



Effects of Low-energy Shock Waves on Oral Bacteria

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Abstract

We have recently demonstrated that extracorporeal shock-wave therapy (ESWT) is effective in promoting the healing of dermal wounds and in regenerating alveolar bone lost through periodontal disease. The objective of the present study was to determine any antibacterial effect of ESWT on oral bacteria. Monoculture suspensions of 6 bacterial species were treated with 100 to 500 pulses of ESWT at energy flux densities (EFD) of 0.12 mJ/mm², 0.22 mJ/mm², and 0.3 mJ/mm². Following treatment, aliquots were plated for viability determination and compared with untreated controls. ESWT showed a significant microbicidal effect for *Streptococcus mutans* and an unencapsulated strain of *Porphyromonas gingivalis* following as few as 100 pulses at 0.3 mJ/mm² ($p \leq 0.001$). In addition, a significant disruption of bacterial aggregates was observed at lower EFDs. No significant reduction in viability was observed for all other bacteria at EFDs and pulses tested ($p > 0.05$). These findings suggest that low-energy ESWT may be bactericidal for selected oral bacteria.

[shock waves](#) [therapy](#) [oral bacteria](#)

Low-energy extracorporeal shock-wave therapy may be bactericidal for selected oral bacteria.