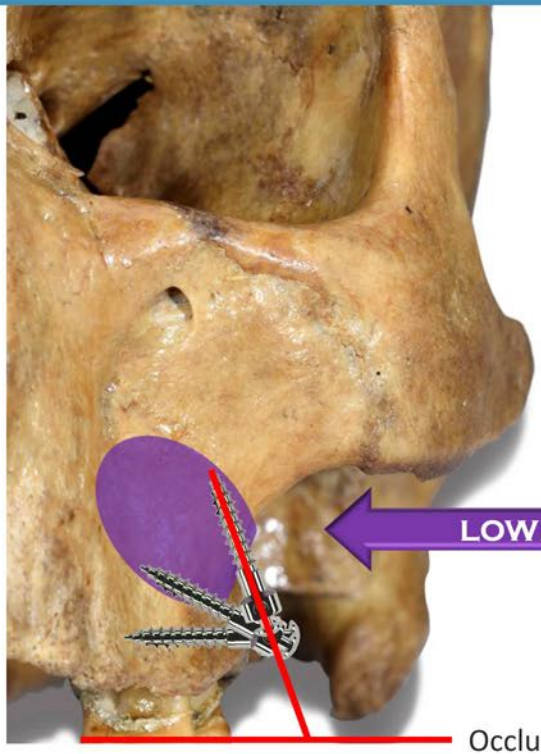
UNIVERSAL SKELETAL ANCHORAGE SYSTEM

A-1
BEYOND THE LIMITS

LOWER INFRAZYGOMATIC AREA



The most popular technique for placement of a mini screw in this area is to start with a 90° angle of insertion of the mini screw 1mm above the mucogingival junction and gradually reduce the angle of insertion to approximately 60° to 70° as the screw is inserted.

LOWER INFRAZYGOMATIC

Occlusal Plane

2 X12 mm
2 X10 mm
2 X 8 mm

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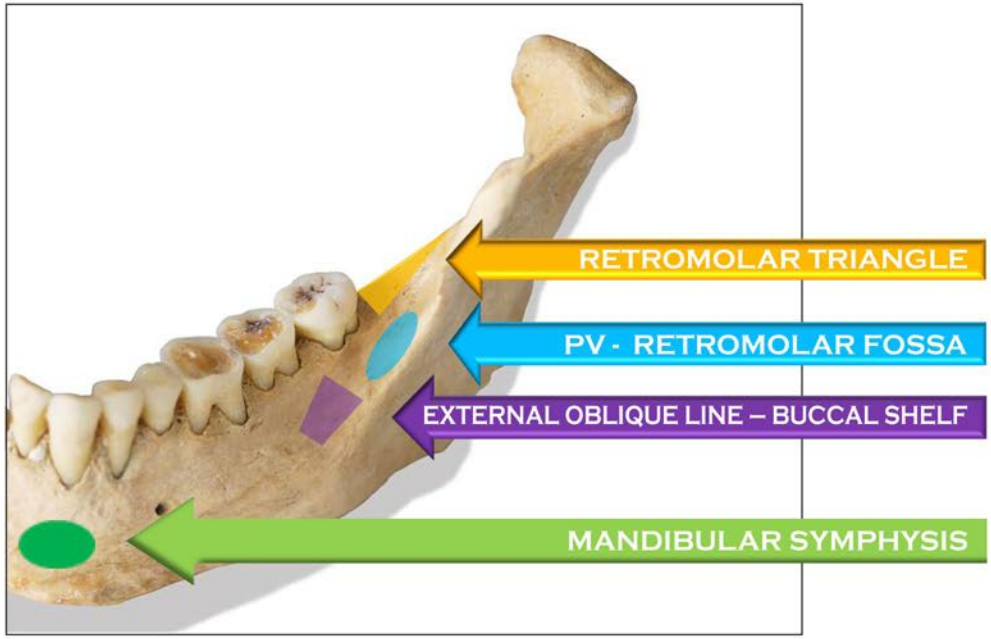
MANDIBLE AREAS

The most common areas for placement of a mini screw in the mandible are the alveolar process, the mandibular symphysis, the retromolar triangle, the retromolar fossa, and the buccal shelf on the external oblique line.



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MANDIBULAR SHELF
AT THE EXTERNAL OBLIQUE LINE

2 X12 mm
2 X10 mm

The mandibular buccal shelf is located at the anterior of the external oblique line.

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RETROMOLAR TRIANGLE

2 X14 IZC 2 X12 mm

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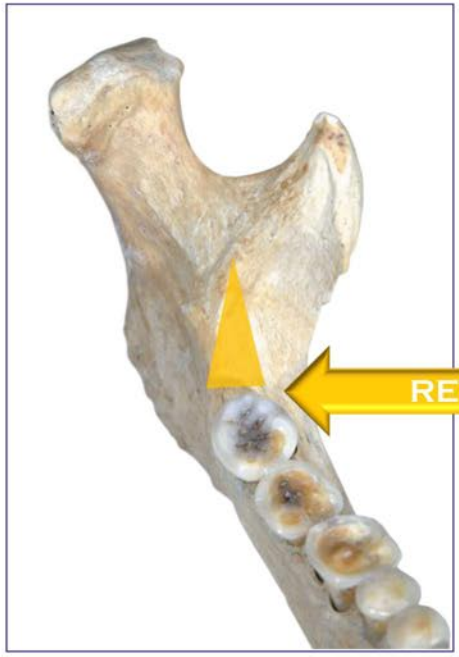


RETROMOLAR TRIANGLE

The retromolar triangle is a good area to place a mini screw, especially to correct molar mesial inclination.

THE PV BUCAL SHELF
AT THE RETROMOLAR FOSSA

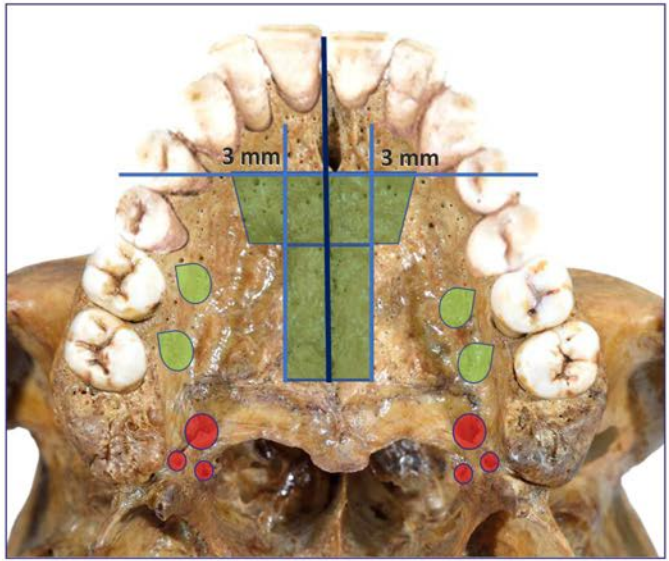
2 X14 mm IZC
2 X17 mm IZC

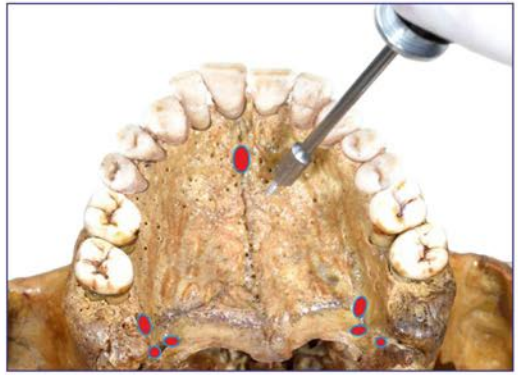
RETROMOLAR FOSSA - PV BS

The PV Buccal Shelf, or retromolar fossa area, is located at the external border of the retromolar triangle.

HARD PALATE MIDLINE

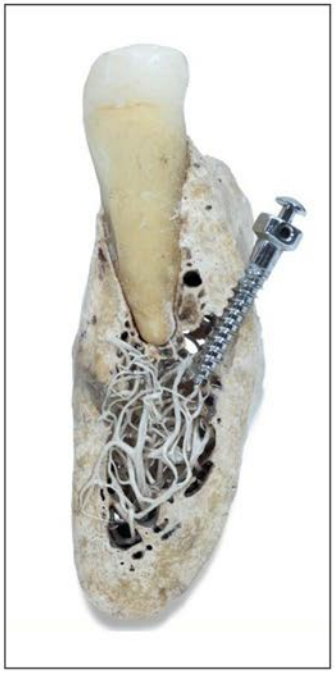
2 X 8 mm
2 X 10 mm

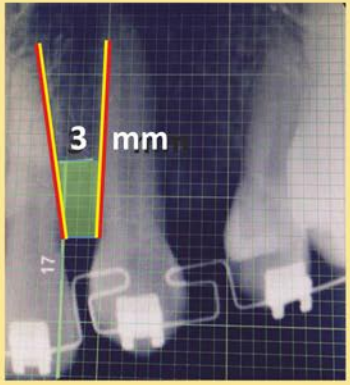




The most common part of the hard palate for placement of a mini screw is behind the incisive foramen 2-3 mm away from the midpalatal suture. The greater and lesser palatine foramen should be avoided when placing interdental mini screws in the palate.

INTERRADICULAR MINI SCREW PLACEMENT





Cortical bone 0.50 x 2 = 1.mm

PDL 0.25 x 2 = 0.50

Minimun space required is : 3mm

This criteria works for vestibular and palatal interdental mini screws.

15 X 8 mm

2 X 8 mm
EDENTULOUS AREA

1.4 X 8 mm
ANTERIOR DENTITION

1.5 X 7 mm
BRACKET SCREW

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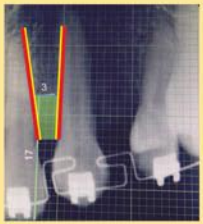
UNIVERSAL INSERTION PROCEDURE

This short summary for the procedure does not include all scientific details. For complete information a mini screw training course must be taken.

1



Diagnostic tools and treatment planning.

2

Disinfect and anesthetize mucosa (Topical or injection of a few drops)

3

Evaluation of the mucosa thickness for selection of screw length.

4

Select screw length and size.

5

Prepare the bone by notching the selected area. Some areas need to be pre-drilled to place screw.

6

When placing the mini screw, control insertion torque to avoid fracturing or bending the screw.

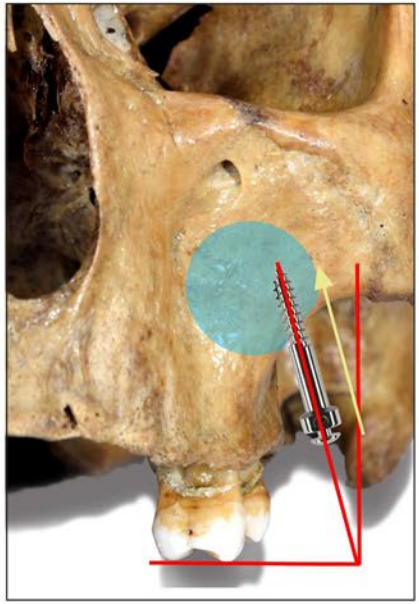
7

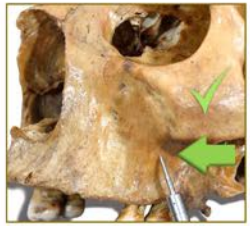
Check primary stability, then load the mini screw with 30% of the appropriate force.

UPPER INFRAZYGOMATIC INSERTION PROCEDURE

1. Identify the area and notch the bone with any pointed or sharp instrument.

2. Insert the mini screw directly into upper IZ area.





3. The path of insertion is from back to front to protect retro-maxillary tissues.

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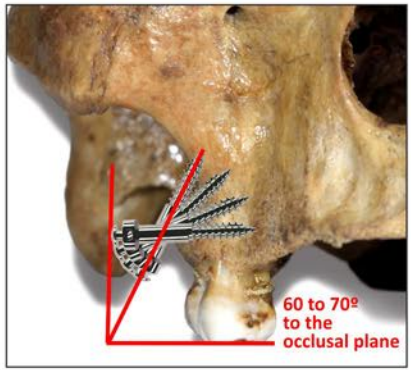
INSERTION PROCEDURE FOR LOWER INFRAZYGOMATIC AREA



STEP 1. Insert the mini screw 1mm above the mucogingival junction at 90˚.

STEP 2. Continue insertion by rotating screw until it reaches 60˚ to 70˚.

STEP 3. Apply 30% of indicated force to complete mini screw.

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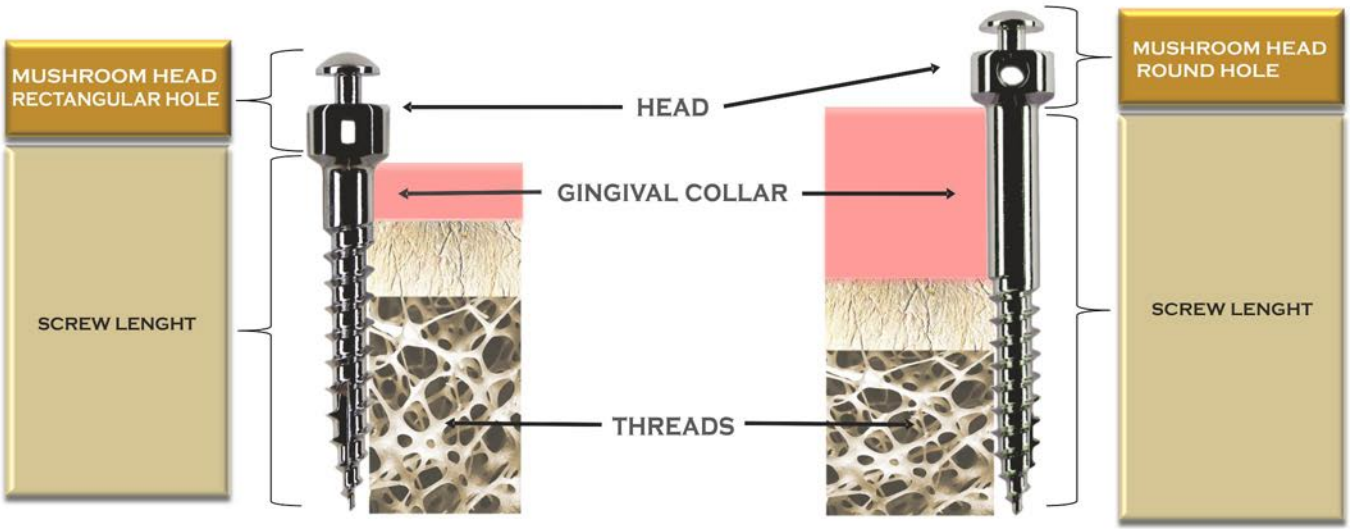
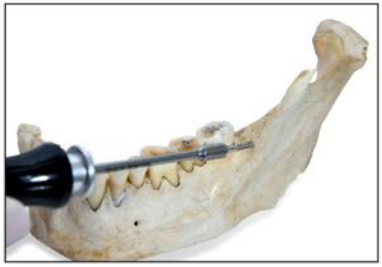
MINI SCREW DESING - MAIN PARTS



The A-1 Torque Screw on the left has a 2mm rectangular hole for wires of up to .019 x.025.

INSERTION PROCEDURE FOR PV BS



STEP 1. Identify the area and notch the bone with an instrument.
Step 2 . Limit the zone with your thumb.

2 X14 IZC
2 X17 IZC

Stand in front of the patient to place the mini screw in the retromolar area (PV BS).

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RIGHT BUCAL SHELF (OBLIQUE EXTERNAL LINE) INSERTION PROCEDURE

To place the mini screw on the right side, always stand or sit at a 12 o´clock position behind the patient.

STEP 1. The patient must slide the mandible to the side of the place where the mini screw will be placed.

STEP 2. Identify the buccal shelf, ¨feel the bone¨, and notch the bone with the instrument.

STEP 3 Depending on bone density, you may need to drill a pilot hole. Use your thumb to limit and protect surrounding tissues while inserting the mini screw .

LEFT BUCAL SHELF (OBLIQUE EXTERNAL LINE) INSERTION PROCEDURE

Always stand or sit at a 2 o´clock position behind the patient to place a mini screw in the left side.

STEP 1. The patient must slide the mandible to the side away from where the mini screw is going to be placed.

STEP 2. Identify the buccal shelf, ¨feel the bone¨ and make a notch with the instrument.

STEP 3. Depending on bone density, you may need to drill a pilot hole. Insert the mini screw using your thumb to limit and protect the surrounding tissues.

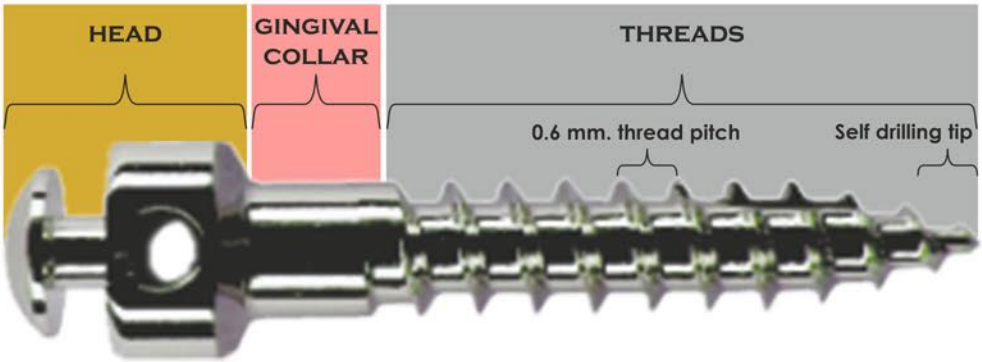
A-1

BEYOND THE LIMITS

M Screw	V Screw	Bracket Screw	A1 Screw	A1 Screw	A1 Screw	A1 Screw	Torque Screw	IZC Screw	IZC Screw	BAS
1.3x8 mm	1.4x8 mm	1.5x8 mm	1.5x8 mm	2x8 mm	2x10 mm	2x12 mm	2x12 mm	2x14 mm	2x17 mm	2x7 mm

MINI SCREW DESING

A-1 mini-screws are made of surgical Stainless Steel (UNS S31673) so that they are strong enough to withstand the force of insertion regardless of the torque applied in the highest density bone of the maxilla and mandible. Although A-1 mini-screws have self drilling tips, a pilot hole may have to be drilled in very hard and dense bone.



PHYSICAL PROPERTIES	
Elastic Modulus	197
Yield Strength	1224 Mpa
Tensile Strength	1510 Mpa
Ductility	13 - 45

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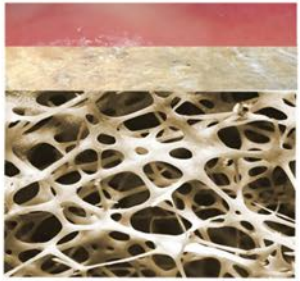
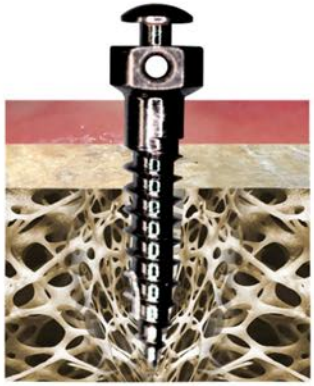
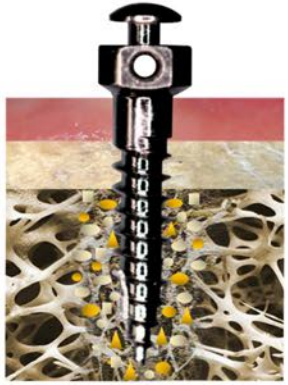
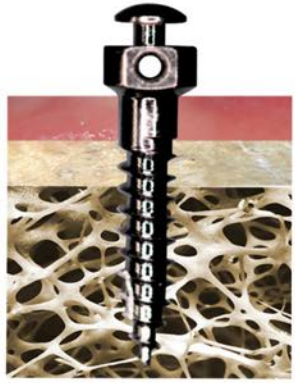
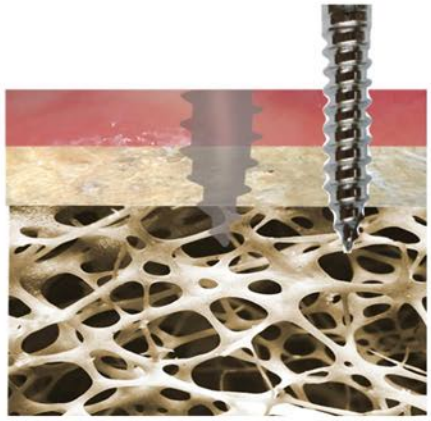
MINI SCREW STABILITY

ORIGINAL TISSUES	PRIMARY STABILITY 30 % indicated force	LIMITED STABILITY Do not apply new force	SECONDARY STABILITY 100 % indicated force
			
Gingiva, cortical and spongy bone.	Initial stability inmediately post-insertion. Stability due to bone compression. 2 to 5 days.	Mixed phase where the new secondary bone has not formed yet. Risk of premature loss. 2 to 4 weeks.	Continiuos adaptation process where new bone formation is present. 5 to 6 Weeks.

BIOLOGICAL ACTIVATION SYSTEM

The Biological Activation System is a protocol for activating the natural response of the bone by creating shallow holes in the cortical bone and then removing the mini screw.



-Amplifies inflammatory response and natural biological activity.

-Decreases bone density during activation.

-These two events stimulate bone remodeling and facilitate tooth movement.

1.5X8 mm

2.0X7 mm

ANATOMY FOR MINI-SCREWS

There are two main groups of anatomical structures in which mini-screws can be placed.

1. INTERRADICULAR

Mini screw is placed between two dental roots.

-Labial side between the roots in the maxilla and the mandible.
-Hard palate between the roots.

1. EXTRARRADICULAR

Mini screw is placed outside of the roots

- Zygomatic arch.
- Upper and lower infrazygomatic areas.
- External oblique line or mandibular shelf.
- Retromolar triangle and fossa.
- Mid-line hard palate.
- Mandibular symphisis.

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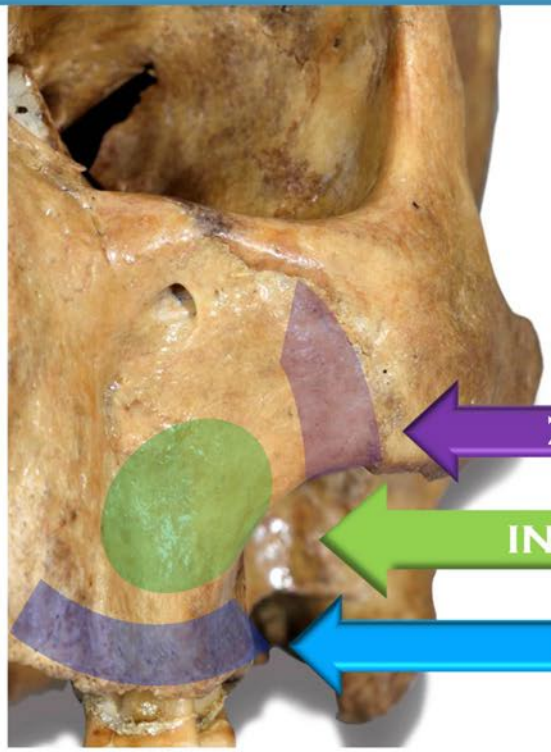
MAXILLA



Apart from the hard palate, the maxilla has three areas that are appropriate for placement of skeletal anchorages: the zygomatic process, the infrazygomatic crest and the alveolar process.

ZYGOMATIC PROCESS

INFRAZYGOMATIC CREST

ALVEOLAR PROCESS

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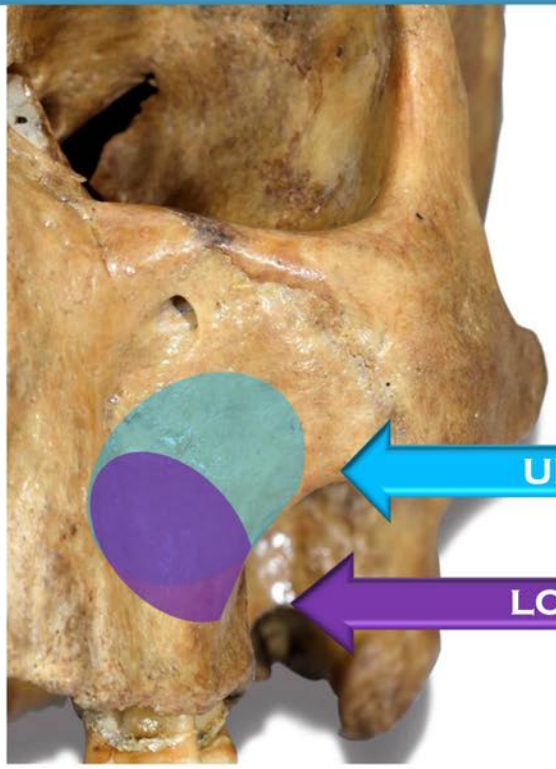
INFRAZYGOMATIC CREST



For placement of mini screws, the infrazygomatic crest is divided into upper and lower areas according to the patient´s bone thickness and bone density.

UPPER INFRAZYGOMATIC

LOWER INFRAZYGOMATIC

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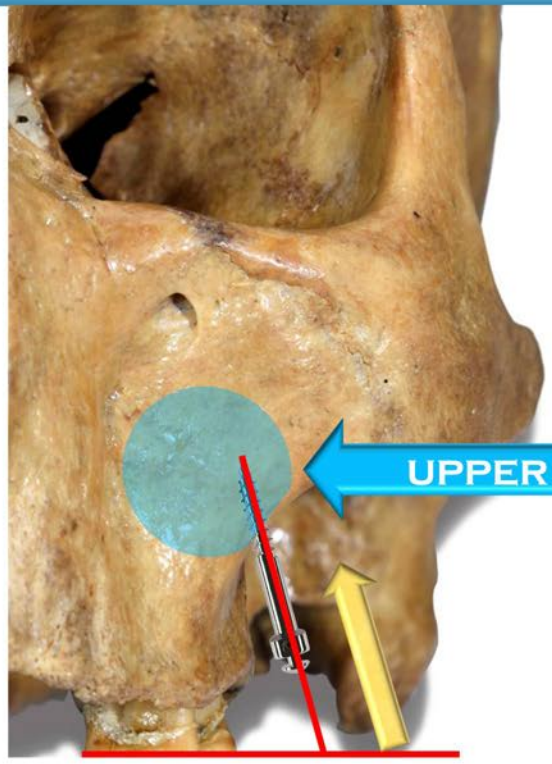
UPPER INFRAZYGOMATIC AREA



Direct insertion is the technique used for placing a mini screw into the upper infrazygomatic area. The screw's long gingival collar is important for protecting the patient´s mucosa in this area during functional movements.

2 X14 mm IZC
2 X17 mm IZC

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