

Researchers explore five new avenues for rehabilitation research

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Because the concept of permanent neurological injury has given way to recognition of the brain's potential for long-term regeneration ad reorganization, rehabilitations strategies are undergoing radical changes. The potential for five new translational interventions was examined in an article published ahead of print on November 13 by *Neurology Clinical Practice*.

Medical resources are limited, so it is important to focus on areas of greatest potential, according to Dr. Barrett, and strive for advances that translate to effective treatments in the shortest possible timeframes. An emphasis on experience-dependent learning is advised, as well as biological techniques that induce a permissive state for the development of new, optimal, functional brain activation patterns. "The five treatments we identified are based on behavioral (1, 2, 3), or non-invasive physiological stimulation (4, 5)," said Dr. Barrett. "While these have been explored primarily in stroke rehabilitation, they are potentially applicable to other <u>neurological conditions</u> such as <u>brain injury</u>, spinal cord injury and multiple sclerosis."

- Constraint-induced movement therapy, and other intensive, experience-dependent learning, may improve rehabilitation outcomes in people with hemiparesis from stroke and other brain disorders.
- Constraint-induced language therapy, and other methods to stimulate speech and motor output, may improve rehabilitation outcomes in aphasia.



- Prism adaptation therapy, and therapies using virtual feedback and implicitly integrating 3-D motor and perceptual function, may improve function in spatial neglect.
- Transcranial magnetic stimulation may induce a permissive brain state therapeutic for depression and promoting better motor and cognitive recovery.
- Transcranial direct current stimulation might promote better mood, motor and cognitive rehabilitation outcomes, and has an appealing risk/cost profile for feasible future implementation.

More information: Barrett AM, Oh-Park M, Chen P, Ifejika NL: Five New Things in Neurorehabilitation. <u>DOI:</u>

<u>10.1212/01.CPJ.0000437088.98407.fa</u>. Drs. Barrett, Oh-Park and Chen are affiliated with Kessler Foundation. Dr. Ifejika is with the University of Texas Medical School at Houston.

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