

Long Bone Shaft, Pelvis, and Acetabular Fracture Fixation in Polytrauma: Priorities in the Context of Traumatic Injuries of the Head, Chest, Abdomen, Spine, Spinal Cord, and Vasculature

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Purpose: Determining the appropriate treatment strategy and timing of definitive fracture fixation is crucial and has a relevant impact on systemic outcomes. In this regard, this study aimed to provide recommendations for the timing and sequence of fracture fixation in multiply injured patients, with an emphasis on concurrent injuries to the head, chest, abdomen, spine (including spinal cord), vasculature, and multiple extremity fractures.

Methods: We formed an international multidisciplinary expert panel and developed consensus statements using the Delphi method. This panel involved a total of 17 committee members from 4 continents and 11 countries. Starting in March 2023, statements were drafted to define conditions for each type of associated injury under which fracture fixation can be recommended based on the current literature. These statements underwent repeated modifications by the consensus group members in preparation for an in-person meeting, which was held September 13-14, 2023. During this meeting, the statements were discussed and finally voted on. The process was supported by a systematic literature review.

Results: A total of 20 consensus statements were prepared. Of these, 5 focused on traumatic brain injury, 3 on thoracic trauma, 4 on abdominal trauma, 3 on multiple extremity fractures, 3 on spinal injuries, and 2 focused on vascular injuries. Each topic was addressed individually with a summary of the literature review, a presentation by an expert in the field, and a moderated discussion. The panel discussed the conditions and exceptions for definitive fracture fixation. Overall, 78 publications and every statement were reviewed, and overwhelming consensus was achieved for all 20 statements, with 15 of them reaching 100%.

Conclusion: A total of 20 statements were developed on the timing of fracture fixation in patients with associated injuries. All statements agree that fracture fixation for major extremity injuries should be initiated within 24 hours of admission and completed within that time frame unless physiological or severe associated issues prevent the patient from going to the operating room.