

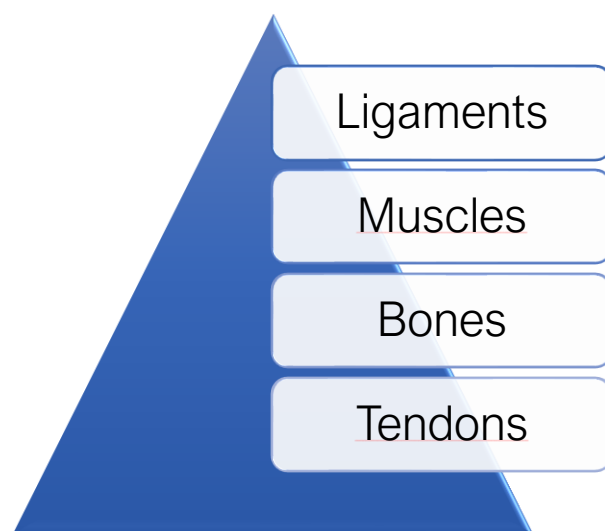
ESWT in sports medicine - update in 2023

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As early as at the summer olympic games in Atlanta in 1996, Prof. Heinz Lohrer from Germany has started the application of focused ESWT in olympic sports in the olympic village with a electromagnetic focused ESWT device. Since then, both in summer and winter olympic games ESWT has been offered to the olympic athletes to facilitate healing in a needle-free fashion.

When it comes to the evidence in a sports-specific environment, numerous studies have shown beneficial effects of ESWT on painful tendons. Various effects play a role like stem-cell activation, modulation of inflammation as well as lubricin stimulation in tendons. The combination of radial pressure wave and focused ESWT appear to have synergistic effects (Saxena et al., 2019) in painful Achilles tendons. Shearwave elastography is revealing immediate changes of the stiffness after combined radial pressure wave and focused ESWT (Knobloch, 2023).

For stress-fractures and bone edema in sports medicine, focused ESWT has been reported to be accelerating the bony healing and thus, return to play time quite tremendously. Focused ESWT following antegrade screwing in Jones fractures could accelerate return to play in Japanese J1 soccer players by 26 days vs. surgery alone.



In muscle injuries, satellite cell stimulation (Zissler et al. AJSM 2016), detonization via muscle spindles similar to the ESWT effect in spasticity, improved muscular microcirculation as well as anti-fibrotic effects may contribute to faster muscular healing. In German soccer Bundesliga, radial pressure wave therapy improved return to play up to 55% vs. standard treatment (Morgan et al., 2021).

In May 2023, Patrick Weninger from Austria has shown an improved outcome of ACL patients (n=65) with less pain and improved IKDC and Lysholm scores with focused electromagnetic ESWT (0.25mJ/mm², 3 sessions in postoperative week 4/5/6).