

Robotics in Orthopaedic Surgery

Robotic systems have been used in surgery since the 1980s and first became used in orthopaedic surgery in the early 1990s for use in planning of total hip replacements and optimal positioning of final implants. The use of robotic systems has subsequently increased, with promising short-term x-ray confirmed outcomes when compared with standard techniques in orthopaedic procedures. Robotic systems can be used as haptic (or surgeon-guided) devices. Haptic systems with continued technological improvements have become widely used in surgical procedures. Specifically, the use of tactile systems in unicompartmental knee replacement (UKR) has addressed some of the historical and well recognized mechanisms of failure of non-robotic UKR. These systems assist with increasing the accuracy of the alignment of the components and produce more consistent ligament balance. Short-term improvements in clinical and x-ray outcomes have increased the popularity of robot-assisted UKR. Robot-assisted orthopaedic surgery has the potential for improving surgical outcomes and returning patients to their desired level of activity. There are different types of robotic systems available for use in orthopaedics and considering the indications and limitations of these technologies are important for patients to understand.

The number of total joint arthroplasty procedures performed in the United States has steadily been increasing. However, the number performed utilizing robotic systems are very few in comparison. The evidence for the benefits of robotic systems is growing with short-term improvements in clinical and x-ray outcomes having been described. It is well known that patients are well informed about the benefits and have realistic expectations following conventional joint replacements. However, robotic systems in orthopaedic surgery are relatively new and it is important for patients to have realistic expectations in

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