DISIOR

CASE STUDY

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Supramalleolar Osteotomy

PRESENTATION
A patient in need of a supramalleolar osteotomy to improve mobility and quality of life due to ankle osteoarthritis.

OPERATIVE PLAN
Assessment of the patient's pre-operative pathology was performed by analyzing their CBCT data in Bonelogic®.

The medial distal tibial angle (MDTA) and the tibial lateral surface angle (TLSA) were 85.5° and 93.7°, respectively.

A corrective supramalleolar osteotomy was planned using the virtual osteotomy module of Bonelogic®. The simulation predicted that using a 14 mm saw with 0.4 mm thickness to create a wedge opening (of 8.72° and 5 mm wide), 20 mm from the tibial plafond to a depth of 31 mm, would result in an increase in the MDTA of 9.0° and a reduction of TLSA of 2.8°.

A surgical guide was manufactured and used in accordance with these parameters.

CONCLUSION
With Disior, I was able to plan the surgery in more detail compared with conventional methods. Virtual planning allowed this patient to receive individualized treatment. I firmly believe this technology will give confidence to surgeons of all levels.
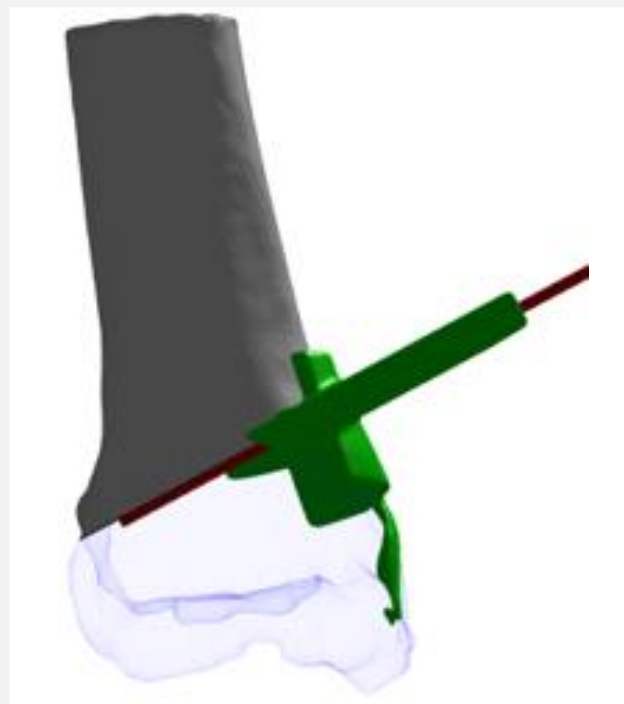
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Key bone alignment analytics:	Preoperative	Virtual post-op
Medial Distal Tibial Angle (coronal)	85.5°	94.5°
Tibial Lateral Surface Angle (sagittal)	93.7°	90.9°
Surgical planning parameters:		
Saw width		14.0 mm
Saw thickness		0.4 mm
Cut distance from tibial plafond (at tibial center line)		20 mm
Saw depth		31.0 mm
Wedge opening angle		8.7°
Wedge opening width		5.0 mm

Pre- vs. virtual post-op measurements of the MDTA and TLSA

Pre-op condition (left) and simulated post-op condition (right).
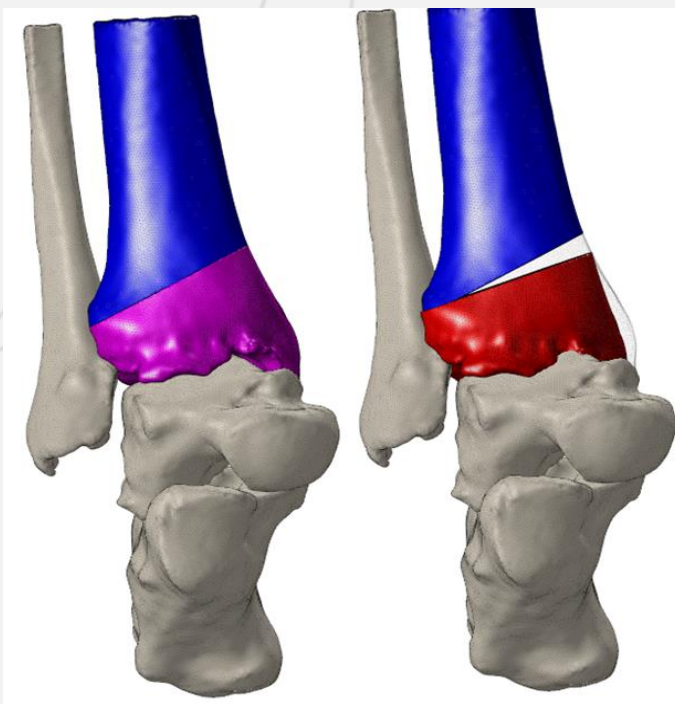
Computer aided design of the surgical guide

3D-printed patient-specific guide (right).

Surgical guide in use in the O.R.

Featured Product: Bonelogic® 2 Foot & Ankle Module and Surgical Planning Module

PRODUCT INFORMATION

- Disior provides clinicians with the accurate diagnostic information they need to deliver perfectly-tailored treatment to every patient.
- Disior's 3D analysis software Bonelogic® 2 is a fast and cost-efficient way to get objective data for accurate diagnosis, create patient-specific surgical plans and assess treatment efficacy.

BENEFITS OF BONELOGIC® 2

- Makes diagnosis unambiguous with automated, easy-to-use tools that remove manual labor.
- Assess the patient's anatomy with objective and reliable anatomical analytics based on clinical landmarks and reference points.
- 3D analysis can now be part of routine clinical practice and research.

INDICATIONS FOR USE

Bonelogic® contains the measurement template with a set of distance and angular measures. The measurements can be used for diagnostic purposes. The three-dimensional (3D) models are displayed and can be manipulated in the software. Together, the information from the measurements and the 3D visualization can be used for treatment planning in the field of orthopedics (foot and ankle, and hand and wrist). The 3D models can be outputted from the software for traditional or additive manufacturing.

INTENDED USE

Bonelogic® software is intended to be used by specialized medical practitioners to assist in the characterization of human anatomy with three-dimensional (3D) visualization and specific measurements. The medical imaging modalities intended to be used in the software are computed tomography (CT) images, cone beam computed tomography (CBCT) images and weight-bearing cone beam CT (WBCT) images. The intended patient population is adults over 16 years of age.

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For further information, please see the device-specific instructions for use on
www.disior.com/bonelogic-2