Before SOMA, implants were designed using bones from cadavers, limited 2D X-ray images, and subjective design input.\(^1\)

Minimal 3-dimensional data limited the engineers’ ability to extrapolate their data to the whole population.\(^2\)

Achieving true morphological fit in Orthopaedic prostheses has been an elusive industry goal.\(^3\)

SOMA consists of a database of over 19,500 3D bones generated from CT scans of patients. This comprehensive database and proprietary software helps design a better fitting implant and allows for true evidence based design.\(^3\)

The 3D computer-aided design modeling continuously provides virtual feedback and prevents testing of nonconforming prototypes thereby enabling a more efficient product development process.\(^2\)

SOMA was first used to design T2 GTN in 2008, and since then has contributed to over 20 innovative Stryker products.

**Why fit matters**

- A well-fitting plate may reduce the need for bending during the procedure which is important for preserving locking technology.\(^2\)
- Reduced need for intra operative plate bending may allow for improved OR efficiency.\(^2\)
- A well-fitting plate may result in reduction of soft tissue impingement and might decrease the risk of skin irritations.\(^2\)
- A well-fitting plate can help with fracture alignment.\(^2\)
SOMA's proprietary software enables evidenced based design and the ability to verify fit.²,⁴

Recent plates designed using SOMA include VariAx Clavicle, PRO pelvis plates, and AxSOS 3 distal anterolateral tibia, proximal medial tibia, and the distal medial tibia plates.

Enhanced anatomical fit in SOMA designed plates has been validated by feedback from our customers.⁵

Stryker continues to innovate using SOMA. Several new tools, such as bone density analysis, are currently being developed to aid in future implant designs.³

"Using an underlying database with accompanying computation tools such as SOMA can be a powerful and efficient approach towards the development and advancement of osteosynthesis plates in trauma surgery, ultimately resulting in plates with high levels of anatomic compliance and potential clinical benefits."²

References

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