Researchers at the University of South Florida have invented an osteotomy and graft preparation system, designed to increase surgical accuracy for orthopedic procedures involving long bone osteotomy with or without supplementation with allograft or autograft.

Allograft replacements in orthopedic tumor or trauma surgeries are fashioned from bulk specimens of treated cadaver bones. Current methods of cutting allograft replacement parts involve the use of electric reciprocating saws in conjunction with metal jigs that guide the saw blade. These saws are a lot more difficult to use during knee replacement surgeries due to the absence of such guides.

Our invention is a series of tools for use in the operating room that will aid both in the accurate resection of patient bone and the preparation of cadaver bone. The design includes using two devices with clamps and interchangeable jigs, one would be applied to the patient’s bone in surgery and the other would be used on the ‘back table’ in the operating room to prepare a reciprocal piece of allograft that would interdigitate with the patient.

This system aims to minimize the difficulties that are faced with long bone osteotomy such as; obtaining the desired final length, preventing malrotation of the osteotomized ends, ensuring exact fit of the united bone ends, and maintaining all of these elements with stability when final fixation is attached.

Our device would allow alignment of the graft, to preserve the desired mechanical and anatomical axes, rigid fixation of the graft for cutting, and adjustable jigs to ensure exact cuts.

**ADVANTAGES:**
- Obtains desired final length and exact cuts for accurate alignment
- Prevents malrotation of osteotomized ends
- Maintains mechanical and anatomic axes

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