The subspecialty of orthopedic traumatology has evolved over the past several decades. A field once relegated only to young surgeons willing to work through the night has developed into a popular specialty career choice that, in recent years, has attracted more applicants than available fellowship positions. The majority of trauma centers now provide a trauma room to care for most urgent injuries during daylight hours.

Surgical techniques and implants have been refined and advanced. For the severely injured patient, this often includes a damage control strategy in which temporary external fixation is applied and definitive fixation is undertaken only after the patient has been fully resuscitated and is no longer in a hyper-inflammatory state.

The use of minimally invasive surgical techniques with locked plate implants is a significant advance that has improved the management of specific injuries. The importance of preserving the soft tissues has been highlighted. Although not new concepts, at one time they were overlooked as surgeons focused on obtaining ideal-looking radiographs. Gathorne Robert Girdlestone1 (1881–1950) wrote that:

...there is danger inherent in the mechanical efficiency of our modern methods, lest the craftsman forget that union cannot be imposed but may have to be encouraged, for a bone is a plant with its roots in the soft tissues. When the vascular connections are damaged, it often requires not the technique of a cabinet maker but rather the patient care and understanding of a gardener.

By using minimally invasive approaches, surgeons can avoid the zone of injury while preserving blood supply to individual fragments, which decreases the risk of infection and nonunion.

From a basic science standpoint, significant progress has been achieved with modern bone substitutes used not only as a biocompatible filler for small bone defects, but also as metaphyseal support for periarticular fractures or a carrier for delivery of antibiotics. Reduction methods have also improved, and tools such as inflatable balloon tamps have rendered the reduction of depressed periarticular fractures more controlled and less invasive. Unfortunately, little literature has been published on the cost-effectiveness of bone substitutes and novel reduction tools. Does the mechanical support provided by the calcium phosphate in a periarticular fracture outweigh the costs? Will the better controlled reduction of a tibial plateau fracture using inflatable bone tamps predict a good functional outcome and justify the cost of the device?

Several questions remain unanswered in the field of orthopedic trauma. The amount of Level I evidence in the discipline is severely limited. We need better-quality research with well-elaborated research questions and protocols. We need greater collaboration between centers, such as the Major Extremity Trauma Research Consortium, to increase the power of our studies. Through these collaborative efforts, we can continue to advance the care of and improve outcomes for orthopedic trauma patients.

**Reference**