

Local and Widespread Hypoalgesic Effects of Neurodynamic Mobilization in Asymptomatic Subjects

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Introduction

- Neurodynamic Mobilization (NDM) utilized to treat pain for decades
- Viewed as potential intervention for chronic widespread pain (CWP)
- Local and central mechanisms of hypoalgesia proposed, but conflicting research to support both
- AIM: Aim: To assess the immediate local and widespread hypoalgesic effects of NDM applied to the upper extremity of asymptomatic subjects.
 - Hypothesis 1: Subjects receiving NDM will exhibit greater changes in local and widespread QST measures compared to those receiving sham NDM.
 - Hypothesis 2: Subjects receiving sliders will exhibit greater changes in local and widespread QST measures compared to those receiving tensioners.

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Methods

Tested bilaterally for all outcomes

- Local: L Thenar Eminence
- Widespread (WS): Mean of others

**Reference in Motion. Used with authorization.*

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Results

Outcome	Group	Pre (mean ± SD)	Post (mean ± SD)	Pre-Post Change (Mean, 95% CI)	P-Values: Within-Group Change	P-Values: Between-Group Difference
Local PPT (kg)	- Slider*	5.80 ± 1.93	5.50 ± 2.25	-0.30 (-1.08 to 0.47)	.43	.67
	- Tensioner**	5.87 ± 2.54	5.50 ± 2.32	-0.36 (-1.36 to 0.64)	.85	
	- Sham**	4.79 ± 2.00	4.52 ± 1.77	-0.27 (-0.86 to 0.32)	.36	
WS PPT (kg)	- Slider**	5.97 ± 2.02	6.75 ± 2.42	0.78 (0.14 to 1.42)	.02*	.30
	- Tensioner**	6.74 ± 2.43	6.85 ± 2.37	0.10 (-0.38 to 0.58)	.66	
	- Sham**	5.08 ± 1.35	5.39 ± 2.08	0.31 (-0.32 to 0.95)	.32	
Local TPT (°C)	- Slider**	41.76 ± 3.23	43.36 ± 3.59	1.60 (0.50 to 2.70)	.01*	.11
	- Tensioner**	42.27 ± 3.48	44.28 ± 3.02	2.01 (0.71 to 3.30)	.004*	
	- Sham**	42.00 ± 3.45	42.56 ± 2.93	0.56 (-0.71 to 1.83)	.37	
WS TPT (°C)	- Slider**	42.51 ± 2.88	43.94 ± 2.78	1.43 (0.73 to 2.14)	<.001*	.88
	- Tensioner**	43.00 ± 2.92	44.34 ± 2.88	1.33 (0.64 to 2.02)	.001*	
	- Sham**	41.66 ± 2.94	43.07 ± 2.57	1.41 (0.62 to 2.20)	.001*	
Local TPToI (°C)	- Slider**	46.97 ± 3.23	48.15 ± 2.91	1.18 (0.49 to 1.87)	.001*	.51
	- Tensioner**	47.91 ± 2.86	48.86 ± 1.50	0.95 (0.20 to 1.69)	.004*	
	- Sham**	47.46 ± 2.15	48.07 ± 2.04	0.61 (0.13 to 1.08)	.02*	
WS TPToI (°C)	- Slider**	47.59 ± 1.90	48.45 ± 1.45	0.86 (0.56 to 1.16)	<.001*	.34
	- Tensioner**	47.79 ± 1.77	48.44 ± 1.63	0.65 (0.31 to 0.98)	.001*	
	- Sham**	47.06 ± 2.80	47.67 ± 1.68	0.61 (0.28 to 0.94)	.001*	

Within-group analysis: paired t-test
***Wilcoxon signed rank test*
Between-group analysis: Kruskal-Wallis H-test
**Significant finding (p < 0.05)*

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Conclusion

- Multiple statistically significant within-group changes observed, but no significant interaction between groups
- In asymptomatics, ULNT2a NDM may be no more effective than sham
- Limitations:
 - Healthy and relatively young subjects
 - Was the "sham" truly a sham?
- Potential Future Directions:
 - Replication in with larger sample size or in symptomatic population
 - Further exploration of potential for true NDM with technique used

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