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# Recommendations for use of extracorporeal shockwave therapy in sports medicine: an international modified Delphi study

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## Abstract

**Objectives:** While extracorporeal shockwave therapy (ESWT) may be an efficacious adjunctive treatment option for musculoskeletal injuries, current research is limited by significant heterogeneity within treatment protocols. This study aims to establish international expert consensus recommendations on ESWT terminology, parameters, procedural considerations, contraindications and side effects in the application of ESWT to sports injuries.

**Methods:** A systematic literature search was performed on the use of ESWT for musculoskeletal and sports medicine injuries to identify potential panellists, followed by the development of a steering committee-led questionnaire. A three-stage, modified Delphi questionnaire was provided to a panel of 41 international clinical and research experts across 13 countries. Panellists had the opportunity to suggest edits to existing statements or recommend additional statements in Round 1. Consensus was defined as  $\geq 75\%$  agreement.

**Results:** All 41 panellists completed Rounds 1, 2 and 3. Consensus was reached on 69/118 statements (58.5%), including recommendations on terminology and fundamental concepts, indications for use, procedural aspects for tendinopathy and bone pathologies, treatment correlations with imaging, periprocedural and postprocedural considerations, absolute and relative contraindications and potential side effects. Of the 49 statements that did not reach consensus, 17/49 (34.7%) were related to procedural aspects of bone pathology.

**Conclusion:** This international panel presents recommendations on ESWT terminology, indications and treatment considerations to guide ESWT use and decision-making by sports medicine clinicians. While our panel supported the use of ESWT in the treatment of bone pathologies, certain procedural aspects of ESWT specific to these injuries did not reach consensus and require further investigation.

**Keywords:** Consensus; Sports medicine; Tendinopathy.

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