Clinical Image

Exclusive Image Gallery on Human Spinal Cord Regeneration

Giselher Schalow*
MD, PhD, Untere Kirchmatte 6, CH-6207 Nottwil, Switzerland

Received: 22 May, 2019
Accepted: 15 June, 2019
Published: 16 June, 2019

*Corresponding author: Giselher Schalow, Professor, Untere Kirchmatte 6, CH-6207 Nottwil, Switzerland, E-mail: g_schalow@hotmail.com

https://www.peertechz.com

Figure 15: The potential, \( V(\phi) \), of the coordination dynamics for jumping on springboard (D, Nefeli) of a healthy (A) and injured CNS (B,C). The region around each local minimum acts like a well that weakly traps the system into a coordinated state. Behavioral changes are represented by the over-damped movement of a rolling ball in the potential "landscape". High fluctuations (indicated by long arrows attached to the ball (network state)) in the stable state, due to high variability of phase and frequency coordination (in the injured case), will have a greater probability of "kicking" the system out of the basins of attraction (B,C) than for low fluctuations (short arrows) (A), due to small variability of phase and frequency coordination (in A). In B, only the in-phase jumping is stable, even though the fluctuation is high. In C there is only an attractor basin for the in-phase jumping, but the fluctuation is so high that there is a high probability that the system is kicked out of the basin of attraction. The patient can no longer jump in anti-phase and has difficulty with jumping in-phase. The stability of jumping depends on the motor program (deepness of basin of attraction) and the fluctuation of the pattern state (moving of the ball) caused by the increased variability of phase and frequency coordination due to the injury.

Copyright: © 2019 Schalow G. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.