



<p>O'Neill and Findlay (2014). Single case methodology in neurobehavioural rehabilitation: Preliminary findings on biofeedback in the treatment of challenging behaviour. <i>Neuropsychol Rehabil</i>, 24(3-4):365-381.</p>	<p>RoBiNT score - 10/30</p>
<p>Method / Results</p>	<p>Rehabilitation Program</p>
<p>Design</p> <ul style="list-style-type: none"> • Study Type: SCD. AB design (A – baseline, B – intervention), with replication across another participant. • Population: Two males (ages 33 and 18) having history of brain injury post road accidents with varying neurocognitive profiles. • Setting: Specialised rehabilitation hospital. <p>Target behaviour measure/s:</p> <ul style="list-style-type: none"> • Reduction in challenging behaviours (self-injury, verbal and physical aggression) exhibited by participants after use of biofeedback device. <p>Primary outcome measure/s:</p> <ul style="list-style-type: none"> • Reduction in number of incidents of aggression to self and others measured by Overt Aggression Scale Modified for Neurorehabilitation (OAS-MNR). <p>Results: Participants showed decrease in challenging behaviours of aggression directed towards self and others after use of <i>emWave2</i> biofeedback device. However, significant change was only seen in one participant. Both participants reported subjective change to use of device and continued use after intervention period.</p>	<p>Aim: To evaluate effects of the <i>emWave2</i> heart rate variability (HRV) biofeedback device on reducing challenging behaviours after brain injury.</p> <p>Materials: <i>emWave2</i> biofeedback device (portable) that provides feedback on HRV via light-emitting diode (LED) display, sounds and computer interface. It also provides support for breath pacing using a moving LED display.</p> <p>Treatment Plan:</p> <ul style="list-style-type: none"> • Duration: Participant 1: 19 months. Participant 2: 40 days. • Procedure: One 10-20 minute supervised biofeedback / feedback session conducted per day, usually starting at 10am. Rehabilitation support workers collected behavioural data through measures of challenging behaviour weekly for Participant 1 and daily for Participant 2. • Content: Participants were taught how to reach a 'coherent state' as per the <i>emWave2</i> Owner's Manual. This is similar to a meditative state, based on autonomic nervous system activity. The device was introduced as an experimental device that has effect on a person's resilience to stress. Participants were instructed to inhale and exhale as lights of the LED pacing display rose and fell, and to also maintain attentional focus in the region of the heart. The goal was to increase 'coherence' by observing feedback gained through monitoring HRV.

Note that these rehabilitation summaries reflect the current literature and the treatments are not necessarily endorsed by members of the NRED Team.