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CHANGES IN NERVE CONDUCTION VELOCITIES IN MUSICIANS: A SYSTEMATIC REVIEW.

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Background: Musicians are exposed to repetitive, skilled, and prolonged upper limb movements during practice and performance, which may predispose them to playing-related musculoskeletal disorders (PRMDs). Continuous stress on peripheral nerves due to overuse, repetitive movements, and awkward postures may lead to changes in nerve conduction velocities (NCV), particularly in the median, ulnar, and radial nerves. However, limited information is available regarding peripheral nerve involvement in musicians, especially across different instrument groups and performance demands, and varying levels of expertise.

Purpose: This study aimed to systematically review literature on NCV changes in musicians.

Methods and Materials: A literature search was conducted for studies published between 2010 and 2025 using PubMed, Scopus, ScienceDirect, PEDro, and Google Scholar. Studies with fewer than 20 participants, non-English articles, and non-musician populations were excluded. The review followed PRISMA guidelines, and data extraction was performed using the PICO framework.

Results: Out of 30 identified studies, 20 met the inclusion criteria. Most studies reported altered nerve conduction parameters in musicians, especially in the median and ulnar nerves of the dominant upper limb. Reduced conduction velocity, prolonged distal latency, and decreased amplitude were commonly reported. These changes were frequently observed in instrumentalists exposed to repetitive hand movements and sustained postures. Some studies also reported subclinical neuropathic changes in musicians compared to controls.

Conclusion: Musicians are at increased risk of developing NCV alterations due to repetitive strain and sustained postures. Early identification, preventive strategies, and physiotherapy interventions are important to reduce neuromuscular stress and prevent long-term complications and improve occupational health outcomes, performance efficiency, and career longevity.

Keywords: Musicians, Nerve conduction velocity, Peripheral neuropathy, Repetitive strain, Upper limb