

Intermittent Pneumatic Compression in Rehabilitation and Sports Medicine: Review

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Abstract

The purpose of the study was to characterize the clinical value of intermittent pneumatic compression in sports medicine according to the scientific literature. Materials and methods. The English-language publications refereed by the PubMed electronic database, by the keyword “intermittent pneumatic compression”, concerning sports achievements, physiology of athletes, sports rehabilitation and also the treatment of injuries were analyzed. Results and discussion. Hardware for intermittent pneumatic compression develops rapidly in sports rehabilitation, while a significant number of practitioners use intermittent pneumatic compression in combination with other means, which makes it difficult to assess its effectiveness. Traumatic risk is a reality of the professional activity of athletes. In several reviews of the literature, it was shown that the use of intermittent pneumatic compression after injuries can reduce thrombus formation, swelling and duration of preoperative preparation for fractures, reduce swelling and improve joint mobility after fractures, improve wound and fracture healing. During the rehabilitation period, intermittent pneumatic compression allows to reduce limb dysfunction after sprain, increase joint mobility, and enhance the effectiveness of occupational therapy measures. Conclusion. Skeletal muscles are undoubtedly the target organ of intermittent pneumatic compression, but the optimal parameters of exposure need to be clarified. During exercise, intermittent pneumatic compression improves vascular conductivity, and during the recovery period it reduces muscle proteolysis, increases blood flow and tissue oxygenation. Intermittent pneumatic compression does not appear to affect muscle strength and performance recovery. Intermittent pneumatic compression may help reduce delayed muscle pain syndrome, but the optimal conditions for such an effect need to be investigated. In trauma, in particular sprains and fractures, the use of intermittent pneumatic compression can reduce pain and the need for narcotic analgesics, especially in the early stages. The use of intermittent pneumatic compression can reduce swelling and shorten the duration of preoperative preparation for fractures, subsequently improving joint mobility, wound and fracture healing. After surgery or removal of immobilizers, intermittent pneumatic compression reduces swelling, improves limb function, and reduces hospital stay. When using intermittent pneumatic compression in work with athletes, the practitioner must also take into account its reparative, adaptive and other general effects. Intermittent pneumatic compression is a promising sports medicine tool, but the existing data are completely insufficient to make firm recommendations

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