placed in osteotomy prepared using Densah Burs rotating counterclockwise at Day 0
4. uCT radiograph of full length osteotomy prepared with standard drills	4. uCT radiograph of full length osteotomy prepared with Densah Burs rotating clockwise	4. uCT radiograph of full length osteotomy prepared with Densah Burs rotating counterclockwise

Spring Back Effect

When run in a non-cutting counterclockwise (CCW) direction with copious irrigation at 800-1500 RPM, a compression wave is produced, thereby auto-compacting the bone laterally and apically creating a spring back effect. This phenomena facilitates and enhances implant primary stability and increases BIC.¹⁴

Histological Cross-Section of Bone Healing with Osseodensification

Fig. 1-3: Six weeks healing in vivo, histometric results suggest that osseodensification positively influenced osseointegration.^{15, 16, 17}



The Osseodensification Academy will provide direct instructions and interactive hands-on practical training for all treatment modalities and Clinical Protocols that include Osseodensification and Tissue Preservation and Augmentation.

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