DENTAL IMPLANTS : THE PAST, THE PRESENT AND THE FUTURE

EvangelosRossopoulos™ D.D.S.

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Thessaloniki, Greece

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Lowe and Ross Dental Specialists
Whittier, Corona, CA
ROCHESTER
MEDICAL CENTER
DOCTORS MEDICAL CENTER
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I miei mentori
100
YEARS

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DENTAL IMPLANTS : THE PAST, THE PRESENT AND THE FUTURE
Impianti dentali: passato, presente e future

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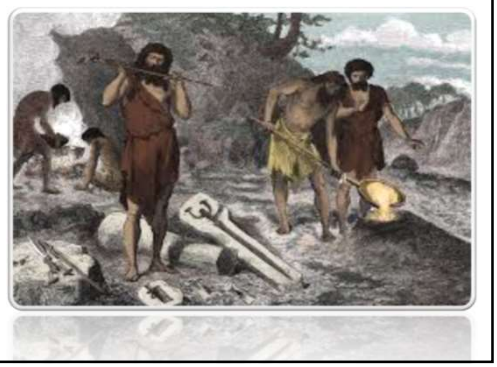
Il passato .....



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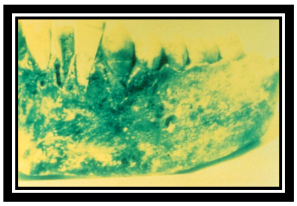
Così comincia .....

- La civiltà Maya usò la prima forma di impianti endossei/ conchiglia
- Oltre 1.350 anni prima che Per-Ingvar Branemark facesse la sua scoperta degli impianti in titanio

So it begins
Mayan civilization used the earliest form of endosseous implants
Over 1,350 years before Per-Ingvar Branemark made his discovery of titanium implants



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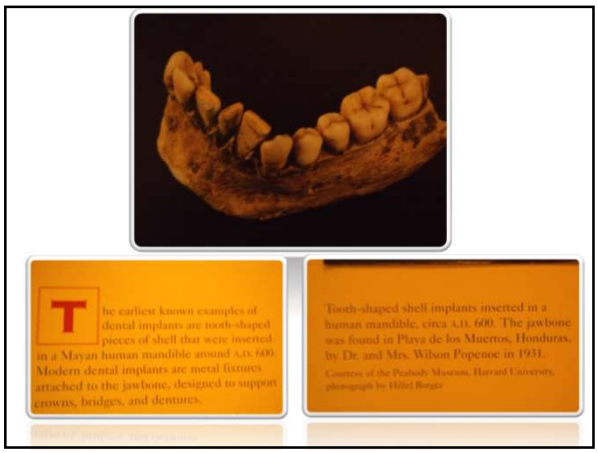
The earliest known examples of dental implants are tooth-shaped pieces of shell that were inserted in a Mayan human mandible around A.D. 600. Modern dental implants are metal fixtures attached to the jawbone, designed to support crowns, bridges, and dentures.
Tooth-shaped shell implants inserted in a human mandible, circa A.D. 600. The jawbone was found in Playa de los Muertos, Honduras, by Dr. and Mrs. Wilson Popenoe in 1931.
Courtesy of the Peabody Museum, Harvard University; photograph by Hillel Burger

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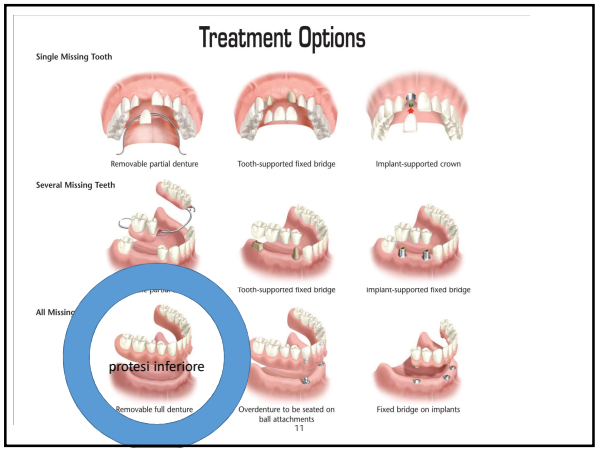
Treatment Options
Single Missing Tooth
Removable partial denture
Tooth-supported fixed bridge
Implant-supported crown
Several Missing Teeth
Tooth-supported fixed bridge
Implant-supported fixed bridge
protesi inferiore
Removable full denture
Overdenture to be seated on ball attachments
Fixed bridge on implants
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mascella inferiore riassorbita

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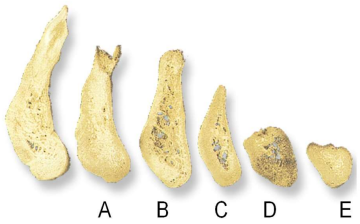
atrofia della mandibola dopo la perdita dei denti

Atrophy of the mandible after tooth loss



Source:
Lekholm, U. and G.A. Zarb, Patient selection and preparation. In tissue-integrated prosthesis: Osseointegration in clinical dentistry., ed. P.-I. Brånemark, G.A. Zarb, and T. Albrektsson. 1985, Chicago: Quintessence Publ Co. 199-209.

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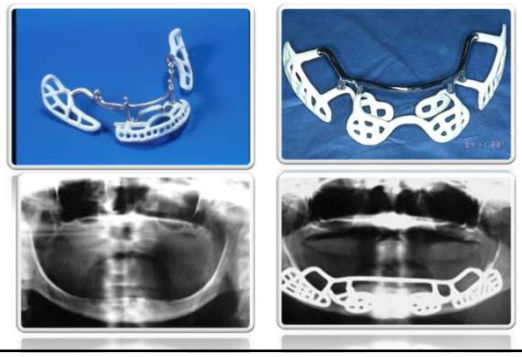
SUBPERIOSTEAL IMPLANTS



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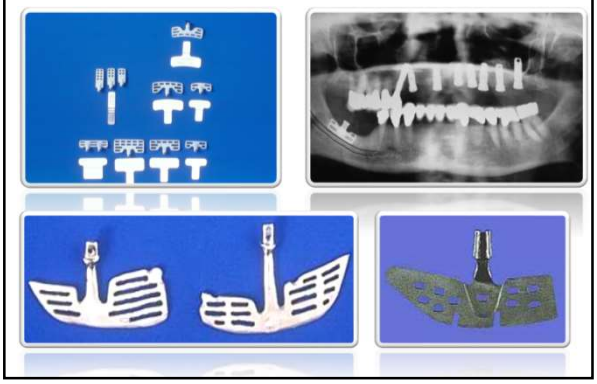
BLADE IMPLANTS



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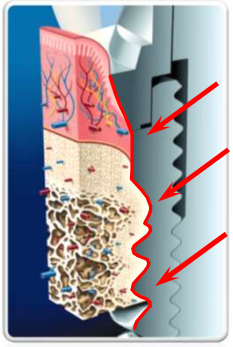
OSTEOINTEGRAZIONE (OSEEOINTEGRATION)

Un diretto strutturale e connessione funzionale traben organizzato, osso vivente e una superficie di impianto.

- Discovered by Prof. Per-Ingvar Brånemark in 1952



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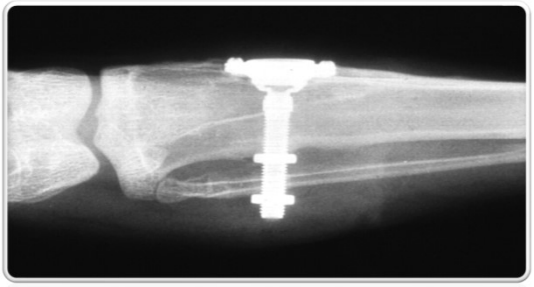
Osseointegration...also with orthopedic screws



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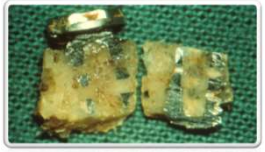
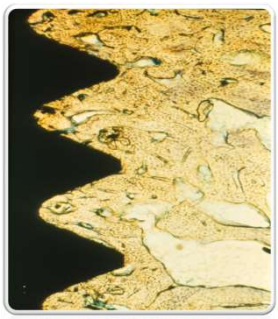
Osseointegration





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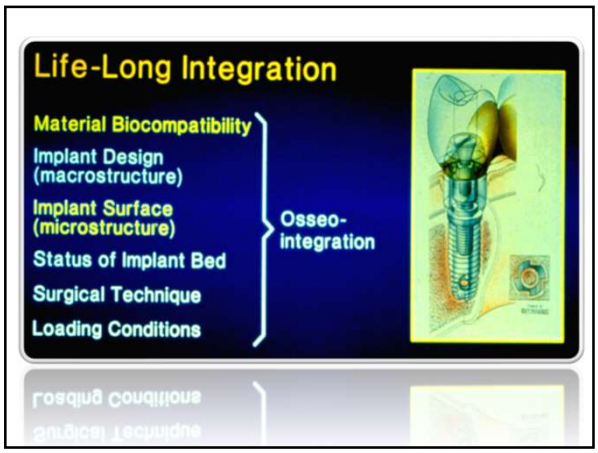

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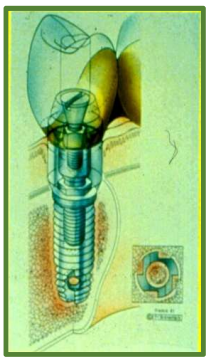
per raggiungere l'integrazione
-biocompatibilità material
-progettazione dell'impianto
-superficie dell'impianto
-condizione ossea
-tecnica chirurgica
-condizioni di carico



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FOR LIFE LONG INTEGRATION

1. biocompatibilità material
2. progettazione dell'impianto
3. superficie dell'impianto
-condizione ossea
-tecnica chirurgica
-condizioni di carico

1.Lega di titanio
2.Design specifico della vite
3.Superficie liscia

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FOR LIFE LONG INTEGRATION

1. biocompatibilità material
2. progettazione dell'impianto
3. superficie dell'impianto
4. condizione ossea
5.tecnica chirurgica
6.condizioni di carico

4. Solo alla mandibola anteriore

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FOR LIFE LONG INTEGRATION

1. biocompatibilità material
2. progettazione dell'impianto
3. superficie dell'impianto
4. condizione ossea
5. tecnica chirurgica
6. condizioni di carico

5. Sala operatoria in ambito ospedaliero

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FOR LIFE LONG INTEGRATION

1. biocompatibilità material
2. progettazione dell'impianto
3. superficie dell'impianto
4. condizione ossea
5. tecnica chirurgica
6. condizioni di carico

**6. Caricamento in corso:
Immersione di 6 mesi
seguita da caricamento lento**

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1965: il primo paziente trattato con impianti dentali in titanio
1982: Toronto Osseointegration Conference in Odontoiatria Clinica
1984: inizialmente cinque centri in Nord America

1965: The first patient treated with titanium dental implants
1982: Toronto Osseointegration Conference in Clinical Dentistry
1984: Initially Five centers in North America

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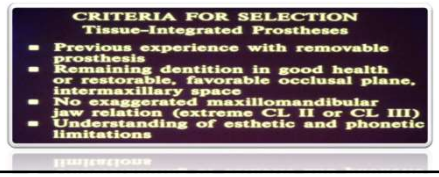
CRITERI PER LA SELEZIONE DEL PAZIENTE
-Prima esperienza con protesi rimovibili
-Dentatura rimanente in buona salute, piano occlusale, spazio
-Nessuna relazione mascellare estrema di classe II o III
-Comprensione delle limitazioni estetiche e fonetiche



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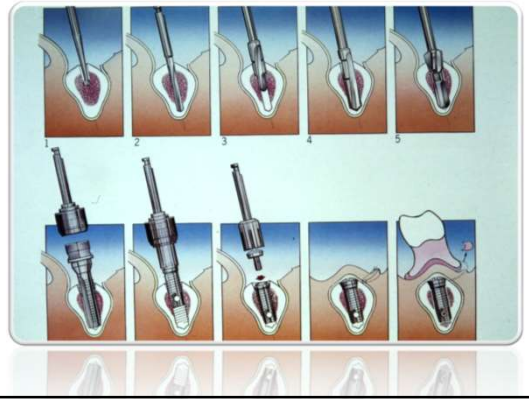

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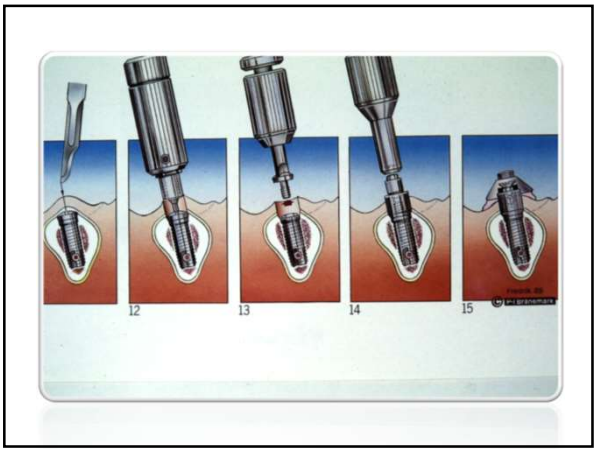
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Parti protesiche molto limitate
Procedura amichevole per la chirurgia
Very limited prosthetic parts
Surgery friendly procedure

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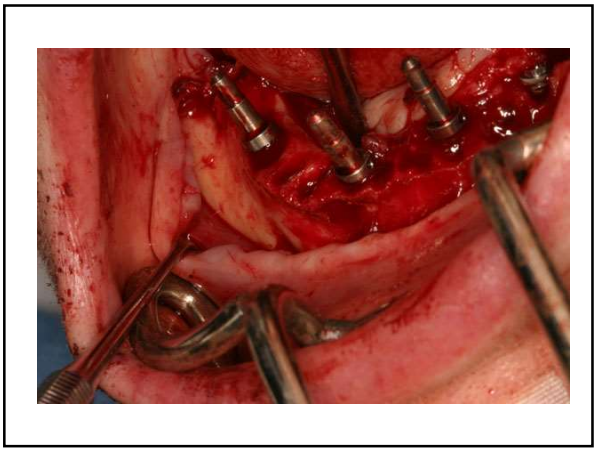

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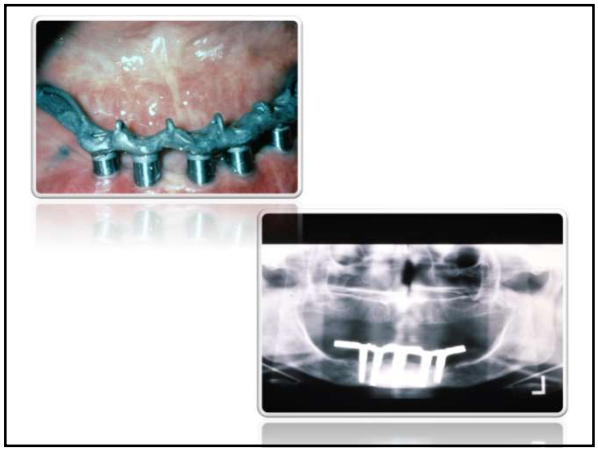

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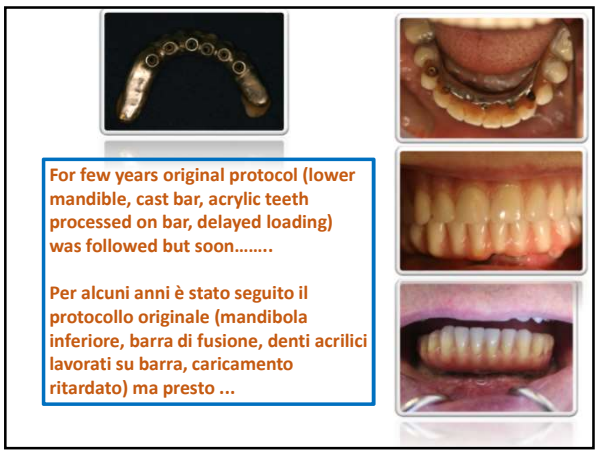
For few years original protocol (lower mandible, cast bar, acrylic teeth processed on bar, delayed loading) was followed but soon……..
Per alcuni anni è stato seguito il protocollo originale (mandibola inferiore, barra di fusione, denti acrilici lavorati su barra, caricamento ritardato) ma presto ...

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DENTAL IMPLANTS : THE PAST, THE PRESENT AND THE FUTURE
Impianti dentali: passato, presente e future

Nel corso dei prossimi anni la rivoluzione degli impianti sta avvenendo con lo sviluppo di nuovi protocolli e materiali, modificando il protocollo originale.

Over the next several years Implant revolution is happening with the development of new protocols and materials, by modifying original protocol.

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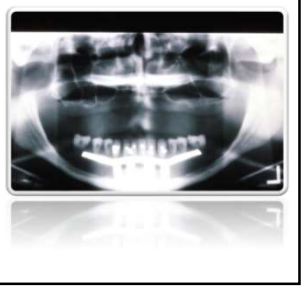
1984: All on 4 ????



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Opposing natural dentition

Dentatura naturale opposta

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Maxillary prosthesis
(Protesi mascellare)

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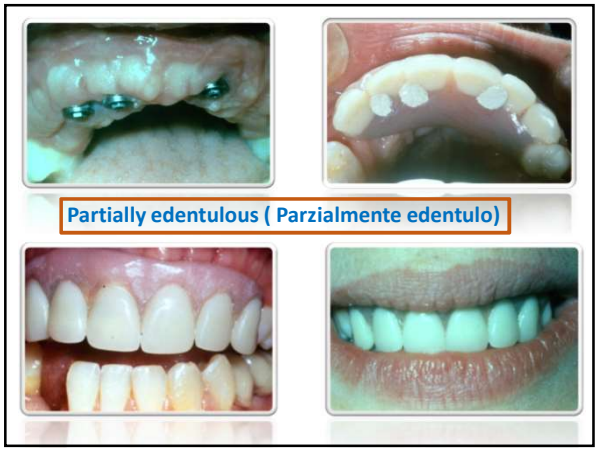
Partially edentulous (Parzialmente edentulo)

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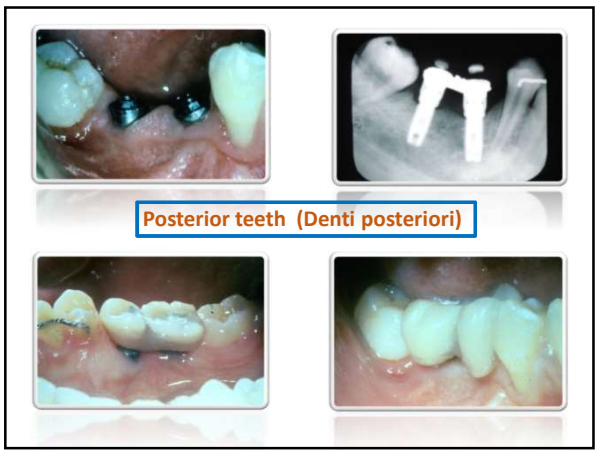
Posterior teeth (Denti posteriori)

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First major development: CAD/CAM allowed us to mill instead of casting
Primo importante sviluppo: CAD / CAM ci ha permesso di fresare invece di lanciare

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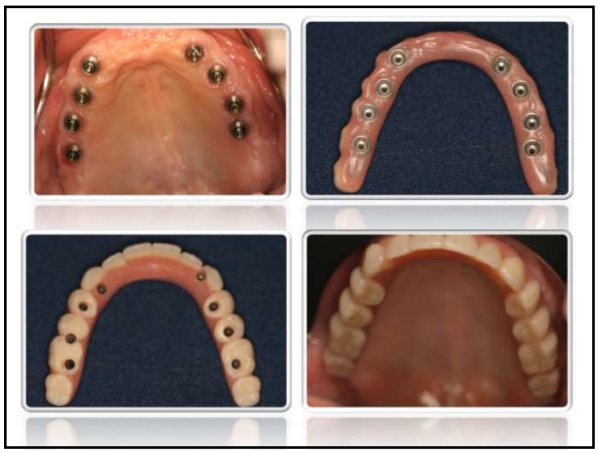

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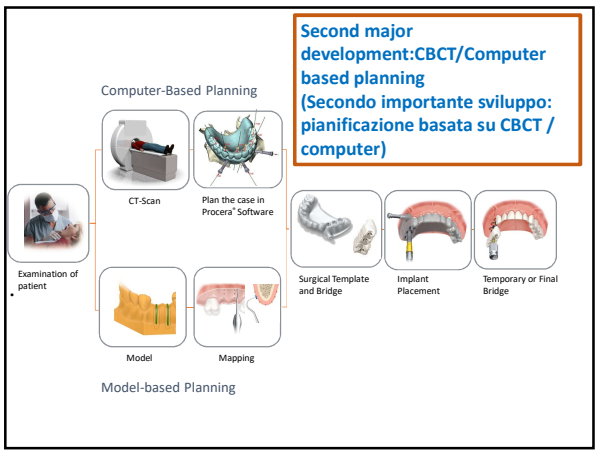
Second major development:CBCT/Computer based planning
(Secondo importante sviluppo: pianificazione basata su CBCT / computer)
Computer-Based Planning
CT-Scan
Plan the case in Procera® Software
Examination of patient
Surgical Template and Bridge
Implant Placement
Temporary or Final Bridge
Model
Mapping
Model-based Planning

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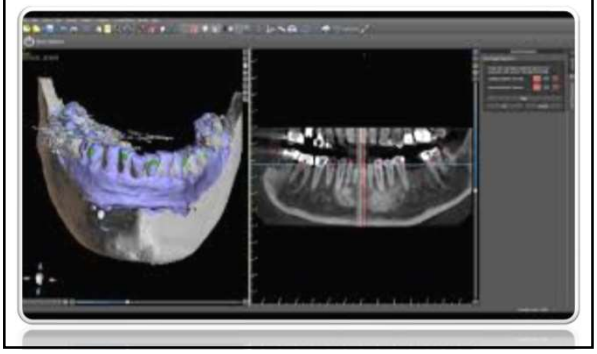
unire cbct con scan



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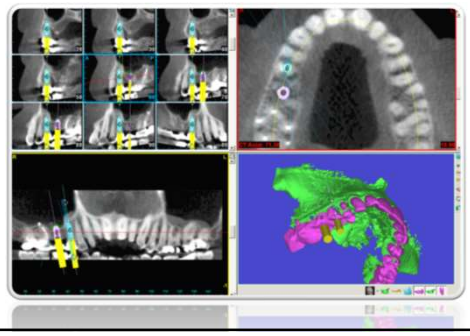
Pianificare il posizionamento dell'impianto



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Guided surgery (chirurgia guidata)

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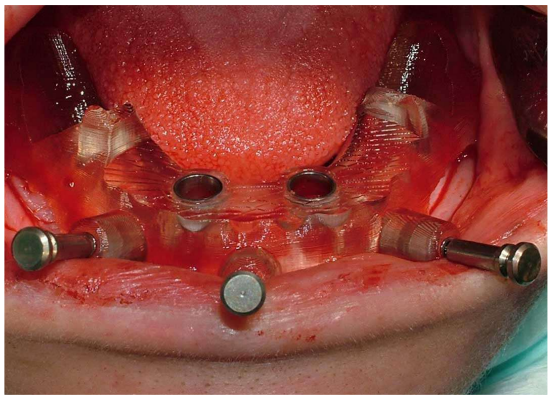

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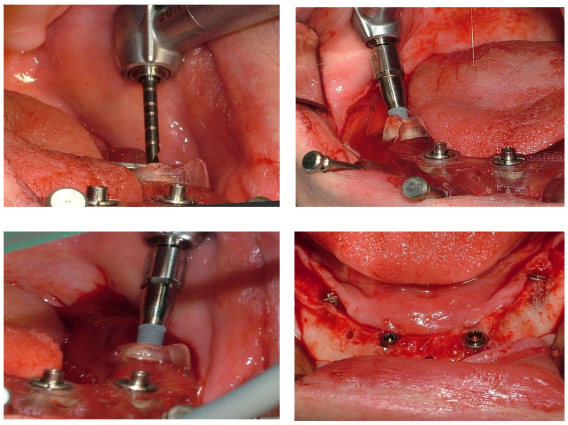

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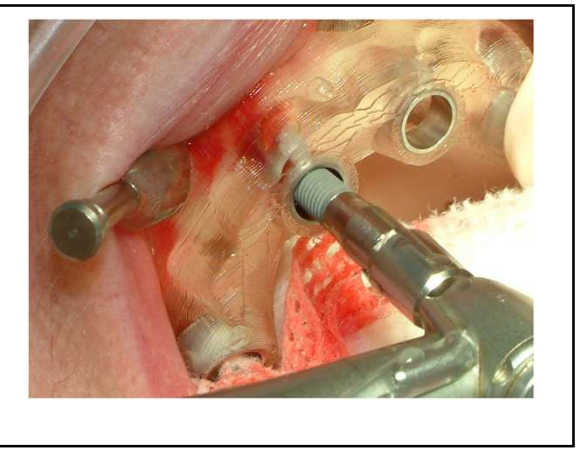

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caricamento immediato

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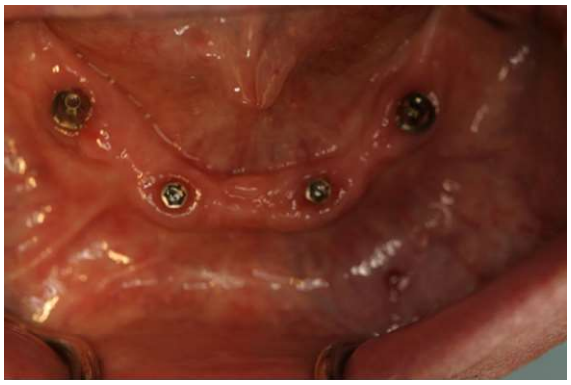

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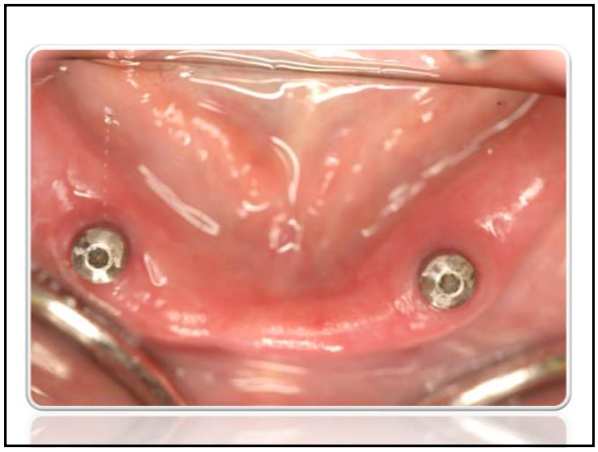

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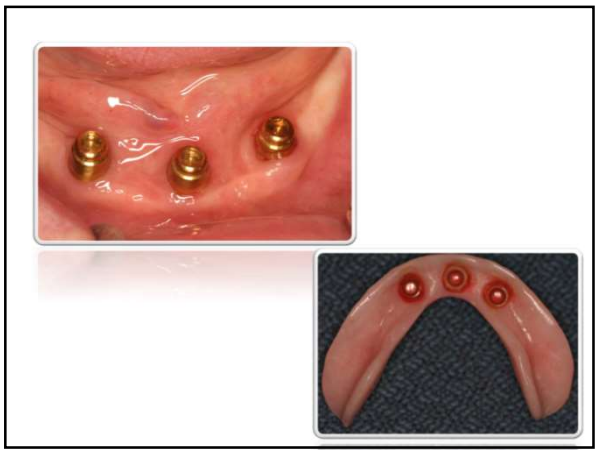

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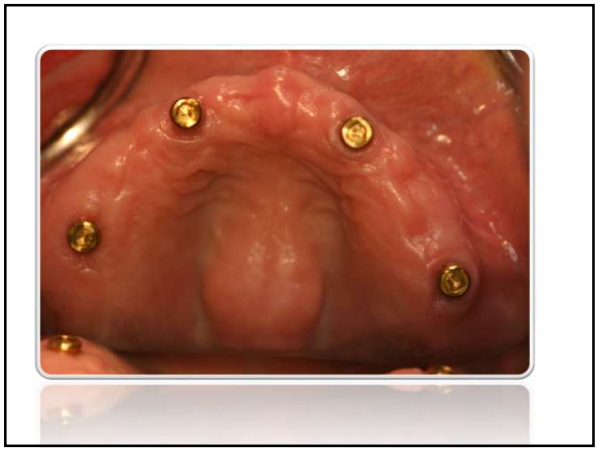

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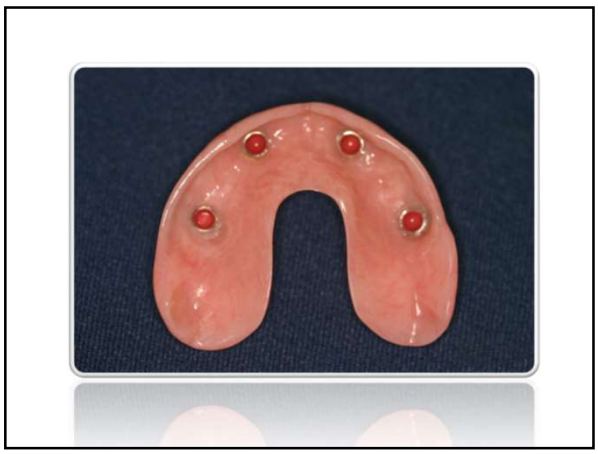

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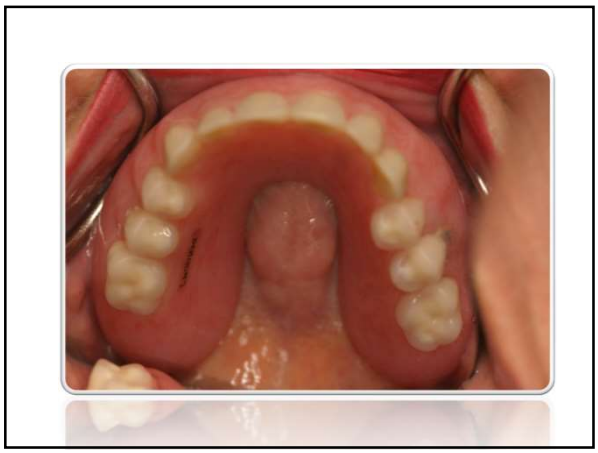

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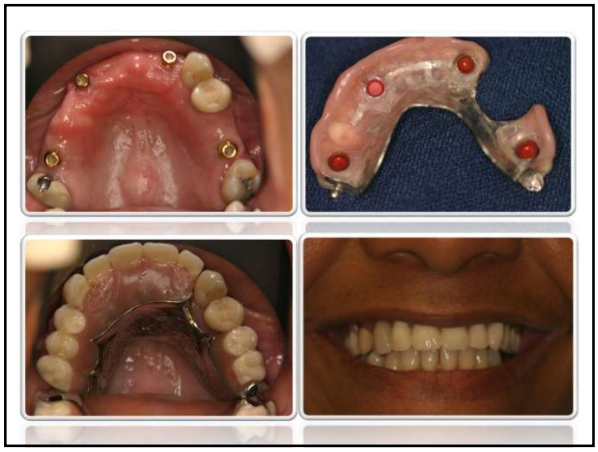

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FOR LIFE LONG INTEGRATION

-biocompatibilità material
nuovi materiali, ceramic
-progettazione dell'impianto
Aggressivo, microtread ecc
-superficie dell'impianto
Progressi biochimici
-condizione ossea
Qualsiasi area
-tecnica chirurgica
Non in ospedale
-condizioni di carico
Caricamento immediato

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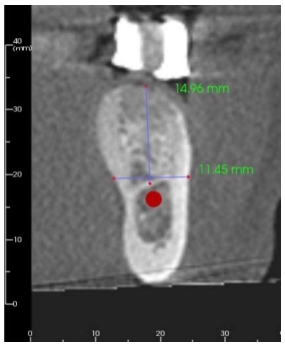
FOR LIFE LONG INTEGRATION

-biocompatibilità material
nuovi materiali, zirconia
-progettazione dell'impianto
Aggressivo, microtread ecc
-superficie dell'impianto
Progressi biochimici
-condizione ossea
Qualsiasi area
-tecnica chirurgica
Non in ospedale
-condizioni di carico
Caricamento immediato



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FOR LIFE LONG INTEGRATION

-biocompatibilità material
nuovi materiali, zirconia
-progettazione dell'impianto
Aggressivo, microtread ecc
-superficie dell'impianto
Progressi biochimici
-condizione ossea
Qualsiasi area
-tecnica chirurgica
Non in ospedale
-condizioni di carico
Caricamento immediato

Implants in Kabale Uganda
(Build your smile outreach)

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FOR LIFE LONG INTEGRATION

-biocompatibilità material
nuovi materiali, zirconia
-progettazione dell'impianto
Aggressivo, microtread ecc
-superficie dell'impianto
Progressi biochimici
-condizione ossea
Qualsiasi area
-tecnica chirurgica
Non in ospedale
-condizioni di carico
Caricamento immediato

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The future..... (Il futuro .....)

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DIGITAL DENTURE WORKFLOW TODAY

Impressions Records → Digital records → Digital design → Fabrication → Delivery

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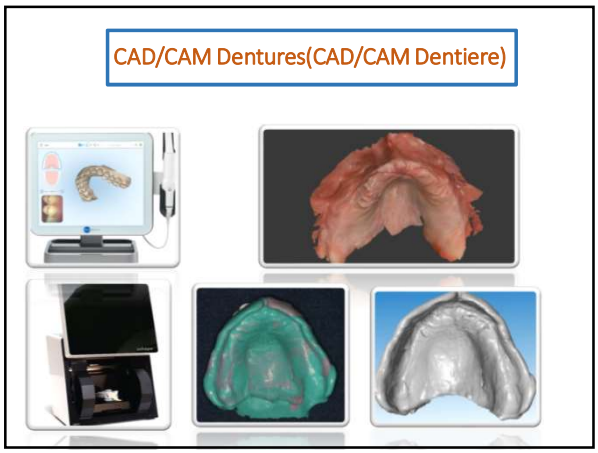

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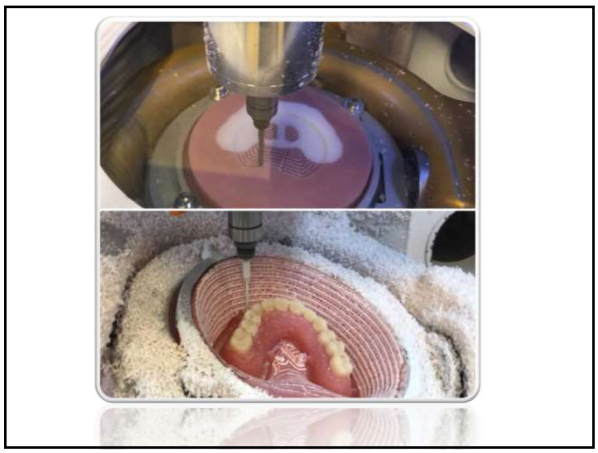

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Robots placing implants

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Smart phones

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- La ricerca in biologia e l'ingegneria miglioreranno notevolmente la superficie e la progettazione degli impianti al fine di ottenere risultati più prevedibili con l'uso di impianti corti.
- Nuovi sviluppi nel mondo della scansione semplificheranno notevolmente i protocolli e ridurranno le radiazioni.
-Alternative economiche per servire tutti i livelli socio-economici.
-Impianti su misura specifici per ogni paziente.

- Research in biology as well as engineering will greatly improve the surface and design of implants in order to achieve more predictable results with the use of short implants.
- New developments in the scanning world will greatly simplify the protocols and reduce radiation.
- Economical alternatives to serve all social economic levels.
- Custom made implants specific to each patient.

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And finally (E infine) ….

- I ricercatori sono stati in grado di guidare le cellule staminali a far crescere un dente anatomicamente completo in circa 9 settimane.
- Gli impianti potrebbero essere obsoleti ????????

Researchers were able to guide stem cells to grow an anatomically complete tooth in about 9 weeks.
May be implants will be obsolete????????

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Last thoughts…..

I restauri di impianti sono stati un ottimo modo per fornire servizi di gran lunga superiori a quelli che potevamo realizzare in passato. Tuttavia il nostro obiettivo principale è salvare la dentizione naturale mediante la prevenzione.

Implant restorations have being a great way to provide services that are far superior over those that we could accomplish in the past, however saving the natural dentition through prevention should be our primary goal.

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ΕΥΧΑΡΙΣΤΩ

- That means grazie in Greek!!!

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