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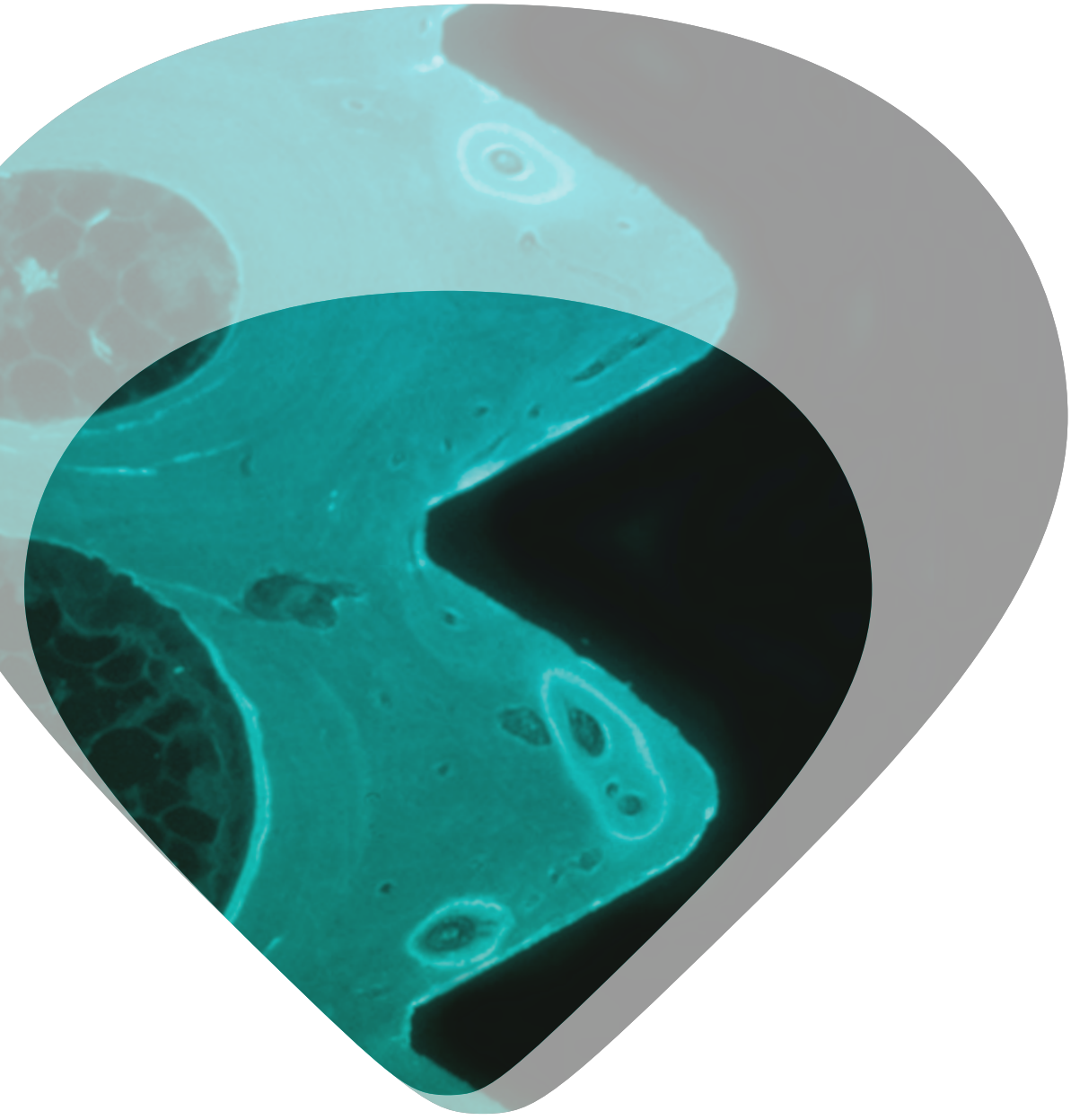

SCIENTIFIC & TECHNICAL **FILE**

Clinical studies

A New Procedure Reduces Laboratory Time to 6 Hours for the Elaboration of Immediate Loading Prostheses with a Titanium Frame Following Implant Placement

Authors: Dr Cedric Huard, Dr Marion Bessadet, Dr Emmanuel Nicolas, Prof Jean-Luc Veyrune - University of Auvergne (Clermont-Ferrand - France)

Support: International Journal of Dentistry and Oral Science (IJDOS) - ISSN: 2377-8075

Aim: The aim of this study is to assess the All-in-Bar system for the creation of a permanent bridge in less than 6 hours after placing the implants. The All-in-Bar system is made out of "wing" abutments which are screwed on Tetra abutments. These abutments form a rigid frame which supports the bridge with the prosthetic teeth on it. The clinical case includes the placement of implants, the impression taking, bite registration, mounting in the articulator, mounting and adjustment of the abutments, creation of the bridge and placement of the permanent bridge on the same day.

Results: This All-in-Bar procedure has helped to reduce the time between the placement of implants and the bridge to 6 hours, when it usually takes 48h to 72h. The All-in-Bar bridge is as rigid as any bridge made on a titanium bar. This procedure can be used by laboratories without any specific equipment.

Conclusion: The main advantage of this procedure for patients is the significant reduction of the toothless period, since the placement of a rigid bridge eliminates distortions which are harmful for the osseointegration of implants.

Intra oral scanner, CAD/CAM and emergence profile: a clinical case

Authors: J. Duroux, M. Collangettes, C. Travers, J.-L. Veyrune

Support: Implant 2017;23:235-240

Aim: Digital impressions and dental CAD/CAM are current techniques with proven precision. Showcasing a clinical case using NATURACTIS and IPHYSIO systems, this article aims to demonstrate their contribution in obtaining an aesthetically pleasing result for fixed prosthetic implants. Even though cosmetic prosthetic devices manufactured using CAD/CAM may not be able to compete with those crafted by a skilled ceramist, they constitute, regardless of whether they are used in combination with a cut-back technique or not, an invaluable asset in obtaining the desired outcome.

Results: Naturactis implants were placed after extraction, their design providing sufficient primary stability to place a cosmetic overdenture implant using IPHYSIO. The IPHYSIO covered 3 functions, namely healing of soft tissues in keeping with the remainder of the dental arch, supporting the temporary prosthesis and acting as a transfer for digital impressions. During the final stage, customized zirconia abutments created using Esthetibase CAD/CAM and manufactured by LYRA laboratories as well as e.max crowns using an upstream cut-back technique, were used to create the final prosthesis.

Conclusion: The IPHYSIO system perfectly integrates into the digital workflow. It reduces the number of steps required for impression-taking using an intra-oral scanner. Implant-supported prosthetic reconstruction using CAD/CAM and a cut-back technique produce excellent aesthetic results.

Slim implants for complete denture wearers: clinical aspects and perspectives with OBI implants

Authors: Dr Cedric Huard, Dr Marion Bessadet, Dr Emmanuel Nicolas, Prof Jean-Luc Veyrune - University of Auvergne (Clermont-Ferrand - France)

Support: Clinical, Cosmetic and Investigational Dentistry 2013:5 63–68

Aim: The stabilization of the total mandibular enrolled prosthesis constitute one of the main treatment for total edentulism. This problematic is emphasised for eldery or fragile people. In these situations, the placement of mini implants could be a suitable solution. The aim of this study is to evaluate the repercussion of « osseointegration » of the protocol and the fitting of implants (with or without flap) and of the mean of connection of the mini implants to the prosthesis.

Result: This procedure of stabilisation is a success: it is less invasive, less expensive, more simple and more efficient than a conventional procedure. The OBI implants are perfectly adapted to this procedure.

Conclusion: For total edentous people, OBI implants and their protocols of placement are perfectly adapted to hold a complete removable prosthesis.

Placement of Naturactis implants in post-extraction sites

Authors: Ripollés de Ramón J, Gómez Font R, Bascones-Ilundain C, Bascones-Ilundain J, Bascones-Martínez A - University of Madrid (Spain)

Support: AVANCES EN PERIODONCIA Volumen 25 - N° 3 - Diciembre 2013

Aim: To evaluate the primary stability of the Naturactis implant and its level of success to 6, 12 and 18 months.

Result: 60 implants were fitted in the premolar region immediately after the extraction of teeth. 4 implants have been lost in the first months because of sites with infections. These 4 implants have been fitted again 3 months later in the same sites after disinfection. After 12 months of loading, no implant is lost. The primary stability has been measured between 64 and 94 ISQ. The torques were all superior to 35 N.cm. The clinic monotoring of the patients carries on.

Conclusion: Naturactis implants and their surgery protocols are perfectly suitable for a post-extration placement. After 12 months, the rate of success is 100%.

Contribution of a hybrid synthetic and innovating product in the bone surgery and its filling Matri™ BONE with Natea and Naturall implants

Authors: Augusto André BAPTISTA, Pierre BRAVETTI - University Henry Poincarré (Nancy - France)

Support: Implantologie November 2012

Aim: Evaluate the materials of Matri™ BONE in both cases with **etk** Natea and Naturall implants.

Results: 3 Natea implants and 2 Naturall implants were placed on 2 patients, the bone filling has been done with Matri™ BONE. The use of this filling material was simple and perfectly adapted to these two clinical cases. No problem was noticed while fitting the implants and their primary stability was satisfying.

Conclusion: The filling material Matri™ BONE answers to the demand of implantologists in order to realize bone reconstructions. The **etk** Natea implants are perfectly adapted to difficult cases requiring filling materials.

SR Phonares and OBI mini implants: a perfect fit - Prosthetic strategy

Authors: Y. Gastard (Dental tecnician), Dr F. Truchot, Dr X. Ravalex, Dr G. Bader (France)

Support: Prosthetic strategy - January-February 2011

Goal: Determine the advantages of the SR Phonares teeth, the OBI mini implants' indications and the implementation protocol.

Results: Using OBI mini implants offers implant perspectives based on several interests:
- when facing difficult anatomical situations, thin and/or resorbed crests;
- a less complex surgical and prosthetic protocol;
- an economical interest.

Conclusion: The protocol followed with the OBI implants and the SR Phonares teeth allow to perform prosthetic restoration, answering to esthetico-functional criteria.

Implant-supported prosthetic solution in case of small inter alveolar distance on Aesthetica+ implants – 2009

Polyclinic Kiev - Ukraine

Authors: Dr Victor Degasyuk, Dr Ljudmidia Degasyuk - Polyclinic Kiev (Ukraine)

Support: Plastic and Reconstructive Surgery Medical Journal n°1 - 2009

Aim: To solve clinical cases of narrow crest with Aesthetica+ implant placement.

Result: In order to solve clinical cases, Aesthetica+ with a 4.8 diameter and a platform of 6.5mm have been used with Conocta abutments. This solution represented the best compromise between the aesthetic and the load distribution at the molar level.

Conclusion: Aesthetica+ implants answer to clinical cases of the posterior region.

Placement of implants in the mandible reconstructed with free vascularized fibula flap: comparison of 2 cases with Aesthetica+ implants

Authors: Mehmet Kürkcü, DDS, MSc, PhD, Mehmet Emre Benliday, DDS, Cem Kurtog Lu, DDS, PhD, and Erol Kesiktas, MD, Adana - University of Cukurova (Turkey)

Support: Oral Surg Oral Med. Oral Pathol Oral Radiol Endod 2008;105:e36-e40

Aim: Compare the results of an implantation in a case without vertical reconstruction and in another case with vertical reconstruction.

Results: After a one year testing no bone resorption has been noted around the Aesthetica+ implants in both cases. Nevertheless, the aesthetic and practical result is far better in the case with vertical reconstruction.

Conclusion: In the case the bone volume is insufficient, Aesthetica+ implants allowed to maintain the bone level whatsoever with or without bone reconstruction

Histology and histomorphometry – Comparative study with the Universal and Brånemark implants

Authors: Karl Donath Laboratories, Hambourg (Germany) – Dr Guy Huré, Angers Histological Laboratory (France)

Support: **euroteknika** publication, 1993

Aim: Histological comparison of 2 implant systems.

Result: No significant difference was observed between the 2 implant systems (**etk** and Branemark).

Conclusion: **etk** implants have surface characteristics that allow their osseointegrations.

Multicentric study on the evolution of 3000 etk and Nobel Biocare implants from 1984 to 1997 – comparison of the results

Authors: Prof. Daniel CHAPPARD - LHEA - Faculty of Medicine of Angers (France)

Aim: The aim of this study is to analyze the effects of different factors on the result (success or failure) of implant placement.

Result: This study was carried out on about 3000 implants placed in different areas. An analysis of the risks was led on patients treated with these implants (alcohol, tobacco, cancer, various combined factors). The influence of bone quantity on the use of different implant diameters was also assessed. This study analyses then the results obtained for the following factors:

- Quality of the implantation site: it affects significantly the clinical results;
- Bone grafting;
- Influence of the implantation site on the results according to the different manufacturers.

Conclusion:

- Trademark (**etk** or Nobel Biocare®): no significant statistic difference was found between the two manufacturers.
- Implant diameter: it appears that it did not affect the clinical results.

Studies on surface treatment

Quantitative study on the rough surfaces of titanium dental implants and their microstructures

Authors: Dr Bally, Dr Dehmas, Dr Rapin - University Henry Poincarré (Nancy - France)

Support: Mémoire université Henri Poincaré, Nancy 1, 27 Juin 2011

Aim: Characterize the roughness of surface of 13 different dental implants. Measures of roughness Sa, Sq and of developed surface Sdr will be done.

Result: On the 13 implants studied, the average Sa is 2.7 (1.7-3.7) and the average Sq is3.5 µm (2.3-4.9) which is perfectly true to the Bila and Coll 2003 literature. **etk** implants have a 3.1 average Sa and a 4.1 average Sq. For all of the studied implant surfaces, the average Sdr is 4896.1%, which means that the surface is increased by an average of 48.9 times. The **etk** implants have a 7920% average Sdr, i.e. a surface is increased by 79.2 times.

Conclusion: **etk** implants have characteristics of surface superior to the average of the 13 systems.

Analysis of the surface treatment of etk and competitor implants

Authors: Dr Jordi FERRE, Dr Joseph MIQUEL & Dr GINER - CSIC (Scientific Research Board) – University of Barcelona (Spain)

Support: 20006

Aim: The machining and roughness quality of **etk** implant surface was observed at the microscope. More specifically, the homogeneity of surface and the absence of impurity on the implant surface were observed. Specific attention was granted to several critical regions of the implant: the neck, the machining grooves and the transition between the macrothread and the microthread. The same observations were carried out on the following implants: Astra®, Centerpulse (Zimmer®), Swiss Plus, Straumann®, Nobel Biocare® (Replace) and 3i® (Certain Prevail).

Résultat: These observations did not allow to detect any quality difference between **etk** and competitors implants.

Conclusion: The surface of **etk** implants is similar to the surface of other implant manufacturers.

Studies on connection tightness

Study of the sealing between the implant and different abutments

Authors: H. GHANDI, P.K. KIMANI, I. ABOU-RABII, and E. LYNCH, University of Warwick, Coventry (England)

Support: J Dent Res 93 (C):651 (PER), 2014

Aim: Was to evaluate the difference of the sealing between implants with laboratory abutments and implants with customized abutments fabricated by the same implant manufacturer.

Result: One hundred per cent in group A implants had a score of 0 (no leakage), whilst in group B Implant 70% had a score of 1, 20% a score of 2, and only 10% a score of 0 . The Fisher's exact test was a p-value=0.0001. The observed frequencies of the leakage shown by the toluidine blue in the two groups are statistically different.There was no significant difference between the abutment before and after being exposed to the mechanical stress in either groups.

Conclusion: Better sealing between the implant and the screwed abutments can be obtained with customised abutments fabricated by the manufacturier even after exposing the implant to mechanical stress simulating the occlusal forces.

Comparison of leakage at the implant to abutment connection in several implants types using a gas flow method

Authors: M.-A. Faurouxa, C. Anxionnata, C. Biensa, M. Mechalia, O. Romieua, J.-H. Torresa, Service d'Odontologie – CHRU de Montperllier (France)

Support: Revue de Stomatologie, de Chirurgie Maxillo-faciale et de Chirurgie Orale, Volume 115, Issue 2, April 2014

Aim: The aim of this study was to compare the leakage at the implant to abutment connection in several implants, using a new gas diffusion method.

Material and methods: Sixty-eight implants of 13 different types were used. Nitrogen leaking was measured after screwing the connections to the torque levels recommended by the manufacturers.

Result: A significant tightness difference was observed between the different implant types. This difference cannot be explained by the various connection designs (flat, conical) or by the various torques recommended by the manufacturers.

Conclusion: The authors suggest that the tightness difference between the various implant systems could be mainly associated with quality and precision of machining. The Natea implant system is one of implant systems having the lowest rate of leak.

Evaluation of the etk implant microfiltration

Authors: Dr. Josep CabratosaTermes , Dra. Zaira Martínez Vargas - University of Catalonia (Spain)

Support: Intern study Ref. A-10-JCT-06 , University of Catalonia (Spain)

Aim: To analyze and to compare 3 different implant connections in term of tightness (8 Brånemark® implants, 8 etk Aesthetica+ implants with their solid abutments, 8 etk Aesthetica+ implants with their trans-screwed abutments)

Result: The analysis with the electronic microscope has shown a perfect adjustment of the abutments in the Aesthetica+ implants and no leak has been detected for the 2 types of abutments. The analysis with the electronic microscope has shown a perfect adjustment of the abutments on the Brånemark® implants. However the majority of implants with an external connection have shown leaks with the sealing test.

Conclusion: etk Aesthetica+ implants have a good adjustment of the components allowing to have a perfect tight sealing of the connection.

Study on guided surgery

Comparison between the digital planning and the final position of the implants with the teknika3D system

UNIVERSITÉ BORDEAUX SEGALEN

Authors: Dr Bruno Ella, Dr Éric Moreau, Dr Nicolas Petriat - University of Bordeaux (France)

Support: Mémoire université Bordeaux Segalen, 29 Août 2013

Aim: To compare the positions of implants of which placement has been planned with the **teknika3D**, with the actual positions obtained after the surgery.

Results: The comparisons realized between the planned and the actual position of the implants showed that 3 guides had not been placed correctly in the patient's mouth. More generally, it has been noticed that according to different measurement tables, the average difference is 0.58 mm, which corresponds to current knowledge.

Conclusion: This study led with 40 implants placed on 10 anatomical models turned out to be conclusive and the associated protocol is useful and efficient; in the same way as the different existing systems on the market that were successful.

Study on osseointegration

Resonance frequency analysis, insertion torque and BIC of 4 implants: comparison and correlation study in sheep

Authors: Maroun Dagher DDS, MScD, Nadim Mokbel DDS, MSc PhD, Gabriel Jabbour, DDS, Nada Naaman DDS, DUSC, PhD.

Support: Implant Dentistry (Accepted for publication)

Aim: Compare the primary stability (RFA), the insertion torque and the BIC of 4 different implant systems (Straumann® SLA, Straumann® SLA Active, Nobel Biocare® Active, Aesthetica) and evaluate the correlation between them.

Results: Different primary stabilities between the 4 implant systems have been found. The Nobel Biocare® has the best primary stability (78.28) followed by the Aesthetica+ implant (75.46) and the Straumann® implants (73.5). Very few differences have been noted concerning the placement torque. The different implants' BIC is distinct. The Aesthetica+ implant had the best BIC after a month (32.66) followed by the Straumann® SLA Active implants (30,56), Nobel Biocare® Active (24,59) and Straumann® SLA (18,24). After 2 months, the Nobel Biocare® Active implants had the best BIC (51.31) followed by the Aesthetica+ implant (46.44) and the Straumann® implants (40,49).

Conclusion: There is no correlation between the RFA and BIC and between the torque and BIC. The Aesthetica+ implants showed some osseointegration qualities similar to that of the Straumann® and Nobel Biocare® implants.

Comparison of two types of decalcified freeze-dried bone allograft in treatment of dehiscence defects around Natea implants in dogs

Authors: Ahmad Moghareh Abed, Rasool Heidari Pestekan, Jaber Yaghini, Seyed Mohammad Razavi, Mohammad Tavakoli, Mohammad Amjadi - University of Iran

Support: Dental Research Journal (Vol. 8, No. 3, Summer 2011)

Aim: Compare 2 bone substitutes with **etk** Natea implants.

Result: 15 Natea Ø4.1 implants with a length of 10 mm are fitted in the mandible, in the premolar region, 6 of the implants with a bone substitute B and 3 without substitute. At 4 months an analysis of the stability ISQ and of the BIC is realized on the 2 groups. All implants are perfectly osseointegrated. The BIC of implants with the substitute Cenobone was 77.36%, with the substitute Denobone it was 78.91% and without in the control group the BIC was 71.56. No significant difference has been noted on the primary stability, the average ISQ was 70.83.

Conclusion: Natea Implants are perfectly osseointegrated with an average BIC superior to 76.82% (+/-9.96% at 4 months and an average ISQ of 70.83. The 2 bone substitutes groups gave equivalent results.

Study on torque

Comparison of the insertion and desinsertion torque of a cylindrical and a tapered implant in 3 different materials

Authors: Dr. Josep CabratosaTermes, Dra. Zaira Martínez Vargas - University of Catalonia (Spain)

Support: Intern study Ref. A-10-JCT-06 , University of Catalonia (Spain)

Aim: To compare the insertion and desinsertion torques of Universal+ and Naturall implants in three different materials (wood, resin and bovine bone).

Results: The average torque of the Universal+ implant insertion was of 60.72 N.cm against 72.17N.cm for Naturall implant. The torque of desinsertion of Universal implants was of 61.1 N.cm against 69.23 N.cm for the Naturall implants.

Conclusion: An important link between the insertion torque and the desinsertion torque has been noticed with the 2 implants and the 3 materials. The 3 materials were dense. The Naturall implant has a higher insertion torque, which also means a higher primary stability than a cylindrical implant like Universal+.

ONGOING STUDIES

- Faculty of Clermont-Ferrand (France) - ***ALL-IN-BAR®*** abutment
- Faculty of Beyrouth (Lebanon) – Short implants
- Faculty of Montpellier (France) –Tightness
- Faculty of Warwick (United Kingdom) - Tightness

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Notes

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