

BECOME PART OF THE EVOLUTION! You are cordially invited to attend our sponsor session lecture on June 4 & 5, at 10:30-12:00: Capital Suite 14-16. To learn more about MIS visit: www.mis-implants.com



MORE BONE WHERE IT MATTERS MOST



04. EYE ON INNOVATION 06. V3 - WHAT THE WORLD NEEDS NOW 10. THE BIRTH OF A BREAKTHROUGH 14. BIOLOGIC LOGIC OF THE V3 IMPLANT DESIGN 16. V3 IMPLANT SYSTEM: Q&A 22. THE V3 CLINICAL EXPERIENCE



EYE ON INNOVATION

We live in an era of intense globalization and accelerating technology, leaving forward-thinking market leaders no choice but to become innovationdriven market leaders. However 'innovating' isn't an exact science. It requires high levels of industry expertise, dedicated discipline, loads of creative ingenuity and a calculated leap of faith.

Innovation is in our DNA and even after 20 years in the dental implants industry, MIS still embodies an entrepreneurial spirit; knowing that we can't achieve our goals if we remain satisfied with the status quo. A steady stream of new and improved MIS products has helped accelerate company growth year after year; sharpening our competitive edge. But best of all, it helps our customers; clinicians the world over to simplify procedures, improve success rates, reduce chair-time and achieve better esthetic results.

MIS is immensely proud of our innovative stance, which has led to the development of the new V3 implant system; a widely anticipated evolutionary next-step in dental implant performance.



Idan Kleifeld, CEO - MIS Implants Technologies Ltd.



"If oral surgeons, periodontists and prosthodontists could define the ultimate implant design achievement, it would probably be one that allows the significant gain of bone and soft tissue volume where it matters most."

MIS has a deep understanding of the global dental implants market and knows first-hand, the challenges that clinicians face daily in implant placement procedures. These important factors have dictated the need for a truly innovative implant design that provides highly-favored biomechanical, clinical and histomorphometric benefits; encouraging bone regeneration and greater volume of bone to support highly stable surrounding soft tissues for more esthetic restorations.

If clinical needs for a new implant design were already established, then why hadn't anyone created an innovation like the V3 before now?

Since the contemporary age of dental implant development, around 1978, implants have undergone numerous modifications to include a broader range of sizes, lengths and diameters. As time progressed there have been improvements in surface coating and treatments, experimentation in raw materials and variations in placement and loading procedures.

Many manufacturers and research institutes focused on fine-tuning implants; with no

substantial breakthrough in implant design being introduced. Part of the reason is that not all companies are so agile or innovationdriven and may be wary of investing in an entirely new concept. A number of interesting implant designs were conceived in the past; some clever but impractical to produce, and none proved viable for the global market.

Recent advances in oral implant technology have created an ideal environment whereby new design innovations can be realized and mass produced. MIS had the foresight to recognize such an opportunity when approached by the inventors of the V3 concept. Combined with MIS resources, R&D expertise and creative mindset, the concept has successfully been transformed into a bold new reality in implant design.

The V3 implant broadens the playing-field by offering clinicians an enhanced starting point and a simplified surgical approach.

The V3 allows clinicians a more advantageous starting point; where greater volume of bone and soft tissue is achieved at the onset of implant placement. This makes it suitable

for a wide range of surgical scenarios and ideal in critical anterior regions, or where space and bone may be limited. Therefore, the V3 can offer surgical specialists and GP's alike, optimum flexibly in planning and placement for a highly esthetic, restorativedriven approach without comprising on safety or quality.

The driving mission of the MIS Implants Technologies brand is to 'simplify dental implantology' and it's the global philosophy behind all our products and processes, including the new V3 implant system. The V3 protocols are often the same as most doctors are already familiar with, and the dedicated surgical kit has been specially engineered to enable fast and efficient surgical procedures; making it 'simple' for clinician's throughout the entire surgical process.





The driving mission of the MIS Implants Technologies brand is to 'simplify dental implantology' and it's the global philosophy behind all our products and processes, including the new V3 implant system."



THE BIRTH OF A BREAKTHROUGH

A Quick Look at the New Product Development Process

Doron Peretz, Senior VP Marketing & Development

Success in transforming a market trend or opportunity into a tangible new implant system must be born out of a deep understanding of customer needs and wants; of both the doctors and their patients. It further entails a firm handle on the current technological environment and an almost uncanny ability to see around corners; predicting where those technologies are headed for the future.

Over the past 20 years, MIS has learned a lot about what doctors want. Quality, performance and efficiency are the 3 main variables that drive our customers' needs:

- Our implants are manufactured and treated to the highest quality standards to ensure that clinicians achieve predictable outcomes and good esthetic results; greatly enhancing both their professional standing and profitability.

- A breakthrough in implant performance has been long overdue in the industry. The enhanced biologic and mechanical characteristics of the V3 implant demonstrate exceptional

performance. It's built for primary stability and rapid osseointegration plus allowances for more bone, reduced cortical pressure and much more.

- Increased efficiency saves chair-time and is the result of simpler products and protocols, but simplicity isn't always so simple. MIS delivers implant designs supported within a system of efficient tools and precision superstructures that inevitably lead to quicker, simpler and more effective surgical procedures.

An exacting regimen must accompany the birth of any innovation and the V3 implant is no exception. It represents the culmination of an integrated internal and external development process linking the product developers, marketing, R&D, engineering and many other specialty disciplines.

The first order of business is to understand and observe the market, the technology and any limitations of the technology. We then actually envisage our clients using the new design; as an intensive user-based identification exercise. Based on the prior input, a prototype is produced for evaluation and concept modification. Lastly, even further design changes are made to reach the most technologically superior prototype ready for clinical trials.

The MIS development process provides a continuous stream of new products and design improvements that are inherently simple, in order to better satisfy our customers' needs. It's been a highly successful approach which has led to a number of outstanding MIS products and a significant increase in our market share on a global scale.

The V3 is a true next-step in dental implant design, and is the direct result of a highly advanced R&D process that we're especially proud of. We are equally proud of the outstanding contribution of our V3 development partners; Prof. Nitzan Bichacho, Dr. Eric Van-Dooren and Dr. Yuval Jacoby, which has led to this important implant design innovation.

> With the launch of the new V3 Implant System, MIS takes our place at the forefront of dental implant innovation; soon be accessible to doctors the world over.





BioLOGIC OF THE V3 IMPLANT DESIGN

Ilan Kallai, PhD, Director of Research

More bone and soft tissue where it matters most is the foundation of the V3 biologic logic principle. Optimum osseointegration and support of soft tissues provide the clinician with faster healing and greatly improved esthetic results for better all-round clinical success.

Implant design can have a profound influence on the success of the osseointegration processes that unites bone to an implant surface. The unique triangular-shape of the V3 implant's coronal portion encourages bone regeneration and furthers the gain of a significantly greater volume of bone; supporting highly stable surrounding soft tissues and more esthetic restorations.

Stable blood clot formation is key

The triangular V3 design provides solid anchorage in three areas in the crestal zone while forming gaps between the remaining sides of the implant neck and the osteotomy. This results in open compression-free areas around the neck of the implant where a stable blood clot can more easily develop.

Wound healing, and in particular the healing of an osseous wound around a dental implant, is a natural restorative response to tissue injury and is a complex systematic biological process that can be explained in terms of 4 overlapping phases: Hemostasis (lasts minutes to hours), Inflammation (begins after 10 minutes and lasts for the first few days after surgery), Proliferation (lasts from a few days to a few weeks) and Remodeling (begins weeks after surgery and can last years).

In the Hemostasis phase, a hematoma (blood clot) is formed at the bone-implant interface, which promotes the initial activity of scaffold-

building as a foundation for subsequent bone growth.

In this the first critical step towards successful osseointegration, the ingenious combination of compression-free gaps with a firm anchorage inherent in the V3 design is essential in order to establish a stable blood clot.

Bone is a living tissue that is constantly being regenerated by osteoblasts (bone synthesizing cells), which are in charge of production of matrix and mineral, and osteoclasts, which break down the tissue. Osteoblasts attach on the implant surface almost immediately upon implant insertion. A few days later, they begin to deposit a dense, cross-linked collagen matrix either close to, or in direct contact with the implant surface.

The early deposit of the new calcified matrix, coupled with the elaboration of a vascular net, is then followed by woven bone formation to ensure tissue anchorage. Woven bone usually starts growing from the surrounding bone toward the implant, where it is simultaneously deposited upon the implant surface. Woven bone formation is most prevalent within the first 4-6 weeks after surgery.

During the next several months after implant placement, the woven bone is removed by osteoclasts and is replaced by lamellar bone. This remodeling can last several years until most woven bone and old bone from the primary bone contacts are replaced by newly formed and load-oriented bone.

Implant surface characteristics

Osseointegration processes are greatly enhanced by a receptive implant surface. Chemical and physical surface properties such as ionic composition, hydrophilicity, and surface roughness play a major role in implant-tissue interaction.

The V3 surface, as with all MIS implants, undergoes a rigorous surface treatment process. Furthermore, MIS can guarantee that our implant surfaces uphold the highest standards of surface quality with a 99.8-100% pure Titanium-oxide surface, as well as the validation of full coverage by sand-blasting and acid-etching.

These surface treatments help eliminate various contaminants while increasing the implant surface area; generating a hydrophilic surface with micro and nanostructures for optimum osseointegration. In this way, a greater contact area for emergent bone cells can be established from the start.

High esthetic results

The shape of the V3 implant results in less titanium and more bone and soft tissue visible in the esthetic zone; supporting a restorative-driven approach and easier soft tissue management.

More soft tissue to work with can reduce the likelihood of mucogingival defects in the esthetic zone and the need for subsequent soft tissue augmentation procedures.

Esthetic qualities of peri-implant tissues include health, height, volume, color, and contour, which are important factors in achieving good results. Today, implant patients expect not only long-term functionality and comfort, but the very highest levels of esthetic harmony.



V3 IMPLANT SYSTEM: Q&A

The V3 Implant System is the Result of an Exciting and Intensive Two-Year R&D Process. Its Evolutionary Design Features Answer a Number of Important Questions Facing Dental Implantologists Worldwide.

Elad Ginat, Products Manager



Q: Who benefits from this new implant design?

A: Doctors and their patients.

Doctors are seeking a better solution to the challenges associated with bone-anchored dental implants. Challenges that may cause extended chair-time that can damage a dental practice both in revenue and reputation. The V3 is mechanically and biologically engineered to fulfill the demands of today's most discerning implant doctors and their patients, and to anticipate future needs in implant dentistry.

Patient demand for high-end dental implants is on the rise, especially with the sharp increase of older populations in the developed world expecting optimal health. Patients today are better informed about dental implants and have higher expectations for long-term success, convenience and high esthetic outcomes.

Q.Whatdoes "More Bone Where It Matters Most" mean?

A: More precisely, more bone and more soft tissue where it matters most.

In the most general terms, the unique triangular shape of the coronal portion of the V3 implant allows a significant gain of bone and as a result, greater soft tissue volume in critical areas; especially compared with circular implants. This design greatly enhances esthetic outcomes; as less titanium and more bone and soft tissue is available.

The triangular profile creates gaps between the implant and the osteotomy, allowing an area with almost no cortical bone compression. Directly after implant placement, the gaps fill with blood, leading to a stable blood clot, for more rapid bone regeneration and better supporting primary stability of the implant.

Q: What does "filling the gaps" actually achieve?

A: Gaps around the V3 crestal area create the ideal environment for stable blood clot formation, fast-tracking osseointegration.

In a matter of seconds after implant placement blood pooling occurs. After a few minutes a hematoma (blood clot) is formed at the boneimplant interface, which acts as a foundation for laying down bone matrix and encouraging vascular activity. The blood also functions as a space maintainer, preventing soft tissue growth in the gaps. The success of this first critical hemostasis or blood filling phase is essential for faster implant integration and accelerated bone growth.

Preclinical studies and histological analysis has shown that in every test case, bone fills up the gaps created by the triangular V3 profile design.



Q: How is primary stability achieved with the V3?

A: The triangular V3 design provides solid anchorage at three points in the crestal area.

Anchorage is achieved at three points without compromising crestal primary stability. The implant has a cylindrical tapered shape, with a narrow apical body, making it ideal for shallow anatomical structures. The V3 variable thread and self-tapping design achieves excellent initial stability in almost any bone situation. The concave inter-thread dimensions allow for maximum BIC, and a flat apex supports immediate placement engagement. Q: How does the V3 design reduce bone compression?

A: Built-in design characteristics of the V3 offer unmatched stress reduction on crestal bone.

Reduced bone compression can help ensure a more effective osseointegration process. However many factors can impede this process; amongst them, compression in compact bone and tension at the interface between cortical and trabecular bone. The most concentrated stress areas are primarily at the implant neck.

The triangular coronal profile of the V3 implant allows the formation of gaps between the sides of the implant neck and the osteotomy; resulting in an open, compression-free zone. Crestal bone loss is minimized by reducing stress in the cortical bone. Macro-threads on the neck of the implant also assist in reducing bone stresses and bone resorption.

On the body of the implant, the variable thread design enables progressive bone condensing and a mild ridge expansion that maximizes compressive force resistance, while minimizing force production.

Q: What esthetic benefits are gained from the V3 design?

A: The unique shape of the V3 results in less titanium and more bone and soft tissue.

With more bone and soft tissue to work with from the start, clinicians can achieve much higher esthetic outcomes. An important esthetic benefit is simply that less titanium means more bone for more naturally esthetic contours in the mouth.

It's a fact that vital, healthy soft tissue volume is dependent upon vital, stable bone volume. More soft tissue volume results in easier soft tissue management and allows a firm closure around the implant as an effective barrier against external contaminants. In addition, the V3 also comes with platform switching for an esthetic gingival seal. In short, patients are more likely to receive a healthier, natural looking esthetic outcome and reduced healing times.

The V3 triangular shape allows for flexibility in positioning of the implant, to gain bone and enjoy better esthetics.

Q: Is the V3 surgical protocol difficult to learn?

A: V3 surgical procedures are the same as with other implants. Doctors don't have to do anything differently to enjoy the benefits of the V3.

V3 surgical protocols have been designed to be efficient, simple and convenient, resulting in ease of placement for the dentist and shorter recovery time for patients. It's the same as procedures most doctors are already familiar with; and in most cases it's even simpler.

The expertly engineered surgical tools that accompany the V3 implant system are highly accurate, super-efficient and allow easy identification during surgery. Doctors have just the right number of tools required for the procedure at hand: Probe, marking drills, pilot drills, twist drills, insertion tools and a ratchet wrench. **Q**: Is the V3 implant only for use in the anterior regions or narrow spaces?

A: The V3 is defined as a multipurpose implant.

The V3 is suitable for use in a wide range of clinical scenarios and significantly beneficial for all indications, although it is an ideal solution for narrow spaces where bone is limited.

With the special V3 design dentists not only gain more bone, but they can also use a standard platform implant in places where circular implants would require a narrow diameter. The advantages of the Standard over the Narrow implant include a larger percentage of BIC and reduced limitation of force on the connection.

Q: What are the prosthetic options for the V3?

A: The V3 offers a broad range of restorative solutions.

The V3 prosthetic system is fitted with concave emergence profile abutments that allow for extra soft tissue volume. We've designed a prosthetic system to support the gain of bone and soft tissue attained through the V3 design; it just wouldn't make sense otherwise.

The concave abutments feature smooth surfaces, round edges and are anodized in a gold shade for excellent esthetic outcomes. Engineered for uncompromised accuracy, the abutment is seated firmly and securely within the implant's 12° conical connection, thus minimizing micro-moments.

Complementary prosthetic components 100% compatible with the V3 are complete in every way and available in a range of sizes and materials.





V3 IMPLANT SYSTEM BY MIS





Significant increase in bone: In the hemostasis phase immediately after implant placement, a hematoma (blood clot) is formed at the bone-implant interface, which promotes the initial activity of scaffold-building as a foundation for subsequent bone growth. In this first critical step towards successful osseointegration, the ingenious combination of compression-free gaps with a firm anchorage inherent in the V3 design, is essential in order to establish a stable blood clot; fast-tracking osseointegration.

