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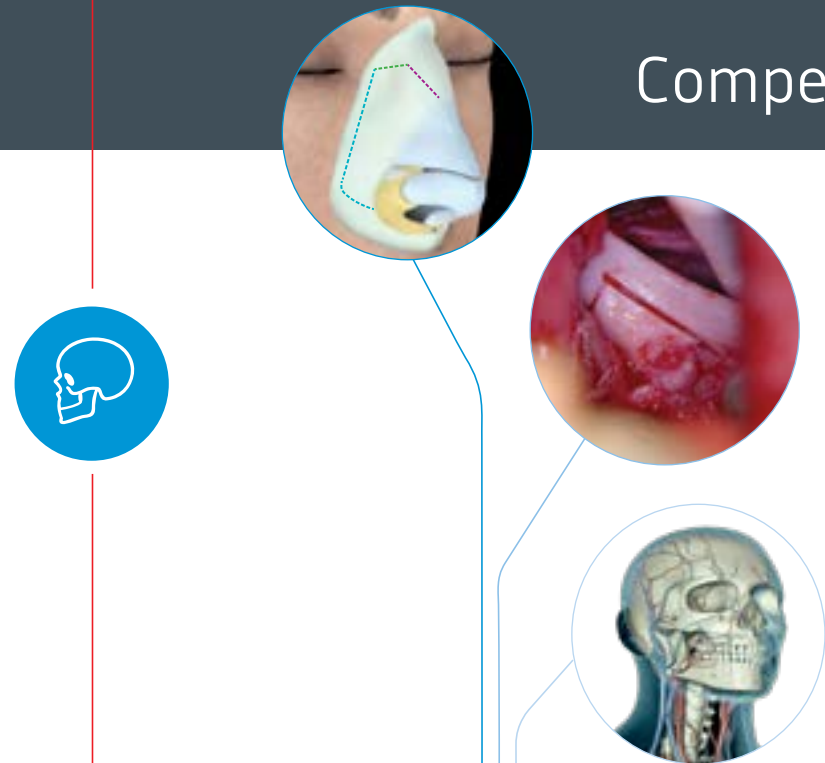
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## Safe and atraumatic ultrasonic piezo bone surgery

### Compendium



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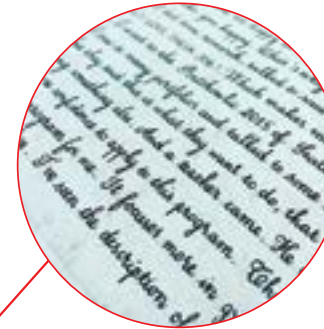
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Courtesy of Dr. Olivier Gerbault and Dr. Angelo Troedhan

SUMMARY

## In Vivo Assessment of Bone Healing following Piezotome Ultrasonic Instrumentation

J. Reside, E. Everett, R. Padilla, R. Arce, P. Miguez, N. Brodala, I. De Kok, S. Nares  
Clinical Implant Dentistry and Related Research, June 2013

### Keywords

Gene expression, Histology, MicroCT, Piezoelectric surgery, Piezotome®.

### Abstract

#### Purpose:

This pilot study evaluated the molecular, histologic, and radiographic healing of bone to instrumentation with piezoelectric or high speed rotary (R) devices over a 3-week healing period.

#### Materials and methods:

Fourteen Sprague-Dawley rats (Charles River Laboratories International, Inc., Wilmington, MA, USA) underwent bilateral tibial osteotomies prepared in a randomized split-leg design using Piezotome® (P1) [Satelec® Acteon®, Merignac, France], Piezotome® 2 (P2) [Satelec® Acteon®], High-speed R instrumentation, or sham surgery (S).

At 1 week, an osteogenesis array was used to evaluate differences in gene expression while quantitative analysis assessed percentage bone fill (PBF) and bone mineral density (BMD) in the defect, peripheral, and distant regions at 3 weeks. Qualitative histologic evaluation of healing osteotomies was also performed at 3 weeks.

#### Results:

At 1 week, expression of 11 and 18 genes involved in bone healing was significantly ( $p < .05$ ) lower following P1 and P2 instrumentation, respectively, relative to S whereas 16 and 4 genes were lower relative to R. No differences in PBF or BMD were detected between groups within the osteotomy defect. However, significant differences in PBF ( $p = .020$ ) and BMD ( $p = .008$ ) were noted along the peripheral region between P2 and R groups, being R the group with the lowest values. Histologically, smooth osteotomy margins were present following instrumentation using P1 or P2 relative to R.

#### Conclusion:

Piezoelectric instrumentation favors preservation of bone adjacent to osteotomies while variations in gene expression suggest differences in healing rates due to surgical modality. Bone instrumented by piezoelectric surgery appears less detrimental to bone healing than high-speed R device.

With both Piezotome® piezoelectric surgical units, osteotomy margins were smooth and much better defined, suggesting minimal postoperative necrosis of the marginal bone during healing process.

Osteotomies performed with Piezotome® 2 went faster than Piezotome® 1. However, the increase of power of generation 2 has no effect on bone tissues or healing process.

No genetic, histologic, or radiographic evidence of necrosis or exuberant inflammation over the 3 week healing period was found.

Ultrasonic Piezo  
Bone Surgery Performances

## Increased Intraosseous Temperature Caused by ultrasonic Devices During Bone Surgery and the Influences of Working Pressure and Cooling Irrigation

F. Birkenfeld, M.E. Becker, S. Harder, R. Lucius, M. Kern  
The International Journal of Oral & Maxillofacial Implants; 27:1382-1388, 2012

### Keywords

Cutting performance, Intraosseous temperature development, Ultrasonic bone surgery.

### Abstract

#### Purpose:

The purpose of this study was to investigate the increases in intraosseous temperature generated by a modern ultrasonic device for bone surgery (UDBS) and the influences of working pressure and cooling irrigation on this temperature.

#### Materials and methods:

Twenty human mandibular bone specimens (20 x 15 x 5 to 7 mm) were used; three vertical cuts were performed for a duration of 12 seconds per cut. Each bone specimen was machined with a different combination of working pressure (1.5, 2.0, 3.0, 4.0, or 6.0 N) and cooling irrigation (0, 30, 60, or 90 mL/min), and intraosseous temperatures were measured.

Harmful temperature development was defined as an increase of more than 10°C for the 75th percentile and/or a maximum increase of more than 15°C. Cutting performance was also measured.

#### Results:

Harmless intraosseous temperature development was identified for working pressures of 1.5 N and 2.0 N with cooling irrigations of 30, 60, and 90 mL/min and for 3.0 N at 90 mL/min. The maximum temperature observed was 72°C (6.0 N with 60 mL/min). The mean cutting performance values were  $0.21 \pm 0.02$  mm/s for 6.0 N,  $0.21 \pm 0.06$  mm/s for 3.0 N,  $0.20 \pm 0.01$  mm/s for 4.0 N,  $0.11 \pm 0.05$  mm/s for 1.5 N, and  $0.08 \pm 0.03$  mm/s for 2.0 N.

#### Conclusion:

To prevent tissue damage in dental bone surgery, a minimum coolant amount of 30 mL/min is recommended. The working pressure should be chosen with great care because of its significant influence on intraosseous temperature. Doubling of the working pressure from 1.5 to 3.0 N requires a tripling of the coolant (30 to 90 mL/min) to prevent tissue damage. A working pressure above 3.0 N did not result in improved cutting performance.

To prevent damage in dental bone surgery when using an ultrasonic device, a minimum coolant amount of 30ml/min is recommended. A working pressure above 3N may not enhance the cutting performance.

Ultrasonic Piezo  
Bone Surgery Performances

## Performance of Ultrasonic Devices for Bone Surgery and Associated Intraosseous Temperature Development

S. Harder, S. Wolfart, C. Mehl, M. Kern

The International Journal of Oral & Maxillofacial Implants Volume 24, Number 3, 2009

### Keywords

Cutting performance, Intraosseous temperature development, Material testing, Ultrasonic bone surgery.

### Abstract

#### Purpose:

The purpose of this study was to evaluate and to compare the bone-cutting performance and intraosseous temperature development of three modern ultrasonic devices for bone surgery (UDBS). Materials and methods:

The following UDBS and associated cutting tips (straights bone saws) were used in this study: (1) Piezosurgery® II professional, tip OT 7 (Mectron®); (2) Piezotome®, tip BS1 (Acteon®) and (3) SurgySonic®, tip ES007 (American dental system/Günther Jerney). In the experimental setup UDBS, handpieces were immobilized, and bone specimens from the middiaphysis of a bovine femur were moved in a longitudinal direction under the cutting tip to a standardized depth of 3.0 mm. Statistical analysis was performed using the Wilcoxon rank sum test.

#### Results:

The median increase (25th through 75th percentiles) of the local intraosseous temperature was 3.0°C [2.2°C to 4.2°C] for the SurgySonic®, 2.2°C [1.8°C to 3.2°C] for the Piezosurgery® II, 1.1°C [0.7°C to 1.6°C] for the Piezotome®. The median cutting performance was 0.31 mm/s [0.11 to 0.46 mm/s] for the Piezotome®, 0.25 mm/s [0.23 to 0.27 mm/s] for the for the Piezosurgery® II and 0.04 mm/s [0.03 to 0.05mm/s] for the SurgySonic®.

#### Conclusion:

Among the three tested UDBS, the Piezotome® and the Piezosurgery® II showed a significantly higher cutting performance than the SurgySonic®. The Piezotome® produced the smallest increase in intraosseous temperature.

Acteon® & Mectron® showed a significantly higher cutting performance, whereas Acteon® produced the least increase of intraosseous temperature. Differences in the cutting performance and intraosseous temperature development of the tested devices seemed to be influenced by the design of the cutting tips of the bone saws used in this investigation. On Acteon® device, was observed a deeper penetration into the bone. Its cutting tip showed more homogenous and sharper spike geometry and more roughened spike surfaces than other cutting tips.

## LeFort I Segmented Osteotomy Experience with Piezosurgery in Orthognathic Surgery

S. Olate, L. Pozzer, A. Unibazo, C. Huentequeo-Molina, F. Martinez, M. de Moraes

Int J Clin Exp Med 2014;7(8):2092-2095

### Keywords

Piezoelectric osteotomy, Piezoelectric surgery, LeFort I osteotomy.

### Abstract

The aim of this work was to present the LeFort I segmented osteotomy in consecutive patients using the piezoelectric system. A descriptive study was designed for patients operated on between November 2012 and January 2014. All the patients presented some type of skeletal anomaly and underwent orthognathic surgery via piezoelectric osteotomies. Each maxillary surgery was developed with that system and those patients who also received osteotomies with a reciprocating saw were excluded. Surgical time and complications were analyzed. 19 patients underwent surgery consecutively with an osteotomy average time of 45 minutes. The patients operated on at the beginning were longer surgeries, whereas the final cases were 40 minutes. No type of laceration of vascular elements or laceration of palatal tissue was observed. The protocol was fully implemented, incorporating all the advantages of piezoelectric systems. It is concluded that the LeFort I segmented osteotomy can be performed with low risk of injuring soft tissues and in a time probably less than 50 minutes for the maxillary osteotomy.

All 19 patients in this study underwent LeFort I segmented osteotomy with Piezotome®. It has been concluded that using the Piezotome® generator increased the security as there was no soft tissue lesion nor necrosis of the osteotomized segments. Throughout the procedure, full visibility and a stable view was achieved with minimal bleeding and adequate irrigation on the surgical site. Using a piezoelectric device optimized the surgical technique and with a minimal learning curve allowed to perform the maxillary osteotomy in an average time of 48 minutes.

## Mandibular Condylectomy Revisited: Technical Notes Concerning the Use of an Ultrasonic System

*S. Olate, A. Unibazo, A. Almeida, M. de Moraes*  
J Oral Maxillofac Surg; 1-4, 2013

### Keywords

Mandibular condylectomy, Visual clarity, Control, Bleeding control, Soft tissue preservation, Piezoelectric ultrasonic system

### Abstract

Condylar hyperplasia is a well-known pathologic entity with an established treatment protocol. Traditionally, saws and drills have been used in the condylar osteotomy. The use of ultrasonic systems has optimized many procedures in the maxillofacial area; however, exploration of the use of this technique for condylectomy has been limited. Ultrasonic systems offer several advantages, such as a decrease in the risk of blood vessel damage and clarity of the osteotomy. The present report addressed the scope of condylar osteotomy using ultrasonic systems.

Osteotomy in mandibular condylectomy is traditionally performed with a saw, drill, or chisel and often associated to complications due to the proximity with major vascular structures such as the maxillary artery. Piezotome® applied to this surgery enhances the visualization and allows for full control during the osteotomy. Soft tissue is preserved and no necrosis was observed in the residual bone which could lead to improve bone healing and a reduction in the postoperative patient's symptoms. Thus, piezoelectric application to this surgery is considered safe and efficient.

CranioMaxilloFacial

## Mandibular Constriction: Managing the Skeletal Transversal Discrepancies

*P. Bouletreau*  
Rev Stomatol Chir Maxillofac 2009;110:198-201

### Keywords

Maxillary and mandibular malformation, Maxillofacial Surgery, Osteotomy

### Abstract

Surgical management of transversal discrepancies is a special field of orthognathic surgery. Long-term stability is often challenging despite the various available surgical techniques. We present herein a little known surgical technique for discrepancy correction: mandibular constriction. The surgical technique is described and its indications are discussed.

The mandibular constriction is a surgical technique aiming to manage the skeletal transversal discrepancies which associated to the ultrasonic generator allow to get a thin and straight cut.

CranioMaxilloFacial

# Piezotome Rhinoplasty Reduces Postsurgical Morbidity and Enhances Patient Satisfaction: A Multidisciplinary Clinical Study

A. Troedhan

J Oral Maxillofac Surg -1.e1-1.e11, 2016

## Keywords

Piezotome reductive rhinoplasty, patient satisfaction, post-surgical morbidity reduction

## Abstract

### Purpose:

Experimental and clinical studies in various fields of oral and maxillofacial surgery suggest the use of piezotomes to reduce postsurgical morbidity and enhance healing. The aim of the study was to investigate if rhinoplasty surgery with piezotomes might decrease postsurgical morbidity and increase overall patient satisfaction when compared with rhinoplasty with traditional instruments and protocols.

### Materials and Methods:

In this prospective clinical study, patients in a cosmetic surgery department, ear-nose-throat department, and specialty ambulance for maxillofacial surgery, scheduled for cosmetic reductive rhinoplasty, underwent rhinoplasty with traditional instruments or an ultrasonic surgical device called a "piezotome". Before rhinoplasty, all patients were evaluated by the Rhinoplasty Outcome Evaluation (ROE) questionnaire. Staging for ecchymosis/edema and for pain was performed on the seventh day after surgery, and at 6 months after surgery, patients were again evaluated by the ROE score. Female and male patients aged between 24 and 57 years were included; patients had to be free of functional impairments of nasal breathing. Data were anonymized and evaluated with SPSS software (version 22.0; IBM, Armonk, NY) (1-way analysis of variance, Games-Howell post hoc test for primary and secondary outcome evaluation, Levene test of equal variances, t test, and Pearson correlation of primary and secondary outcome evaluation).

### Results:

Eighty-four patients were fully documented by ecchymosis/edema staging, pain staging, and ROE; of these, 51 women and 12 men underwent cosmetic rhinoplasty in a department of plastic and reconstructive surgery; an ear, nose, and throat department; or a specialty ambulance for maxillofacial surgery. A piezotome rhinoplasty was performed in 16 female and 5 male patients, all of whom were fully documented. Statistical evaluation verified that there were no significant differences between the three surgical disciplines when a rhinoplasty was performed with traditional instruments ( $P>.7$ ) but showed that the use of ultrasonic surgical instruments significantly improved immediate postsurgical morbidity in terms of ecchymosis/edema and pain ( $P<.05$ ), as well as ROE score after 6 months ( $P<.05$ ). Correlation of ecchymosis/edema and pain with ROE score showed a significant difference ( $P=.01$ ) in favor of the piezotome.

### Conclusion:

The use of ultrasonic surgical devices in reductive rhinoplasty decreases postsurgical morbidity and increases overall patient satisfaction significantly. The results of this study suggest piezotomes to be the surgical instrument of choice not only for oral surgical procedures but also for cosmetic surgery on facial bones.

108 patients were treated for cosmetic reduction rhinoplasty performed by three different surgical disciplines: Cosmetic-, ENT-, and Maxillofacial surgeons who each used different instruments (Piezotome® vs conventional), techniques and approaches.

Rhinoplasty performed with Piezotome allows immediate post-surgical morbidity reduction: almost a complete absence of ecchymosis and edema and significant pain reduction were observed as bone cutting is precise and soft tissue is preserved; indeed, the periosteum is intact both on a histological and functional level.

Therefore, the nasal bone stability is preserved. According to the results of the study, Piezotome appears to be the surgical instrument of choice for cosmetic surgery on facial bones and increases patient's satisfaction with the final results.

Rhinoplasty

Rhinoplasty

# The Role of Piezoelectric Instrumentation in Rhinoplasty Surgery

O. Gerbault, R.K. Daniel, A.M. Kosins  
Aesthetic Surgery Journal; 2015, 1–14

## Keywords

Rhinoplasty surgery, Extensive exposure, Soft-tissue preservation, greater visibility, Piezoelectric instrument

## Abstract

### Background:

In rhinoplasty surgery, management of the bony vault and lateral walls is most often performed with mechanical instruments: saws, chisels, osteotomes, and rasps. Over the years, these instruments have been refined to minimize damage to the surrounding soft tissues and to maximize precision.

### Objectives:

This article will present the evolution of the authors' current operative technique based on 185 clinical cases performed over an 19-month period using piezoelectric instrumentation (PEI).

### Methods:

A two-part study of cadaver dissections and clinical cases was performed using PEI. Evolution of the authors' clinical technique and the operative sequence were recorded.

### Results:

Thirty cadaver dissections and 185 clinical cases were performed using PEI, including 82 primary and 103 secondary cases. An extended subperiosteal dissection was developed to visualize all aspects of the open rhinoplasty including the osteotomies. Ultrasonic rhinosculpture (URS) was utilized in 95 patients to shape the bony vault without osteotomies. To date, 11 revisions (6%) have been performed. There were no cases of bone asymmetry, irregularity, or excessive narrowing requiring a revision.

### Conclusion:

Based on the authors' experience, adoption of PEI is justified and offers more precise analysis and surgical execution with superior results in altering the osseocartilaginous vault. With extensive exposure, surgeons can make an accurate diagnosis of bony deformity and safely contour the bones to achieve narrowing and symmetry of the bony dorsum. Stable osteotomies can be performed under direct vision with precise mobilization and control.

As a result of PEI, the upper third of the rhinoplasty operation is no longer shrouded in mystery.

Rhinoplasty surgeries have evolved with the use of piezo and specifically designed tips for rhinoplasty. A major change is the extensive exposure of the skin envelope in rhinoplasty and thanks to piezo the underlying cartilage and mucosa are untouched; thus preserving bone stability and reducing the risk of nasal bone collapsing in the airway. The wide exposure also increases the visibility which makes it easier for surgeons to assess and surgically correct the bony vault prior to and after the osteotomies are performed as a result of the full visibility and thus a greater control. Piezo-rhinoplasty is particularly adapted when bones are closed to delicate soft structures such as skin, mucosa or flimsy cartilage as they remain protected and offer more precise results without significant risk of osseonecrosis.

Rhinoplasty

Rhinoplasty

## ● "M+ has Restored my Love of my Job"

*v.Prof.Dr.Dr. Troedhan - MD, DMD, PhD, Vienna, AUSTRIA*

Specialist in Cranio-Maxillo-Facial surgery - Specialist in Dentistry & Periodontology

"Patients are not consumers. They are human beings, who should be treated with the utmost respect. Using Piezotome® instruments in my cranio-maxillo-facial (CMF) operations enables me to reduce their pain and apprehension, and has restored my love of the job."

Angelo Troedhan, who is based in Austria, has been working as a CMF surgeon for 28 years. His CMF operations range from impacted teeth and third molars to apisectomies, sinus surgeries, and complex procedures for bone augmentations and reconstructions (vertical bone distractions, sinus lifting and horizontal bone-widening). They also extend to piezoelectric and orthognathic surgery on the maxilla and mandibular, and reductive cosmetic surgery on facial bones, such as rhinoplasties, genioplasties and zygoma-reductions.

In Doctor Troedhan's case, the operations most frequently requested by his patients involve alveolar bone reconstructions, sinus lifting and cosmetic surgery of facial bones. He performs one or two orthognathic operations every month.

Angelo Troedhan has been using M+ ultrasonic instruments in his operating room for three years now. "I use M+ ultrasounds for ethical and medical reasons. Rotary instruments and chisels in all kinds of CMF surgery should be replaced by ultrasonic surgical devices like M+ because surgery with M+ is more precise, as clinical studies have shown. There is less risk of iatrogenic soft-tissue lesions, and significantly less post-op patient-morbidity, such as pain and swelling. Moreover, and this has also been proven by experimental studies, the use of M+ substantially enhances bone healing. M+ instruments allow for a surgical precision that has never been possible with traditional instruments."

"A patient who consults me for an operation is more often than not very apprehensive. Patients understandably fear the pain they may suffer during an operation, and the pain and swelling that may occur after the operation. They worry that there may be complications, such as heavy bleeding. In a word, they want to know when they will be able to get on with their life again."

"Meanwhile, we surgeons worry about bleeding that may obscure our view while we operate. We are also extremely careful not to accidentally damage the soft tissues and facial nerves. Ultrasounds reduce the risks of complications, sometimes by more than 50%."

### M+ is revolutionary

M+ instruments afford unrivalled speed, precision and efficacy in cutting bone. This is made possible by a self-regulatory feedback mechanism during osteotomies of all kind. The M+ range is currently the finest and most time-efficient ultrasonic surgical device, with the widest range of specialized tips for particular surgical procedures, especially for CMF surgery.

"In 2005, I abandoned all rotary instruments from my operating rooms, and now use Piezotome® M+ and ImplantCenter™ M+, which are as easy to set up as a traditional device for rotary instruments," he explains. And he has never looked back.

## ● PATIENT TESTIMONIAL

### Elisabeth N., Vienna, underwent ultrasonic surgery performed by Dr Troedhan

"Some years ago because of a very complicated wisdom tooth I underwent jaw surgery at the University Clinic for Oral-Maxillofacial Surgery in Vienna. The operation and the period following the operation were pure horror for me. I suffered severe pain for 14 days and because of the disfigurement of my face and the bruising right down to my cleavage, I was unable to leave the house for 10 days and the only thing I could eat was liquidised food. Since then I have a huge cavity on the bone of my lower jaw at the site of the operation, in which foods are always getting caught. Therefore, I was terrified by the prospect of the jaw surgery needed for the even worse wisdom tooth on the other side. From information on the Internet I discovered that such operations are much less dreadful with ultrasound. In addition, I had to make my mind up to have the jaw surgery done, since I was suffering constant pain because of the wisdom tooth. The oral surgeon used an ultrasonic operating instrument to carry out the jaw surgery. The contrast with the first operation on the other hand was unbelievable. The operation took less time and was not accompanied by such dreadful noises and after the operation I had hardly any pain and there was very little swelling and absolutely no bruising. Three days later I was able to eat normally again and 5 days after the operation I was able to return to work with no problems. I also do not have a cavity in the bone on this side to annoy me when I am eating. I hope that I will not need any more jaw surgery, but if I do need an operation, I will have it done only by ultrasound surgery."

Testimonial  
CranioMaxilloFacial

Testimonial  
CranioMaxilloFacial



## Facial Plastic Surgeon Milos Kovacevic ● Advocates COMEG's Piezotome® Instruments

*Milos Kovacevic, MD – Hamburg, GERMANY*  
Facial Plastic Surgeon, Rhinoplasty specialist

"The main advantage of the Piezotome® ultrasonic instruments used in rhinoplasty surgery is that they enable us, the surgeons, to see what we are doing and actually 'shape' the nose. They help us sculpt the nose's bony vault and perform lateral osteotomies, while reducing the risk for our patients and alleviating their fear of the operation."

Milos Kovacevic is a facial plastic surgeon, based in Hamburg (Germany), who performs between 280 and 300 rhinoplasty operations a year. Most of these are for cosmetic reasons, and as many as 75% are requested by women, but rhinoplasty operations are also performed to correct breathing issues.

At 52, Dr Kovacevic has been working for 27 years, so he has seen the operative technology evolve. "COMEG's piezoelectric-powered instruments considerably reduce the risks of complications in plastic surgery, because they give us greater control and prevent us from harming underlying soft tissue – the skin, mucosa and flimsy cartilage – as they act selectively on bones and hard cartilage. Patients are understandably highly sensitive to interventions in the eyes and nose areas, and fear both pain and days or weeks of bruising, and possible complications. The ultrasound technology is very good. The fracture lines created by Piezoelectric instruments are very accurate, and consequently eliminate the risk of the radiating fracture lines we had to deal with when we used traditional instruments. Personally, I use Piezotome® M+."

"There was a tremendous breakthrough two and half years ago, when Olivier Gerbault, a plastic surgeon based in Paris, and I introduced the first full, open approach, which enabled us to see what we were doing when treating the bony part of the nose. It removed the fear of what we used to call "the black box", working in the dark, as it were, which would make any surgeon apprehensive even after years of experience."

Testimonial  
Rhinoplasty

## ● ULTRASONIC RHINOPLASTY

### Rhinoplasty: the ultrasonic revolution\*

French editorial press – FEMINA – October 31<sup>st</sup> 2016

Only available in French language



Rhinoplasty is a complex surgery and since now surgeons had to break nose bones to be able to fix them. A new technique called "ultrasonic rhinosculpture" has been introduced during the 1<sup>st</sup> International Rhinoplasty congress held in Paris in 2016. Bones are sculpt with precision without the need of breaking them thanks to ultrasonic instruments...

*\*Original Title: Rhinoplastie: la révolution ultrasons*

### Open ultrasonic rhinoplasty technique: A smooth and less traumatic procedure

International editorial press – ENT&AUDIOLOGY NEWS – November/December 2016 &

March/April 2017 issues



Ultrasonic piezoelectric devices open many opportunities in bone reshaping and recently in rhinosplaty. Piezoelectric system paired with ultrasound activated miniaturised instruments increase safety and precision...

### The surgeon Pablo Casas, pioneer in performing ultrasonic rhinoplasty\*

Spanish newspaper – LA CRONICA DE LEON – July 13, 2017

Only available in Spanish language



Pablo Casas, ENT and Facial Plastic Surgeon is a pioneer in Spain in the use of ultrasonic device for rhinoplasty procedures. Ultrasonic rhinoplasty is the most advanced technique in rhinoplasty and has recently been approved by the FDA (USA – Food and Drug Administration). With the use of ultrasonic instruments bones are no longer broken and soft tissues are preserved...

*\*Original Title: El cirujano Pablo Casas, pionero realizar una rinoplastia ultrasonica*

## ● ULTRASONIC RHINOPLASTY

### Surgical intervention completety new at the San Francisco's Hospital\*

Spanish newspaper – DIARIO DE LEON – July 13, 2017

Only available in Spanish language



Ultrasonic rhinoplasty a atraumatic surgery...

*\*Original Title: Cirugía pionera en HM San Francisco*



### The Michel-Ange of the nose\*

Spanish magazine – EL MUNDO CASTILLA Y LEON – Numero 341/July 25, 2017

Only available in Spanish language



Ultrasonic rhinoplasty offers numbers of benefits for the patient such as a faster postoperative recovery and enhanced results as well as for the surgeon who is more precise...

*\*Original Title: El Miguel Angel de la nariz*

Press

Press

## ● ULTRASONIC RHINOPLASTY

### Rhinoplasty: a less invasive technique is coming\*

French web press - MARIE FRANCE - January 30<sup>th</sup> 2015

Only available in French language



Nose surgery is ranked as the fourth most widely performed surgery among women and men. Request vary from a nose that is too wide to a septal deviation. Ultrasonic rhinoplasty is less traumatic and the recovery is faster...

*\*Original Title: Rhinoplastie: une technique moins invasive arrive*

### Rhinoplasty: finally a softer technique\*

French web press - FEMME ACTUELLE - May 20<sup>th</sup> 2015

Only available in French language



Ultrasonic rhinoplasty is more smooth and reduces the post-operative recovery. The patient experiences less bruising and swelling; thus allowing she or he to reintegrate socially about six days after surgery compared to two weeks when performed with conventional instruments...

*\*Original Title: Rhinoplastie: enfin une technique plus douce*

Web Press

## ● ULTRASONIC RHINOPLASTY

### Nose surgery: ultrasounds revolution rhinoplasty\*

French web press - E-SANTE.fr - June 26<sup>th</sup> 2016

Only available in French language



Instruments used in rhinoplasty were invented at the beginning of the 20 century, in the last century. Medicine is more and more precise it was the time to rethink the nose surgery...

*\*Original Title: Chirurgie du nez: les ultrasons révolutionnent la rhinoplastie*

### Rhinoplasty: a new technique could change everything\*

French web press - LA DEPECHE.fr - September 9<sup>th</sup> 2016

Only available in French language



The new approach with ultrasonic instruments allows to shape nose bones without the risk of breaking them resulting in less complications. Instead of blindly breaking bones ultrasonic rhinoplasty allows to shape bone under direct visual control...

*\*Original Title: Rhinoplastie: un procédé nouveau pourrait tout changer*

Web Press

## ● ULTRASONIC RHINOPLASTY

### A new rhinoplasty technique developed\*

French web press - ORANGE TENDANCES BEAUTE - September 29<sup>th</sup> 2016

Only available in French language



Ultrasonic piezoelectric rhinoplasty allows for more natural results. Miniaturized instruments adapted to the nose anatomy allow for a tailored remodeling of the nose...

*\*Original Title: Une nouvelle technique de rhinoplastie mise au point*

### Nose job using ultrasound may soon become a reality

International web press - ETHealthworld.com - September 14<sup>th</sup> 2016



A newly developed "ultrasonic rhinosculpting" promises a less invasive procedure with more precise and natural-looking results. Rhinoplasty, or nose job, as it is commonly known, is the fifth most common cosmetic surgery procedure for women and the second most popular for men...

Web Press

## ● ULTRASONIC RHINOPLASTY

### Ultrasonic rhinoplasty: less traumatic for my nose and me\*

French web press - L'Express Styles - April 6<sup>th</sup> 2017

Only available in French language



Alexia, a 29 years old French women have chosen ultrasonic rhinoplasty as this is "less traumatic for my nose and for me" she says. She is totally satisfied with the result and said that "it is totally possible to go back to work a week after the surgery without no one knowing about"...

*\*Original Title: Rhinoplastie ultrasonique : Moins traumatisante pour mon nez et pour moi*

### COMEG: french MedTech to the forefront of the surgical innovation\*

French web press - Le Point - April 27<sup>th</sup> 2017

Only available in French language



COMEG a French Medtech at the forefront of the innovation seeking to provide minimally invasive surgeries...

*\*Original Title: COMEG : MedTech française à la pointe de l'innovation chirurgicale*

Web Press