Reseearchers at the University of South Florida have developed a unique implant that may be used to buttress, augment, or replace the native bony skeleton.

The orthopedic biomaterial bone graft market is continuously accelerating due to its shift of usage of demineralized bone matrix (DBM) and synthetic grafts. Bone allografts, polylactic acid isomers, and polyglycolic acid isomers have established independent efficacy in the treatment of bone defects and bone reconstruction in multiple clinical situations. However, there are currently no structural implants that offer osteoconductive and osteoinductive capabilities.

Our inventors have derived an osteoinductive, osteoconductive, resorbable, malleable implant with a shape and structure that may be customized to improve its function and overall outcome. This novel technology combines independently FDA used and approved implantable materials into a single implant that can be arranged in both plate and three-dimensional configurations. The combination of multiple implantable compounds into a single implant increases structural strength and allows incorporation of the implant as part of the osseous structure with time. It also provides a patient with a reconstructive alternative for bone replacement with or without autologous bone grafting. There is no need for removal later as with other types of implants and the possibility of customization allows for a wide range of applications to surgical practice. The incorporation of the resorbable, malleable material allows for further intraoperative adjustment. This invention is applicable to the field of facial reconstruction.

Reconstructive Alternative for Bone Replacement

3D Model of the Mesh / Lattice Structure of a Bone Implant for Zygoma Reconstruction

Advantages:
- Resorbable, malleable material
- 3D printable and customizable implant
- Can incorporate into the osseous structure
- Eliminates need for bone grafting

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