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NanoVi Exo® - Case Report

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Improvements in Fatigue, Mood, and Neurovascular Function With Daily NanoVi Exo® Sessions: A Case Report in a 65-Year-Old Female

ABSTRACT

Background: This case report describes the outcomes of a 30-day wellness intervention using the NanoVi Exo® device in a 65-year-old woman. The device is intended to support general well-being and assist the body's natural recovery processes through non-invasive daily sessions.

Case Description: A.J., a 65-year-old female, engaged in daily 20-minute sessions with the NanoVi Exo® device for 30 days. Validated questionnaires were completed at baseline, day 15, and day 30, including the MOS Sleep Scale, DASS-21, Chalder Fatigue Scale (CFS), and PROMIS-29. Physiological assessments were conducted at baseline and after the intervention using photoplethysmography (PPG Stress Flow) and hemoencephalography (HEG) from Biotekna (Italy). Changes from baseline were expressed as percentages to evaluate improvement over time.

Results: Improvements in sleep quality were observed, with MOS Sleep Scale Index I decreasing by 50% at day 15 and 17% at day 30. Index II improved by 56% at midpoint and 37% at final. DASS-21 results showed that stress levels decreased by 75%, while anxiety decreased by 100% at midpoint and remained 50% below baseline at final. Depression remained unchanged at midpoint but improved by 100% at final. Fatigue, assessed by the CFS, showed consistent reductions: total fatigue decreased by 13% at midpoint and 38% at final, physical fatigue by 20% and 50%, and mental fatigue by 17% at final (no change at midpoint). PROMIS-29 results indicated a 19% increase in physical function maintained at both time points. PROMIS anxiety remained stable at midpoint but declined by 21% at final. Depressive symptoms showed no change. Fatigue decreased by 31% at midpoint and 11% at final. Sleep disturbance scores improved by 9% at midpoint and 13% at final. The participant also reported a 23% improvement in social role participation at day 15 and a 52% increase by day 30. Pain interference remained unchanged, while pain score decreased by 100% at midpoint and returned to baseline at final. Physiological data reflected improvements in autonomic and cerebral function. Mean heart rate decreased slightly by 2%, while SDNN increased by 70%, RMSSD by 89%, and total power by 17%. HEG assessment revealed a 40% increase in regional cerebral oxygenation (rCBO2) and a 45% increase in cerebral blood flow (CBF).

Conclusion: This 30-day NanoVi Exo® wellness intervention was associated with improvements in sleep quality, fatigue, mood, and indicators of autonomic and neurovascular function in a 65-year-old woman. Increases in HRV metrics—particularly RMSSD and SDNN—were consistent with enhanced parasympathetic modulation. These findings support further exploration of the NanoVi Exo® device as a supportive wellness tool in aging populations.

Table 1. Questionnaire Results

Baseline	Midpoint	Final
MOS Sleep Scale – Index I		
20	10	16.7
MOS Sleep Scale – Index II		
25.6	11.3	16.1
DASS21 – Depression		
1	1	0
DASS21 – Anxiety		
2	0	1
DASS21 – Stress		
4	1	1
Chalder Fatigue Scale– Total		
16	14	10
Chalder Fatigue Scale– Physical		
10	8	5
Chalder Fatigue Scale – Mental		
6	6	5
PROMIS-29 Physical Function		
48	56.9	56.9
PROMIS-29 Anxiety		
51.2	51.2	40.3
PROMIS-29 Depressive Symptoms		
41	41	41
PROMIS-29 Fatigue		
48.6	33.7	43.1
PROMIS-29 Sleep Disturbances		
50.5	46.2	43.8
PROMIS-29 Ability to Participate in Social Roles and Activities		
42.3	51.9	64.2
PROMIS-29 Pain Interference		
41.6	41.6	41.6
PROMIS-29 Pain Score		
1	0	1

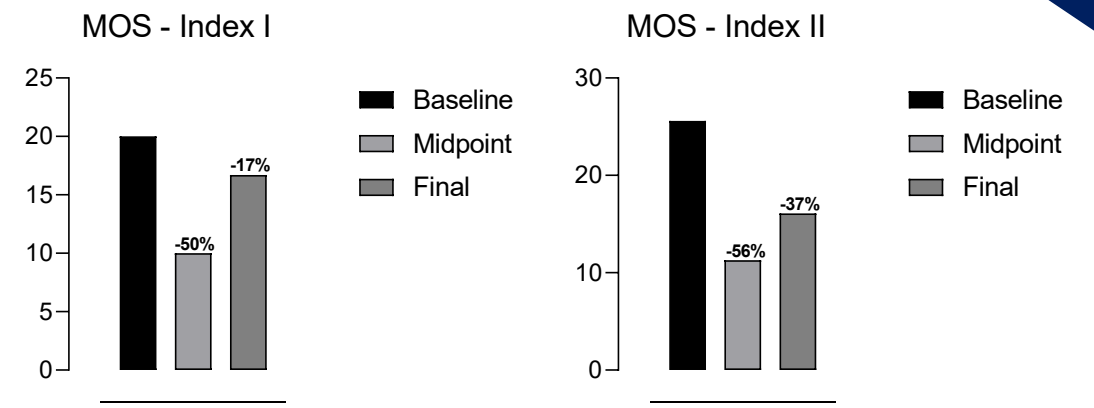

Figure 1. Changes in Sleep Quality Over 30 Days as Measured by the MOS Sleep Scale (Index I and II)

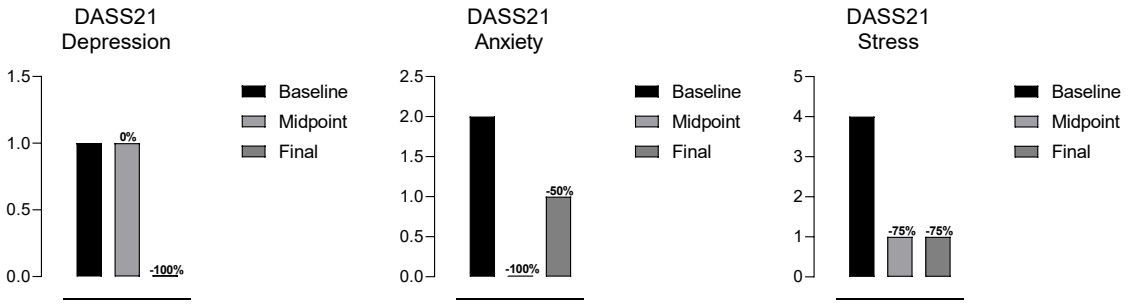

Figure 2. Reduction in Depression, Anxiety, and Stress Symptoms Assessed by the DASS-21 Questionnaire

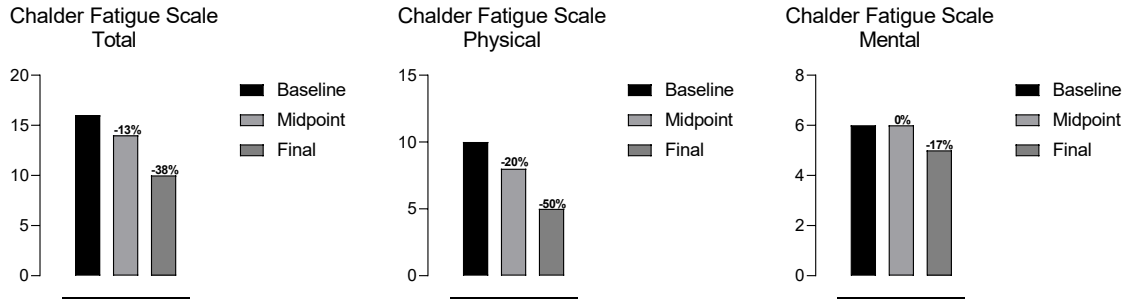

Figure 3. Reduction in Total, Physical, and Mental Fatigue Over 30 Days as Measured by the Chalder Fatigue Scale (CFS)

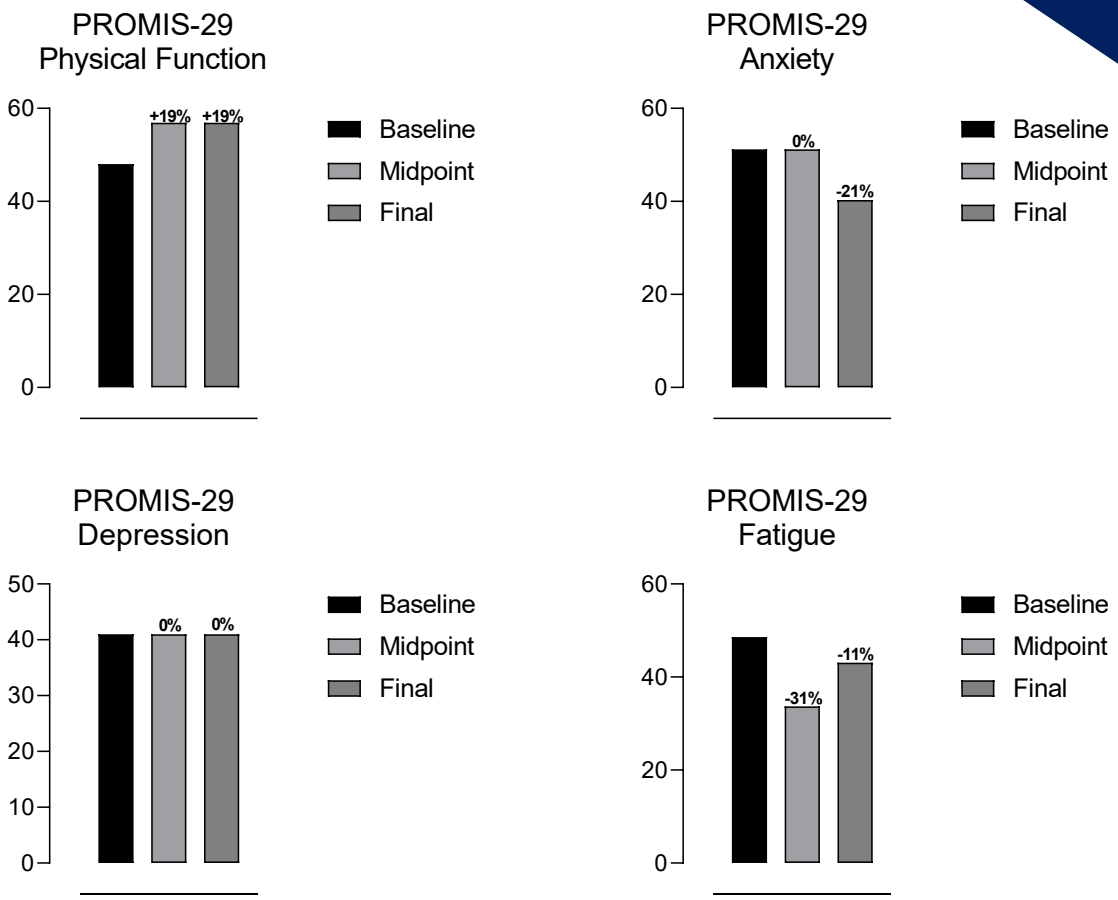

Figure 4. PROMIS-29 Outcomes: Physical Function, Anxiety, Depressive Symptoms, and Fatigue

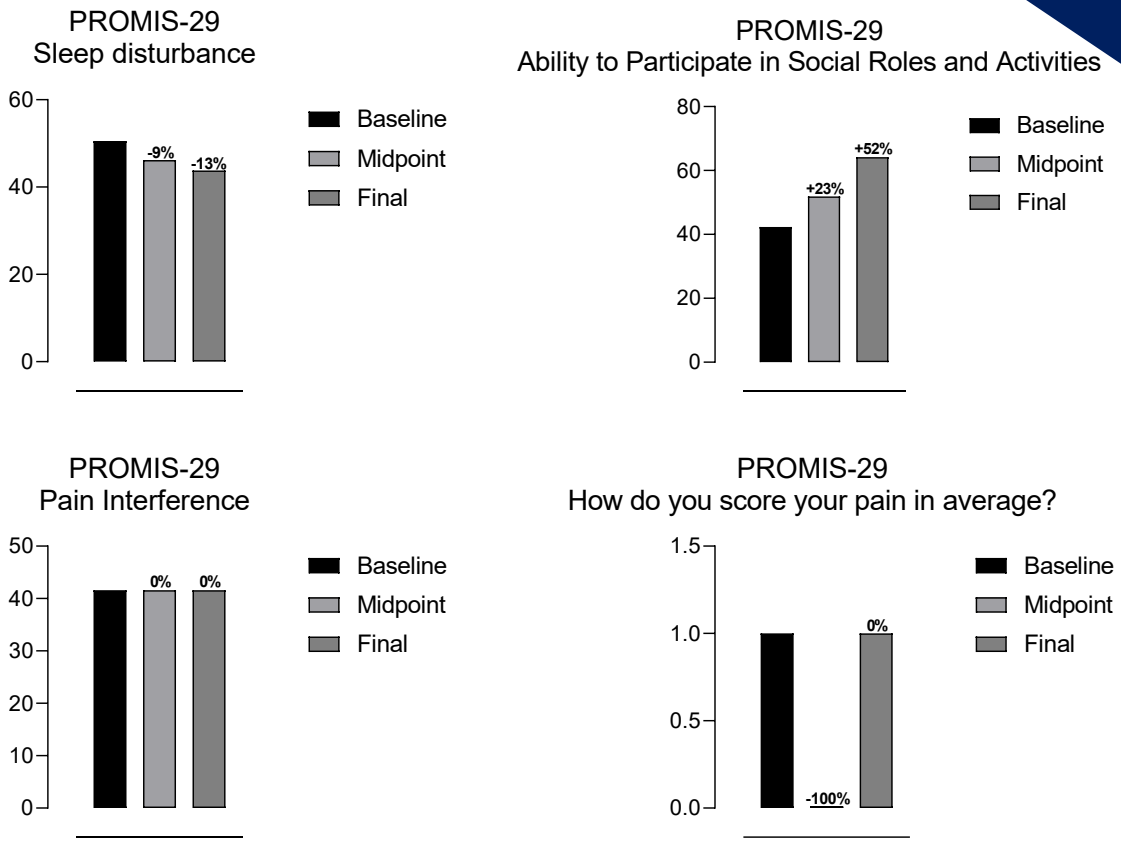

Figure 5. PROMIS-29 Outcomes: Sleep Disturbance, Social Participation, Pain Interference, and Pain Score

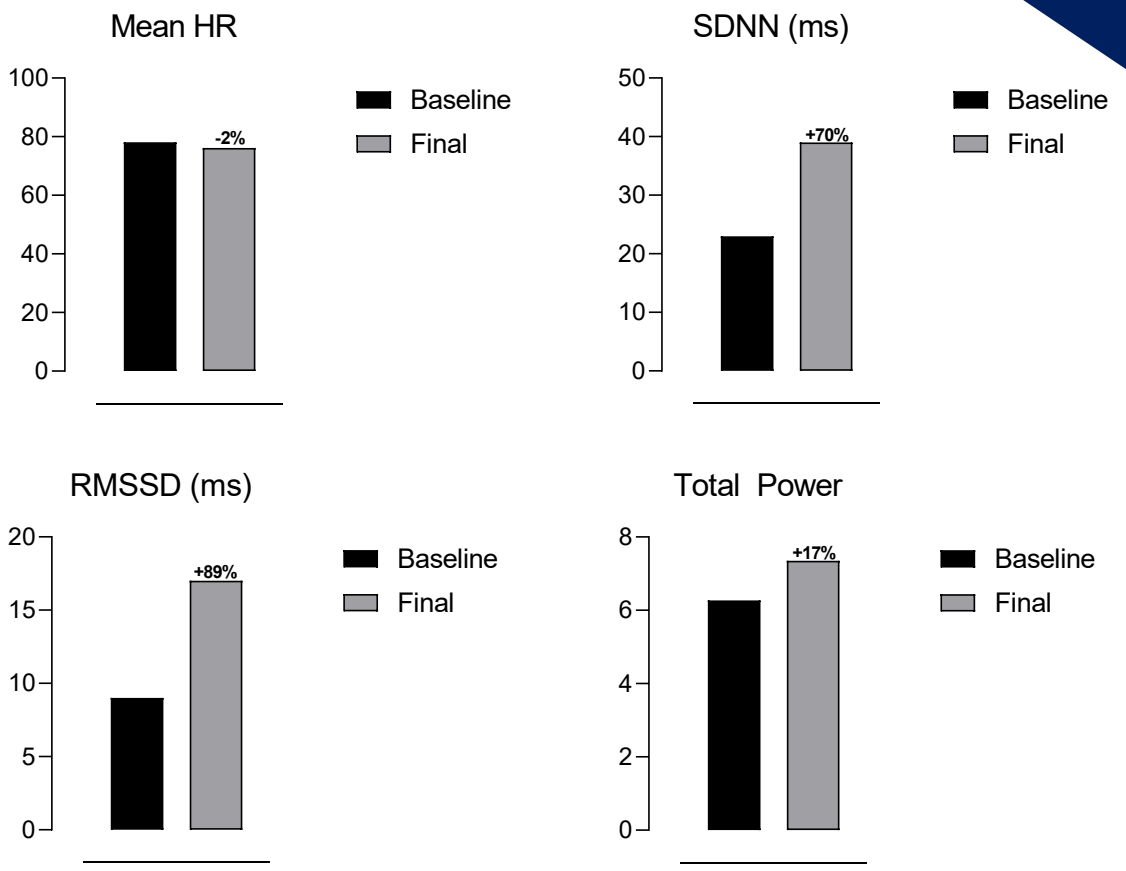

Figure 6. Heart Rate Variability Changes Measured by PPG Before and After the 30-Day Intervention.

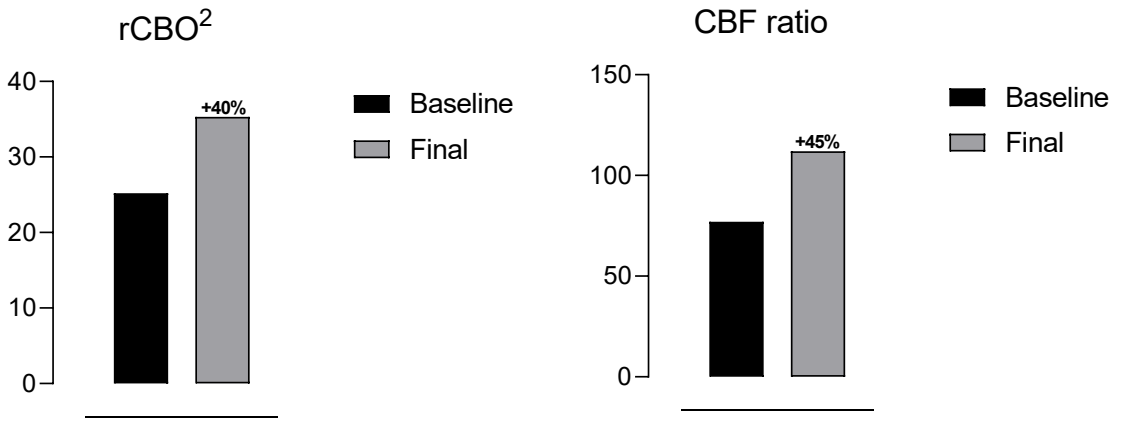

Figure 7. Changes in Regional Cerebral Oxygenation and Cerebral Blood Flow (CBF) After 30 Days of NanoVi Exo® Use as Measured by HEG

ABOUT US

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