Fatigue and fracture of wires and cables for biomedical applications

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Gbur and Lewandowski, of Case Western Reserve University, have published an extensive review of the fatigue and fracture behavior of wire-based systems used in biomedical applications in *International Materials Reviews*.

The drive towards minimally invasive surgeries, along with emerging applications in the neurostimulation market and neuroprosthetic technologies, requires materials and architectures with a high level of reliability. Fine wires, strands, cables and coils comprise a variety of implantable devices and tools that play a critical role in the treatment of a large array of medical diagnoses.

For the first time, this comprehensive article offers a discussion and summary of the common materials systems, testing methodologies, fatigue data, modeling and fracture characteristics. This research compiles and plots legacy data in order to allow readers a more convenient method of comparison and to illustrate the variability residing in published works conducted using different testing techniques. The effects of changes in material composition, processing and test conditions on the fatigue and fracture behavior are discussed and recommendations for future work are also provided.

More information: J. L. Gbur et al. Fatigue and fracture of wires and cables for biomedical applications, *International Materials Reviews* (2016). DOI: 10.1080/09506608.2016.1152347