

**Lessons In Life Will Be Repeated
Until They Are Learned**



Good Afternoon.

GUIDELINES AND RATIONALE OF ABUTMENT SELECTION AND DESIGNING IN IMPLANT PROSTHODONTICS

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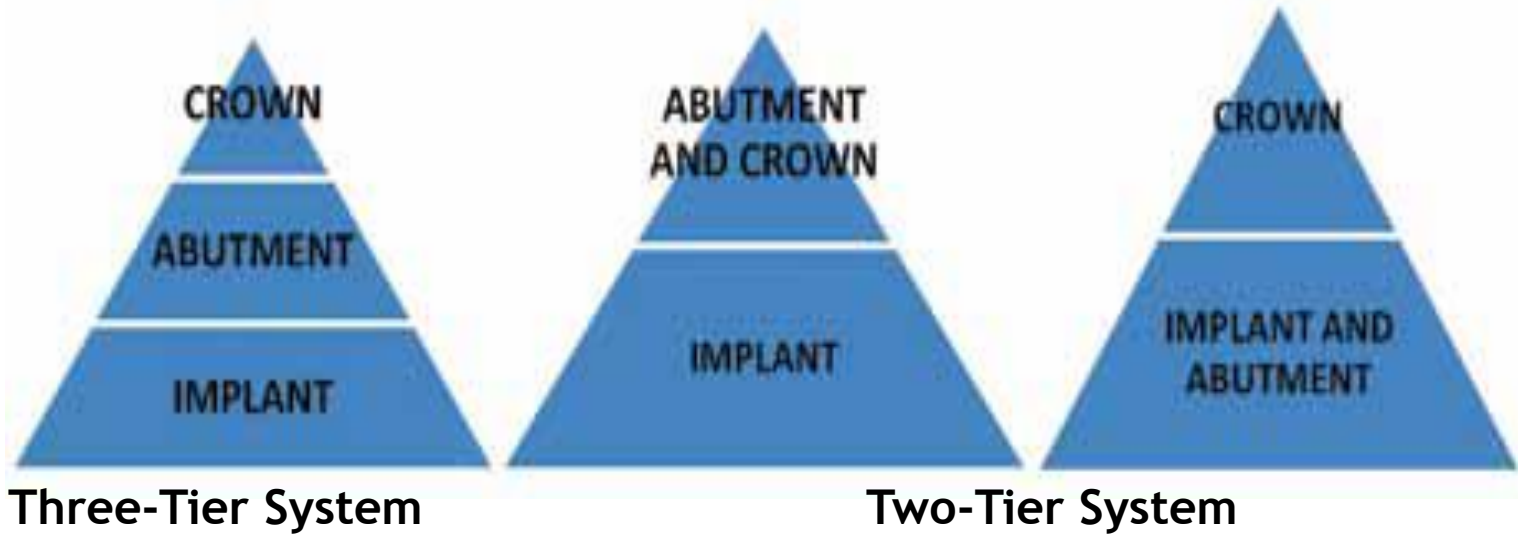
INDIA

DEFINITION

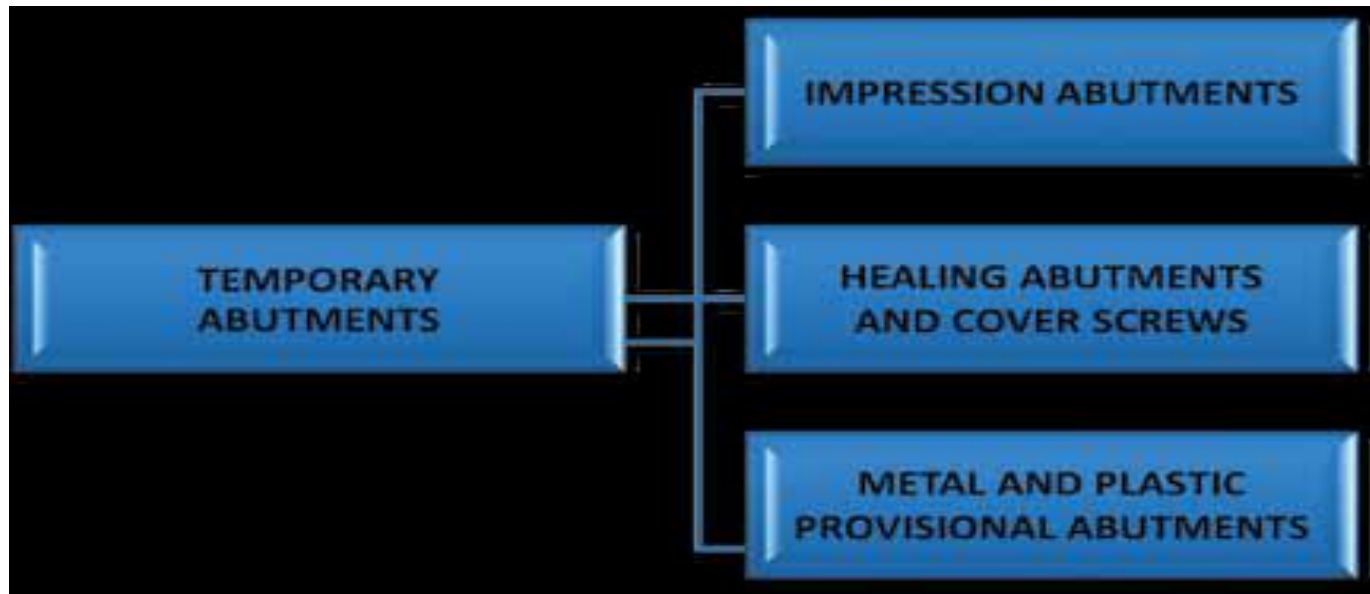
IMPLANT ABUTMENT

An abutment is a component that is intermediate between the implant and the restoration and is retained to the implant by a screw or locking taper.

IMPLANT TIER SYSTEM



TEMPORARY ABUTMENT CLASSIFICATION



Temporary abutments are usually produced in a stock prefabricated fashion , to be used as it is or customise them as to establish tooth and gingival contours needed .

CLASSIFICATION

A) Depending upon retention

- Abutment for screw retention
- Abutment for cement retention
- Abutment for Attachment

B) Depending upon angulation

- Straight abutment
- Angled abutment

c) Depending upon design

d) Depending upon manufacturing

- Stock
- Customised (CAD-CAM , CASTED)

ABUTMENTS FOR CEMENT RETENTION

- a) Better passivity
- b) Easier to obtain esthetics
- c) Fewer porcelain fractures due to occlusal surface integrity
- d) Less fatigue
- e) Manipulation in posterior region easier with cement
- f) Loosen less often as compared to that of screws

DISADVANTAGES

- Difficult to retrieve unless soft cements are used.
- Gingival retraction may be needed
- When permanent cements are used evaluation and maintenance may sometimes be difficult

TYPES OF ABUTMENT FOR CEMENT RETENTION

1. Single unit or one piece abutment

- does not engage antirotational hex but fits flush with the implant platform.

2. Two piece abutment

- Has one component to engage antirotational hex of implant body and the other component to fixate the abutment and implant body together.

ABUTMENTS FOR SCREW RETENTION

ADVANTAGES

- Low profile of retention
- Less momentum of force
- No risk of cement in the sulcus
- Easily retrievable.

DISADVANTAGES

- Loosening of the screws
- Difficulty to obtain passivity
- Difficult to obtain esthetics
- Greater chances of porcelain fracture
- Access to posterior regions difficult -risk of aspiration.

FACTORS THAT AFFECT SCREW CONNECTION

1. Misfit
2. Poor abutment screw tightening
3. Excessive occlusal loading
4. Settling of screws or abutment
5. Inadequate screw design

Guidelines usually recommend the screws to be tightened by 50 - 70% of yield strength.

ABUTMENT FOR ATTACHMENT

1. Used as an attachment device to retain a removable prosthesis.

Includes ball abutments, mesostructure bars-continuous and non continuous

Superstructure attachments -

magnets, clips, hader clips, dolder clips, ceka attachments, ERA attachments, Locators (Zest Anchors).

GUIDELINES FOR ABUTMENT SELECTION

A) DEPTH OF SOFT TISSUE

- Vertical height from implant head to gingival margin.
- Measured with periodontal probe
- ◉ Labial margin of abutment is at least 1 mm subgingival
- ◉ Marked discrepancy between gingival heights around the margin - prepable abutment is indicated
- ◉ Diameter close to that of cervical margin of tooth.

B) IMPLANT-ABUTMENT INTERFACE GEOMETRY

- ◉ Early configurations was the *external hexagon* incorporated in the dental implant systems. However over years it demonstrated **drawbacks** -
 - abutment screw loosening and fracture.
 - mechanical irritation of the tissues and ingress of bacterial toxin fluids.
 - negative effect on the stability of the peri-implant hard and soft tissues.
- ◉ Introduction of *internal hex* connection many **advantages**
 - distribution of intraoral forces deeper within the dental implant
 - reduced stress on crestal bone, prevent excess screw loading
 - reduced the potential microleakage and enhanced strength of joint interface when compared with external hex design.
- ◉ Furthermore, included in such effort is the “*Morse*” *taper* with more predictable clinical success rate.
- ◉ Improvement in screw material science with introduction of newer screw materials (gold alloy instead of titanium)

B) IMPLANT-ABUTMENT INTERFACE GEOMETRY



EXTERNAL HEX / INTERNAL HEX



MORSE TAPER

CLINICAL RECOMMENDATION

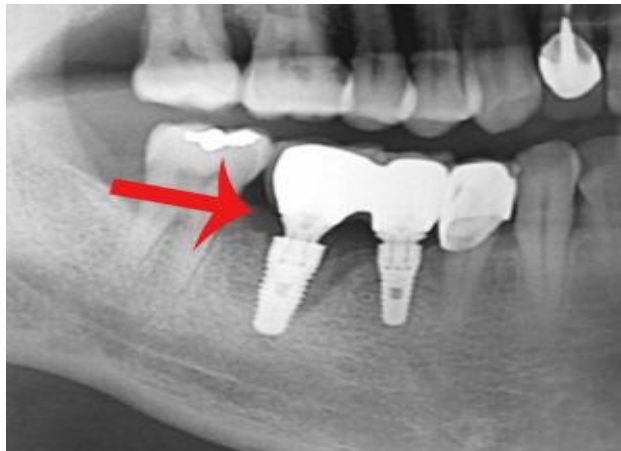
- ◉ During abutment selection on the basis of implant-abutment connections, clinician should consider the topography of bone, available soft tissue characteristics, force component such as rotational, the prosthetic components required particularly for aesthetic purpose, and single-implant restoration. Finally, clinician can make a decision based on personnel choice.

C) IMPLANT RESTORATIVE PLATFORM

- Implant restorative platforms are the interfaces for implant-abutment connections. The selection is based on the size, of the teeth that are being replaced, and diameter may be same as, or narrower than the implants.
- **“Platform switching”** is basically, attaching restorative components with slightly smaller restorative platforms (diameter) onto dental implants.
- It has been reported that marked reduction in crestal bone loss around the dental implant when platform switching technique has been applied. Moreover, the impact on the biologic width, overall bone heights of the surrounding implants and restorative stability has been reported.

CLINICAL RECOMMENDATION

It is a promising strategy in term to reduce or eliminate the crestal bone loss around the implant. Now, the design of dental implant, along with abutment encompasses the concept of maintaining “horizontal biologic width” through built-in platform switching.



PLATFORM
SWITCHING

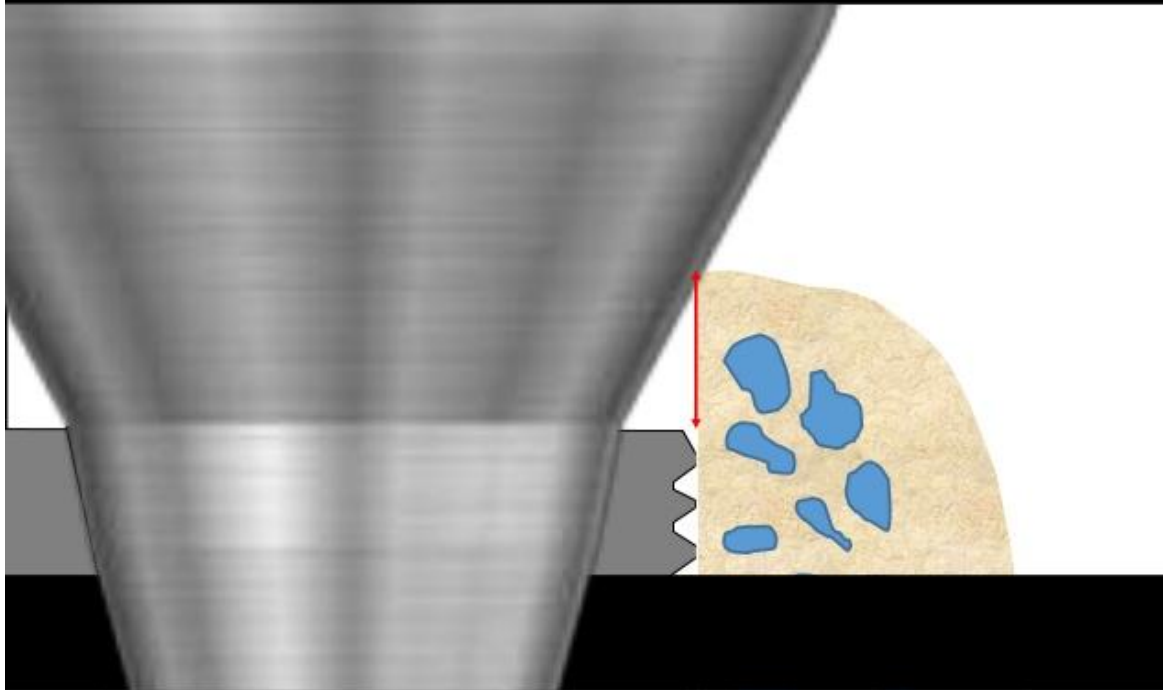
D) PROFILE OF HEALING/INTERIM ABUTMENT

Healing abutment placement is based on the surgical technique followed i.e., immediately placed during single stage surgical procedure or later at two-stage surgical protocol to guide the healing of soft tissue to replicate the contours and dimensions of natural tooth that is being replaced and to ensure access to the implant restorative platforms for impression and definitive abutment placement

INTERFERENCE BETWEEN HEALING ABUTMENT AND BONE

BONE RESORPTION

Interference between Healing abutment & Bone



Bone resorption in result of selecting low height healing abutment



GSHAS653

GSHAS553



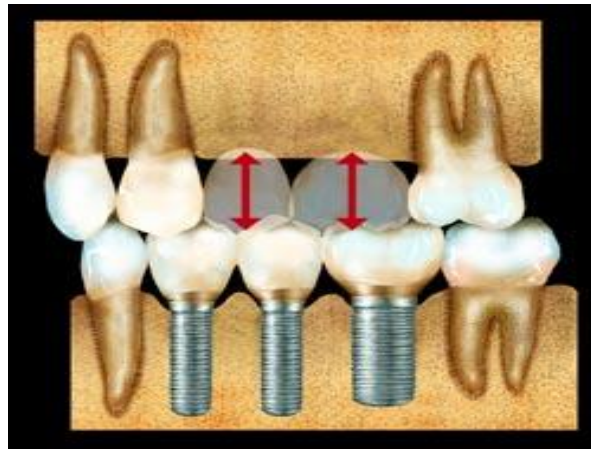
E) ORIENTATION OF IMPLANT

This evaluates the implant in relation to the final prosthesis and the adjacent teeth. Malpositioning of dental implant may be in any plane either vertical, mesial/distal or facial/lingual plane. These could be most common reason for using custom-processed abutments.

- However, if the dental implant is placed at planned location of the teeth, prefabricated abutments may be used at predictable result and low cost.
- This criterion is particularly important in deciding whether implant restoration will be screw- or cement-retained.
- The main advantage of screw-retained prosthesis is easily retrieval of prosthesis in case of repair or screw loosening . In case of a cementable restoration, the angulations are not as critical since there is no screw-access opening which may interfere with esthetic and/ or function (in case of screw-retained prosthesis).
- However, most anatomical variation influences the implant body angulations and hence, the abutment selection.

F) INTEROCCLUSAL SPACE

- Interocclusal space corresponds to the vertical distance between the superior surface of the implant and the opposing dentition in maximum intercuspation. This interocclusal space is the total height available for the abutment plus the restoration. At least 2.8 mm of interocclusal space is necessary to restore an implant because of the limitations in commercially available abutments.



CLINICAL RECOMMENDATIONS

- A meticulous clinical examination including the diagnostic mounting in maximum intercuspation would facilitate recording the interocclusal space. This will later facilitate the selection of prefabricated or custom-made abutment. Hence, selection is made at initial treatment planning phase under individual clinical need.

G) DEPTH OF PERI-IMPLANT SOFT TISSUE

- ◉ Tissue height or peri-implant sulcular depth is the distance from the superior surface of the implant to gingival margin. This is measured 6-8 weeks following Stage 2 surgery.
- ◉ Ideally, in esthetically important areas the margin of the restoration is 1-2 mm subgingival. The tissue height is not as critical if the restoration is not in the esthetic zone and a supragingival margin is planned.
- ◉ Clinical recommendation
In the area with optimum esthetic requirement, appropriate abutments may be used to contour the peri-implant soft tissue and to develop optimum emergence profile .

H) EMERGENCE PROFILE

- Emergence profile allows gradual transition from implant head and the key for this is the **interdental papilla**.
- Dependence on various factors
 - Contouring of subgingival abutment component.
 - Position of the contact point of the restoration.
 - Height of the bony crest at the neighbouring teeth.

EMERGENCY PROFILE

Literature Review

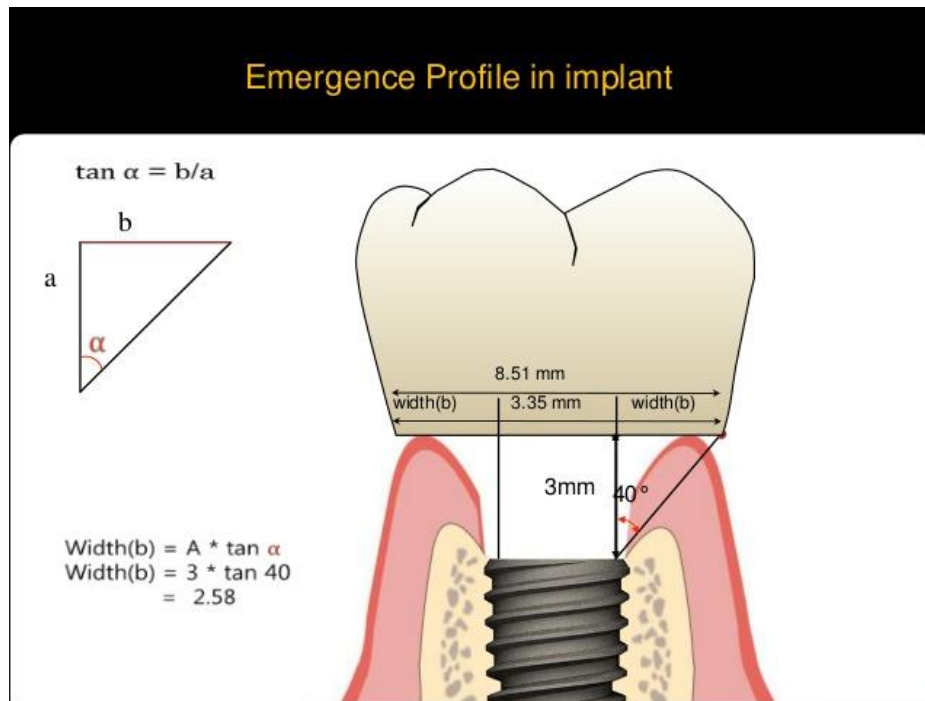
- Tamow D, Magner AW, Fletcher P. *The effect of the distance from the contact point to the crest of bone on the presence or absence of the interproximal dental papilla. J.Periodontology 1992: 63:995-996.*

	Distance from the contact point to the crest of bone							
	3	4	5	6	7	8	9	10
Papilla presence (%)	100	100	98	56	27	10	25	0

EMERGENCE PROFILE

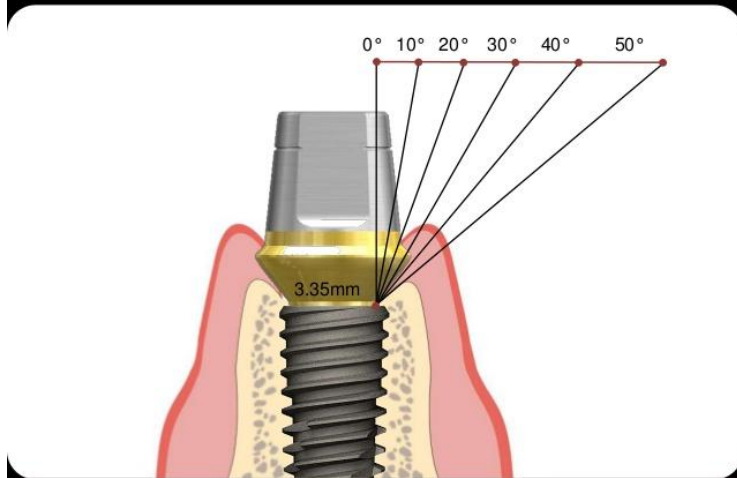
- Tarnow D, Elian N, Fletcher P et al. Vertical distance from crest of bone to the height of the interproximal papilla between adjacent implants. *J.Periodontology* 2003;74:1785-1788.
- Distance between two adjacent implants should be at least 3 mm apart in order to preserve interdental bone and to maintain horizontal component of biologic width.
- An average of 3.4 mm of papillary height expected (1- 2 mm still short)

EMERGENCE PROFILE/ ANGLE IN IMPLANTS



- Needs atleast 3 mm of vertical space from implant head to gingival margin

Emergence Angle of Abutment

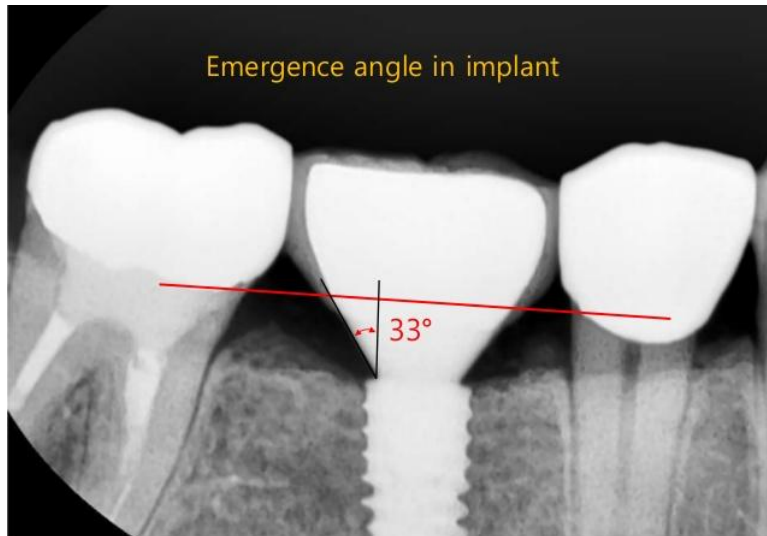


Emergence Angle

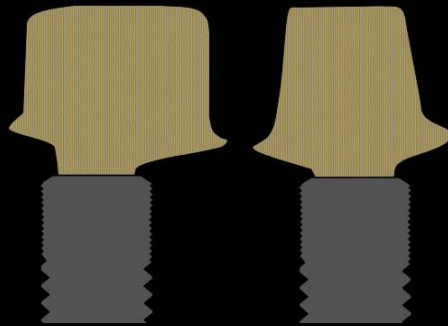
Dependent on -

- Gingival cuff height.
- Abutment diameter.

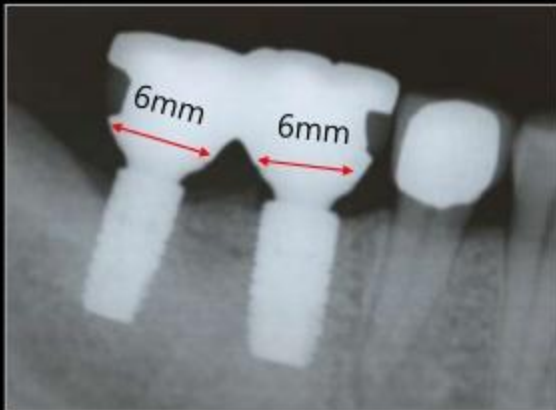
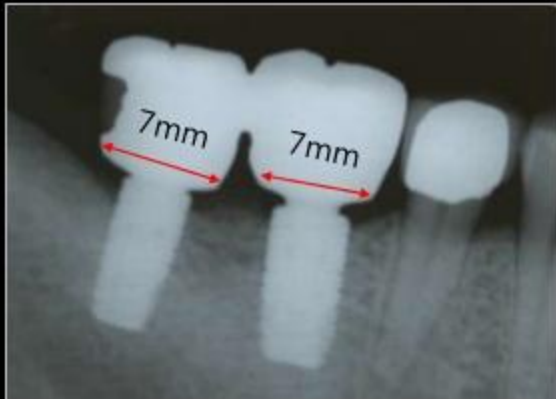
Emergence angle in implant



Excessive emergence angle



Excessive emergence angle



ABUTMENT RETENTION IN CEMENT RETAINED IMPLANT ABUTMENTS

- The retention of a fixed cemented restoration-resist removal of the retainer along the path of insertion .
- Resistance - opposes movement of the abutment under occlusal loads and prevents removal of restoration by forces in apical and oblique direction.

The tenets of retention and resistance include

⊙ 1) ABUTMENT TAPER

- Retention of a crown decreases as the taper is increased from $6-25^{\circ}$.
- Ideal taper was recommended to be within $2-5^{\circ}$ of parallelism of path of insertion .
- Parallelism of axial walls has been recognised to be single most factor for retention.
- Eames et al - found that clinically acceptable preparation present a taper of 20° .

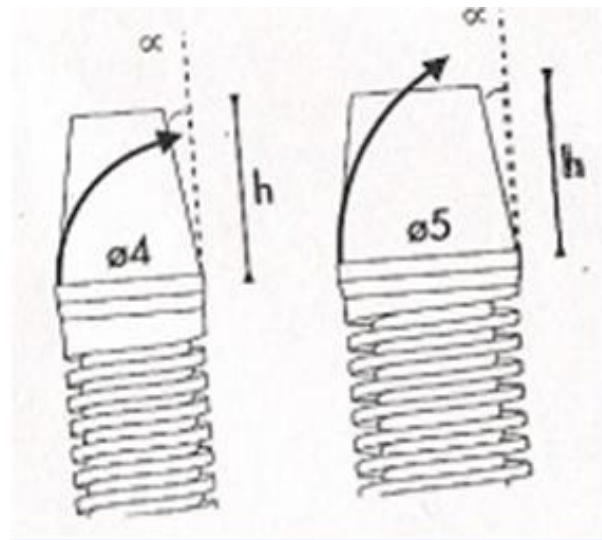
- **2) ABUTMENT SURFACE AREA**

- There is a linear increase in retention as the diameter increase for preparation with identical height.
- Diameter of implant abutment for cement retention is often less than 5 mm which is comparable to prepared lateral incisor - so decrease in surface area results in poorer retention than most natural abutment.

3) ABUTMENT HEIGHT

A tall preparation offers greater retention than a short abutment

- Increase in height increase surface area , increased resistance to lateral forces.
- Height of the abutment must be greater than the arc formed by the crown rotating about a fulcrum at the margin of the opposite side of the restoration.



4) ABUTMENT SURFACE ROUGHNESS

- Surface roughness increase the retention of a restoration by creating microretentive irregularities into which the luting agent projects.
- Surface roughness retention is dependent upon the type of burs along with the type and thickness of luting agents.
- Large size cross cut fissure bur reduces height and gross reduction of metal abutment post .
- Coarse diamond increase amount and depth of scratches on the surface to more than 40 micrometer.
- Internal aspect of the casting should be air abraded with 50 micrometer alumina to enhance retention by 64%.

ABUTMENT TRY IN KIT

- Provides replicas of abutment types that can greatly assist abutment selection.
- Tried intraorally or on a cast.
- Made up of aluminium / Silicone rubber
- Color coded for easy recognition.
- Used for better screw access position , marginal height and emergence.

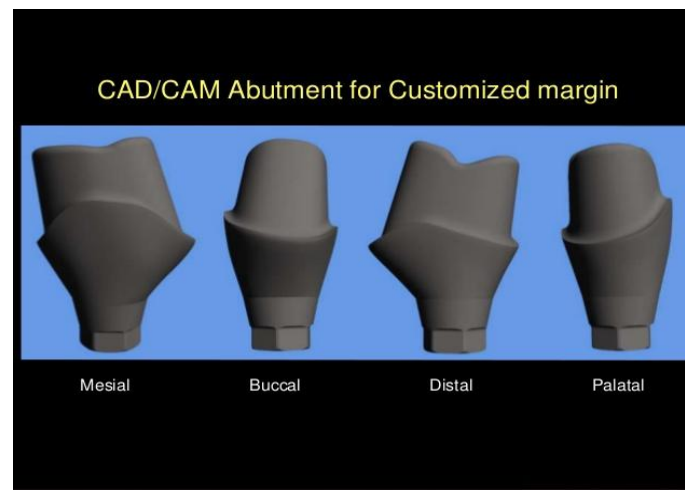


CAD-CAM ABUTMENT VS STOCK ABUTMENT

CUSTOMISED ABUTMENT

Milling Titanium to create and customize abutment applying CAD/CAM technology instead of casting metal from wax up using traditional UCLA abutment.

- Patient specific abutment solution
- Ideal for optimised function , esthetics and simplicity.



PROBLEMS WITH STOCK ABUTMENT

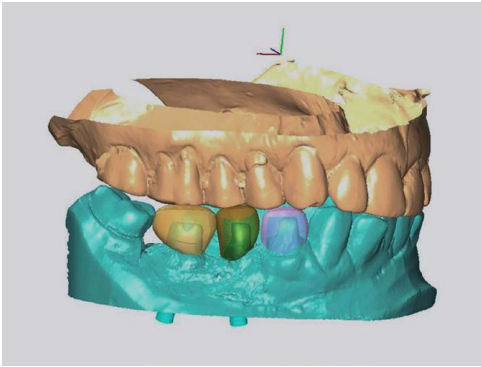
- ◉ When path of insertion is compromised.
- ◉ Lack of retention in case of short clinical crown height.
- ◉ Difficult to reproduce gingival scallop shape.
- ◉ Removing cement in subgingival margin could be difficult.
- ◉ Increase chairtime due to adjustment of abutment during insertion.
- ◉ Limited length for abutment and collar.
- ◉ Limitation of Milling.

PROBLEMS WITH UCLA ABUTMENT

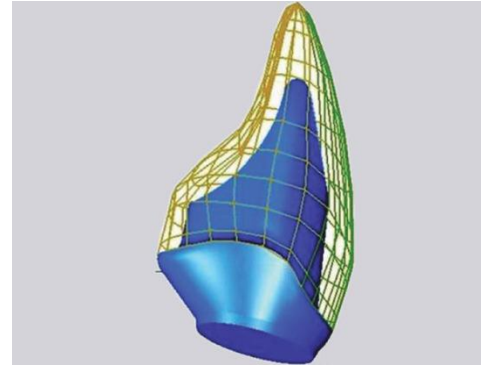
1. Increase overhead due to gold usage.
2. Expensive.
3. Casting error.
4. Biocompatibility is less than titanium.
5. Highly dependent on skilled lab technicians.

VIRTUAL DESIGN AND MANUFACTURE OF ABUTMENTS(ATLANTIS)

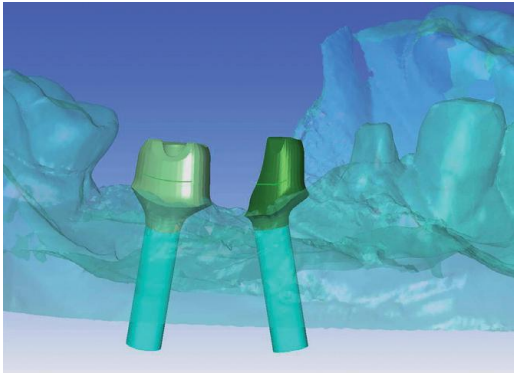
- ◉ Previous CAD-CAM : WAX -SCAN -MILL approach
- ◉ A manufactured custom abutment is first virtually created within the design software by *virtual tools before it is machine milled. Before the virtual design process can start, a non-virtual implant master cast must be fabricated. The master cast contains all the implant analogs (that reproduce the intra-oral implant placements) surrounded by a removable soft tissue reproduction.*
- ◉ Soft tissue removability allows for fit and placement evaluations of the final custom abutments.
- ◉ The abutment bases are fabricated anatomically wider than the implant body and the intra-oral periimplant sulci.



VIRTUALLY OCCLUDED MODEL



VIRTUAL ABUTMENT DESIGNING



PARALLELING ADJACENT ABUTMENTS VIRTUALLY



MACHINED ABUTMENTS



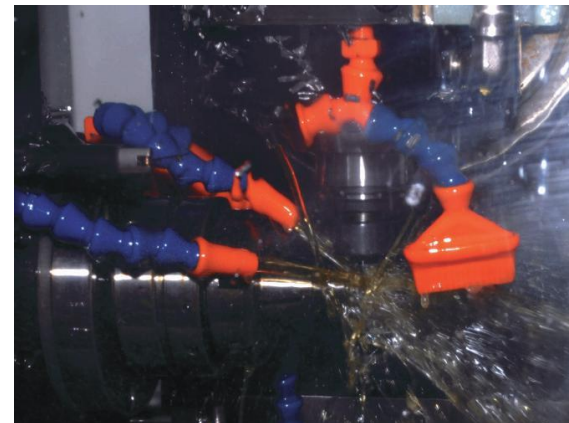
CROWNS CEMENTED

MACHINE MILLING AND FINISHING

- Custom abutments are milled from titanium or ceramic rods, once the virtual design of the abutment is completed. The digital abutment files guide the cutting tools of the milling machines in 6 degrees of freedom through the differing abutment material(s) to manufacture a finished custom abutment.



MACHINE
MILLING



VISUAL INSPECTION AFTER MILLING

⦿ **Key aspects of metallic abutment manual Inspection**

- Machine surface finish
- Fit of the abutment interface
- Geometric inspection
- Presence of burrs and surface irregularities
- Comparison of the manufactured abutment to approved virtual abutment design
- Complete coverage of the abutment with the TiN coating

⦿ **Inspection features specific to Zirconia abutments**

- Proper color and shade
- Inspection for surface defects

ORDERING AN ATLANTIS PATIENT-SPECIFIC ABUTMENT - CLINICIAN'S INPUT

- Implant brand type: Tooth No. / Implant brand / Specific platform.
- Duplicate abutments : serve as master die to enhance lab accuracy.
- Restoration type : screw retained / cement retained.
- Splinted Restoration : should be indicated so that all abutment made perfectly parallel.
- Abutment material : Ti / Ti N / Zirconia .
- Surface Design : Smooth wall / Retentive grooves
- Margin Design : define subgingival depth of margin based on esthetics.

ADVANTGES OF CAD-CAM ABUTMENT OVER STOCK ABUTMENT

- ◉ Abutments are **precision** created by smart software requiring no lab technician skill or knowledge to obtain an optimally shaped custom abutment.
- ◉ surface characteristics of a virtually design abutment are **superior** to cast abutments because each abutment is precision milled and highly mechanically polished.
- ◉ Each abutment is a **one-piece entity** with no abutment cylinder-alloy interface utilized. Therefore, abutments have higher **mechanical tolerances** for compromised implant placement alignment or when employed in tissue-deficient areas.
- ◉ It is easy to have **precise duplicates** made, giving the lab technician the exact shape of abutment that the patient needs. Duplicate abutments eliminate any inexact stone reproductions obtained through conventional impression procedures. Crown-abutment fit is therefore improved.
- ◉ Any compromised **abutment contours** can be **virtually modified** to improve the abutment regardless of abutment material used (e.g. zirconia, gold hue, titanium).
- ◉ Because the **machining** process is completely **software driven** and occurs irrespective of the chosen abutment material, any future abutment materials developed (e.g. lithium disilicate, composites) will easily fit into the manufacturing process.

DISADVANTAGES : CAD/CAM solutions not including Atlantis virtual design

- ⦿ Very **labor intensive** and requiring highly skilled technicians.
- ⦿ Difficult to ensure **passive insertion and parallelism** due to the need for wax-up.
- ⦿ Potential inconsistency of the final result due to the **dependency** on the individualized skill of the **technician** and the quality of the manual wax-up.
- ⦿ Most abutment systems create the final abutment utilizing an “**inside-out approach**” where the design focuses on the abutment rather than basing the design on the final tooth shape.
- ⦿ Traditional CAD utilizes **individual “points”** for adjusting abutment design that do not simultaneously result in improvement changes in other areas of the abutment.

In contrast to traditional CAD, the **Atlantis virtual design** software employs a **parametric design model** where appropriate changes in any one abutment contour will automatically alter related parameters, resulting in a cohesive abutment design.

ABUTMENT RELATION TO PERIIMPLANT TISSUES.

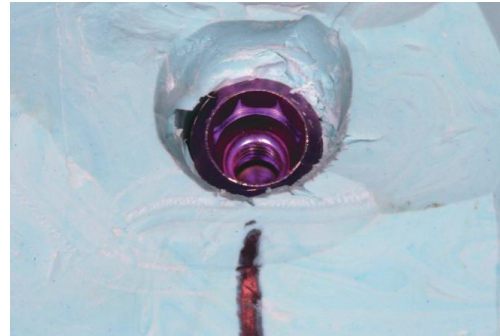
CONTOURING THE SOFT TISSUE WITH PROVISIONAL AND CUSTOM IMPRESSIONS

- ◉ In order to optimize esthetic outcomes, it is essential, for most sites, to place a **provisional restoration** onto the implant subsequent to healing.
- ◉ Customisation to facilitate the **maturation and stabilization** of peri-implant soft tissues. These procedures are the most predictable and practical method of insuring a natural esthetic soft tissue profile.
- ◉ The peri-implant tissues in the **esthetic zone** are often **deeply scalloped**, making predictable excess removal impossible.
- ◉ Desired peri-implant soft tissue profile can be achieved with the provisional restoration, an accurate cast of the emergence profile should be made .
- ◉ A **customized impression coping** that duplicates the new sulcus form can be made with a two-stage process.
- ◉ **Custom abutments** can be either waxed and cast onto machined cylinders or machined from titanium or zirconia using CAD, or copied from a waxed form .

CUSTOMISED IMPRESSION COPING TO RECORD PERI-IMPLANT TISSUE

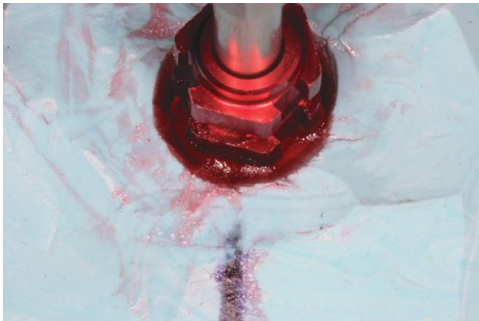


I



II

A) PERI-IMPLANT SOFT TISSUE TRANSFERRED INTO PUTTY AFTER SCREW RETAIN TEMPORARY CROWN REMOVAL (I, II)



III



IV

B) A FLOWABLE RESIN (GC PATTERN RESIN) WAS USED TO CUSTOMIZE THE IMPRESSION COPING WITH THE EMERGENCE PROFILE.(III, IV)

TREATMENT PLAN BASED SELECTION

- Single tooth implant abutment
- Fixed/ Fixed detachable prosthesis-
- Implant Overdentures
 - A) (Retained / supported)
 - B) (Resilient / Rigid)

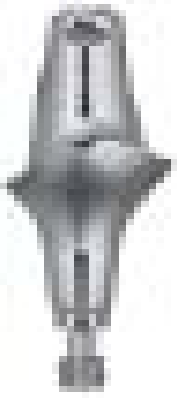
SINGLE TOOTH IMPLANT ABUTMENT

OPTIONS

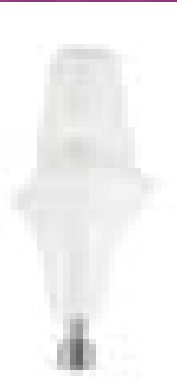
- Two piece esthetic / anatomic abutment(Ti,Zr)
- Two piece Regular abutment
- Single piece standard /easy abutment(Solid)
- Two piece custom abutment

TWO PIECE ESTHETIC / ANATOMIC ABUTMENT(TI,ZR)

- For use in single tooth / multiunit splinted restoration specially in esthetic zone.
- Minimum interocclusal distance of 4.5 mm + restoration thickness is required.(approx. 7 mm from opposing occlusion)
- Stay at least 1.5 mm away from conical connection.
- Leave minimum wall thickness of 1 mm from the screw channel to outer diameter of abutment.
- Premachined scalloped margins simplify abutment preparation . In addition abutment may be prepared further if needed.



Ti



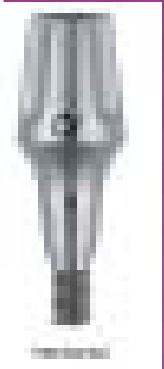
Zr

TWO PIECE REGULAR ABUTMENT

- Non anatomic with premachined margins but without Scalloping .
- Sufficient wall thickness to allow customisation by technician .
- For use in non esthetic zone or in anterior areas with low height of interdental gingiva.
- Space requirement same as esthetic abutment.

SINGLE PIECE STANDARD /EASY ABUTMENT(SOLID)

- Solid piece abutment can be used in high stress situations.
- Can not be customised by dentist / technician
- ONE TIME ONE ABUTMENT CONCEPT



TWO PIECE CUSTOM ABUTMENT (UCLA ABUTMENT)

- Indicated for esthetic custom restorations with a good emergence profile that attach directly to the implant.
- Can be used in cases of limited restorative space as there is no intermediary abutment.
- A minimum interocclusal distance of 4.5 mm for SD and RD AND 5 mm for the WD UCLA abutments is required between the implant prosthetic table and the top of abutment screw when seated.
- Options for both locking and non locking available. →
- Parallelism can be obtained among implants which are not parallel.



FIXED, FIXED DETATCHABLE RESTORATIONS

Criteria for selecting PFM or Hybrid Prosthesis

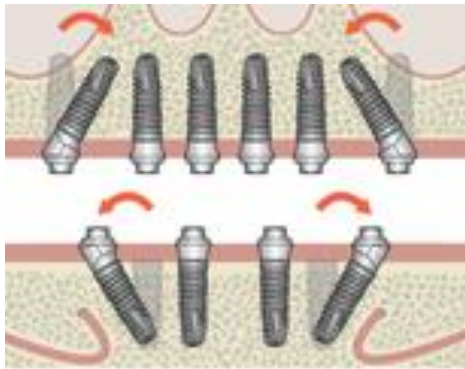
Porcelain Fused to Metal	Hybrid Prosthesis
□ cost more	cost less
□ vertical dim < 15mm	vertical dim >15
□ technique same	technique same
□ esthetics same	esthetics same
□ appointments more	appointments less
□ soft tissue recon difficult	soft tissue recon easy
□ repair very difficult	repair easy
□ arch length varies	arch length 1st molar

Source: Dental Implant Prosthodontics,

Dr. Carl Misch 2005

SMARTFIX ABUTMENT / TRANSMUCOSAL ABUTMENT

- ◉ Application in All on 4 / All on 6 concept. (Tilted implant concept).
- ◉ Smartfix available in 15° and 30° angulation i.e. Allows 30° and 60° of divergence between adjacent implants.
- ◉ Transmucosal abutment available in 17° and 30°
- ◉ Available in different gingival cuff heights to raise the prosthetic platform supragingivally on which hybrid prosthesis seats.



IMPLANT OVERDENTURES

A) SNAP ATTACHMENT (RESILIENT)

- Economical direct attachment for an implant attachment-retained overdenture restoration
- For fabrication of overdentures in edentulous mandible with 2 or more implants
- Can be used chairside or in the laboratory.
- Male component is available in various gingival cuff heights .
- Replacable retention inserts are available with different retentive holding force levels.



Ball abutment



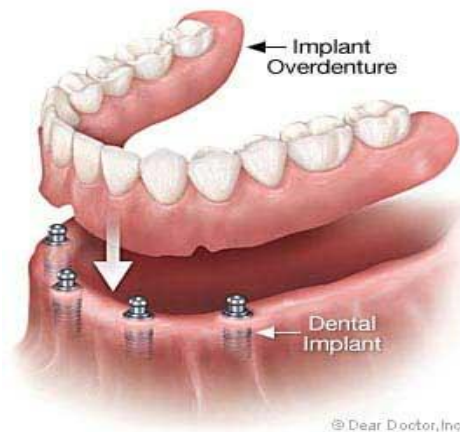
Clix female



Clix inserts

SNAP ATTACHMENT (TECHNICAL ASPECT)

- ◉ A minimum inter-occlusal clearance of 7.0mm + cuff height is required.
- ◉ Implants must be relatively parallel to one another with less than 20° of total divergence.
- ◉ If a patient cannot tolerate pressure on the mucosa, this type of restoration is not an option.
- ◉ The patient must have good manual dexterity to align the denture directly over the attachments prior to seating.



B) LOCATOR ATTACHMENT (RESILIENT)

- ◉ LOCATOR Abutments are used with two or more implants for attachment retained overdenture restorations.
- ◉ Nylon LOCATOR Replacement Males provide varying degrees of retention which also allows compensation of axial divergences.
- ◉ Indications:

The LOCATOR Abutment System is designed for use with overdentures or partial dentures retained in whole or in part by implants.
- ◉ Contraindications:

Not appropriate where a totally rigid connection is required. Not recommended for use on two or more implants with greater than 40° total divergence.

LOCATOR ATTACHMENT

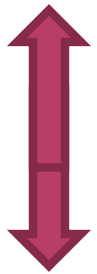
- Technical Considerations:
- Lowest Vertical Height: The total height of the LOCATOR Abutment (Abutment plus Replacement Male) Assembly is only 2.5mm plus cuff height .Provides greater freedom at limited space conditions.
- Locating Design: Self-locating design allows the patient to easily seat their overdenture without the need for accurate alignment of the attachment components.
- Retention Inside and Out: The patented Dual Retention feature provides the LOCATOR Abutment with greater retention surface area than with other attachments. A combination of inside and outside retention ensures the longest lasting performance.

LOCATOR ATTACHMENT

- Locator attachments without an inner retention feature are used when they are aimed to correct interimplant angulation more than 20° .
- Rotational Pivoting Action: The design of the pivoting LOCATOR Replacement Male delivers a resilient connection for the prosthesis without any resulting loss of retention.

Use With Non-Parallel Implants: Standard LOCATOR Replacement Males can be used to restore an implant with up to 10° of divergence (20° between implants). The LOCATOR Extended Range Replacement Males can accommodate a divergence of up to 20° (40° between implants).

LOCATOR ATTACHMENT



LOCATOR
ATTACHMENTS



RETENTIVE
CAPS



BAR ATTACHMENT OVERDENTURE

- More stable prosthesis
- Achieve single line of draw(insertion/ removal) in case non parallel implant placement .
- Biomechanical advantage - splinting.
- The ideal length of a single bar should be minimum of 20-22 mm to accommodate two clips. Hence, the distance between two implants should be this much while selecting this attachment. Shorter bar attachments cannot provide adequate retention and support.
- When the tissue depth exceeds 3mm, a transmucosal abutment (Multi-Unit Abutment) is recommended rather a UCLA abutment to extend the seating platform of the restoration to the abutment approximately 1-1.5mm above the tissue height.

C) BAR ATTACHMENT OVERDENTURE

DISADVANTAGES

- ◉ Vertical dislodgement, bar type attachments show maximum stress generation around implants
- ◉ Fabrication is technique sensitive
- ◉ Higher cost
- ◉ Maintenance of hygiene is difficult which can lead to problems like mucosal irritation
- ◉ Frequent loosening of retentive clips.

BAR ATTACHMENT OVERDENTURE

UCLA Abutment System

Technical Considerations:

- ⦿ A minimal inter-occlusal clearance of 4.5mm for SD and RD and 5.0mm for WD UCLA Abutments is required between the implant prosthetic table and the top of the Abutment Screw when seated.
- ⦿ It is recommended that the Abutment Lab Screw be used during laboratory procedures to avoid damage to the final abutment screw.

BAR ATTACHMENT OVERDENTURE

- ◉ The Multi-Unit Abutment System / balance base abutment is commonly used for a fixed detachable (hybrid) restoration. Additionally, it can be used as a transmucosal abutment for bar overdenture restorations.
- ◉ The Multi-Unit Abutment's tapered design provides excellent stability and allows for an easier path of insertion.
- ◉ Technical Considerations:
 - The tapered 18° axial walls allow up to 36° of divergence between adjacent abutments.
 - A minimum inter-occlusal clearance of 4.8mm + cuff is required between the implant prosthetic table and the top of the coping screw of the Multi-Unit Abutment.

BAR ATTACHMENT OVERDENTURE



D) TELESCOPIC OVERDENTURE

SYNCONE CONCEPT

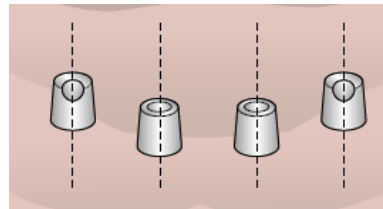
- The syncone system is an innovative type of telescopic attachments which is mainly indicated in immediate loading cases.
- The syncone system has prefabricated titanium abutments and corresponding gold retainers which come in 4-6° taper.
- The abutments can correct angulations by 30° and can rotate 360° for precise alignment. Gold retainers fit on titanium abutments and provide excellent retention and stability.
- Patient should have good interarch space to accommodate telescopic attachments .

Advantages of syncone concept

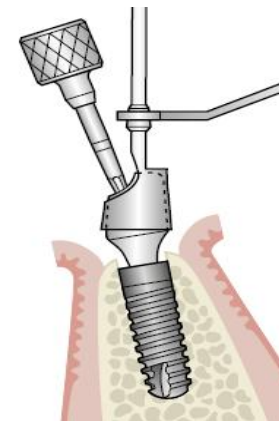
- Excellent immobilization of the restoration
- Flexibility of design
- Easy maintenance of oral hygiene
- Syncone system has virtually wear resistant attachments. Can also be used on angulated abutments.



SYNCONE
TAPERED
ABUTMENTS



ABUTMENTS MADE PARALLEL WITH
PARALLEL TOOL & SECURED



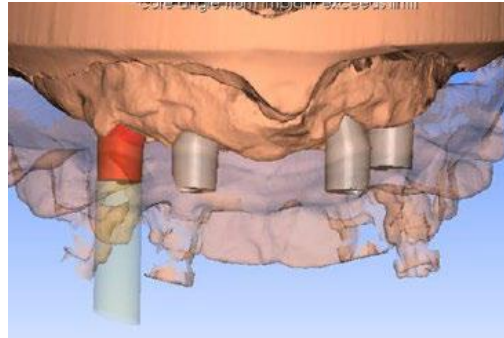
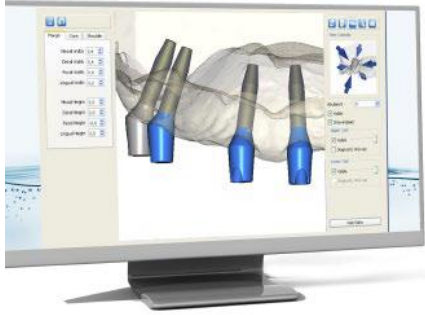
SYNCONE CAPS ATTACHED
WITH DENTURE



ATLANTIS CONUS CONCEPT

- The concept is composed of patient-specific ATLANTIS Conus abutments together with prefabricated SynCone caps .
- It allows dentists on to apply telescopic syncone concept on implants other than Ankylos .
- The ATLANTIS Conus abutments are individually designed using the patented ATLANTIS VAD (Virtual Abutment Design) software. This ensures that all abutments are parallel to each other, and that their restorative margin are as close to the soft tissue as possible.
- The position of the abutments will be in relation to the space needed for the final restoration.

ATLANTIS CONUS CONCEPT



ATLANTIS CONUS ABUTMENTS DESIGNED BY ATLANTIS VAD SOFTWARE



CONUS ABUTMENTS WITH
SYNCONE CAPS



EXISTING PROSTHESIS
ATTACHED



THANK YOU
for your attention!