

J Orthop Trauma. 2010 Mar;24 Suppl 1:S56-61. doi: 10.1097/BOT.0b013e3181d2efaf.

Ultrasound for fracture healing: current evidence.

Watanabe Y¹, Matsushita T, Bhandari M, Zdero R, Schemitsch EH.

Author information

Abstract

Low-intensity pulsed ultrasound (LIPUS) is a relatively new technique for the acceleration of fracture healing in fresh fractures and nonunions. It has a frequency of 1.5 MHz, a signal burst width of 200 micros, a signal repetition frequency of 1 kHz, and an intensity of 30 mW/cm2. In 1994 and 1997, two milestone double-blind randomized controlled trials revealed the benefits of LIPUS for the acceleration of fracture healing in the tibia and radius. They showed that LIPUS accelerated the fracture healing rate from 24% to 42% for fresh fractures. Some literature, however, has shown no positive effects. The beneficial effect of acceleration of fracture healing by LIPUS is considered to be larger in the group of patients or fractures with potentially negative factors for fracture healing. The incidence of delayed union and nonunion is 5% to 10% of all fractures. For delayed union and nonunion, the overall success rate of LIPUS therapy is approximately 67% (humerus), 90% (radius/radius-ulna), 82% (femur), and 87% (tibia/tibia-fibula). LIPUS likely has the ability to enhance maturation of the callus in distraction osteogenesis and reduce the healing index. The critical role of LIPUS for fracture healing is still unknown because of the heterogeneity of results in clinical trials for fresh fractures and the lack of controlled trials for delayed unions and nonunions.

PMID: 20182238 [PubMed - indexed for MEDLINE]



MeSH Terms

LinkOut - more resources

PubMed Commons

[PubMed Commons home](#)

0 comments

[How to join PubMed Commons](#)