

Introduction: Adult Deformity Section

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The term *adult reconstruction* within the orthopedic community of 2014 is typically associated with hip and knee joint replacement. In this atlas, the focus of the *Adult Deformity* section is different and is primarily on osteotomy for realignment, correction of leg length discrepancy (LLD), and reconstruction of bone defects. In the context of this book, this section will deal primarily with adult issues that do not neatly fit into the Foot and Ankle, Trauma/Post-traumatic Reconstruction, Tumor, and Upper Extremity sections.

The adult deformity section contains cases of realignment of varus and valgus deformities about the knee, extra-articular deformities in patients who need joint replacement, and failed knee replacement with bone loss and infection. Lengthening of a short residual limb after amputation to enhance prosthetic wear is also presented.

One of the biggest challenges in the adult patient is slower bone healing than in children. For this reason, techniques that integrate the use of internal and external fixation have emerged with the main benefit being a decrease in the time the patients need to wear the external fixator. Integrated fixation techniques of lengthening over a nail (LON), lengthening and then nailing (LATN), lengthening and then plating (LAP), and bone transport over a nail are featured in this chapter as well as in the Trauma, Foot and Ankle, and Pediatric sections.

The use of a fully motorized internal lengthening nail is a recent major advance in limb reconstruction surgery. Without any need for external fixation, bone lengthening may be accomplished adhering to the Ilizarov method. Femur and tibia lengthening and bone transport using internal lengthening implants are also featured in this section.

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