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Abstract:

Neurorehabilitation is in the midst of a paradigm shift that is centered around our understanding of neural plasticity. Decades of basic science research are now coalescing into clinical principles that are changing physical, occupational and speech language therapy. The specific behavioral and neural signals driving neural plasticity and functional improvement after brain injury and disease are being characterized and guiding the development of novel therapies. While many adjuvant or device assisted therapies to drive neural plasticity show promise, they have yet to be proven and accepted into standard rehabilitation therapies. However, our knowledge of the key behavioral signals driving plasticity can be incorporated into any clinical setting. The current state of plasticity based therapies will be reviewed and a framework for incorporating principles of plasticity into the clinic will be discussed.