

Effects of Self Natural Posture Exercise (SNPE) on Fitness, Functional Movement, Range of Motion, and Pain Perception



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ABSTRACT

INTRODUCTION

Self Natural Posture Exercise (SNPE) is a posture recovery exercise originally idealized and designed from the crooked teeth and dental prosthesis. This exercise is claimed to relieve muscle tension, to correct posture by restoring the unbalanced body, to help recovering musculoskeletal function, and to alleviate pain. The purpose of this study is to examine the effect of SNPE on physical fitness, range of motion (ROM), functional movement, and pain perception in adult women with chronic musculoskeletal pain.

METHODS

Thirty women experiencing chronic musculoskeletal pain volunteered in this study (29.3±6.5 yrs, 23.5±4.0 kg/m²), and were divided into 3 groups; non-exercise group (NE), stretching group (SG), and SNPE group (SNPEG). Subjects of SG and SNPEG underwent a 2-3 sessions per week training program for 4 weeks. Before and after the program, their fitness such as flexibility and muscular strength was tested. Range of motion (ROM) of neck, shoulder, waist, hip, knee, and ankle, and Functional Movement Screen (FMS) were evaluated. Pain perception was evaluated by Visual Analogue Scale (VAS). NE participated in all tests, but not in any training program. To compare group differences, one-way ANOVA with repeated measures were employed.

RESULTS

After the program, the back extension as flexibility increased significantly in SNPEG ($P<0.05$), but decreased in NE and SG. Grip and back strength tended to decrease in all three groups but not statistically significant. The lateral rotation of neck increased in SG and SNPEG ($P<0.05$). The shoulder external rotation increased in all three groups, but only statistically significant in SNPEG ($P<0.05$). The waist flexion increased in SNPEG ($P<0.01$), while decrease in SG, and no change in NE. The hip rotation in SNPEG and NE increased significantly ($P<0.01$). No changes were noticed in the knee and ankle ROM. For the FMS, SNPEG and SG showed significant improvement ($P<0.01$) while not in NE. VAS in cervical area was not different between pre- and post-training test in all groups, but VAS in scapular area decreased significantly in SNPEG only ($P<0.05$). VAS in hip area decreased in all groups ($P<0.05$). VAS in gastrocnemius muscles decreased both in SNPEG and SG ($P<0.05$).

CONCLUSION

This study demonstrated that the 4 weeks of SNPE training provided beneficial effects on flexibility, ROM, FMS, and VAS. The results suggest the effectiveness of SNPE for those adult women of suffering chronic musculoskeletal pain.

INTRODUCTION & PURPOSE

- SNPE is a posture recovery exercise originally idealized and designed from the crooked teeth and dental prosthesis. SNPE is a new paradigm exercise that corrects deformation of the spine and pelvis by using body correction belts and various equipment. This exercise is claimed to relieve muscle tension, to correct posture by restoring the unbalanced body, to help recovering musculoskeletal function, and to alleviate pain.
- The purpose of this study is to examine the effect of SNPE on physical fitness, ROM, functional movement, and pain perception in adult women with chronic musculoskeletal pain.

METHODS

PARTICIPANTS

- Thirty women experiencing chronic musculoskeletal pain volunteered in this study (29.3±6.5 yrs, 23.5±4.0 kg/m²).
- They were divided into 3 groups; NE, SG, SNPEG.

EXPERIMENTAL PROCEDURES

- Subjects with SG and SNPEG received 2-3 training sessions per week for 4 weeks.
- NE participated in all tests but did not participate in any training programs.
- All Participants were tested before and after the program.
- Back strength and grip strength were measured to evaluate muscle strength.
- Trunk ex.-backward and Trunk flex.-forward were measured to evaluate flexibility.
- The neck, shoulders, waist, pelvis, knees and ankles were measured for the ROM assessment.
- FMS was measured to evaluate the movement function.
- Trigger points were measured using VAS to assess pain levels for each site.

STATISTICAL ANALYSIS

- To compare group differences, one-way ANOVA with repeated measures were employed.

CONCLUSION

- This study demonstrated that the 4 weeks of SNPE training provided beneficial effects on flexibility, ROM, FMS, and VAS.
- The results suggest the effectiveness of SNPE for those adult women of suffering chronic musculoskeletal pain.

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RESULTS

Table 1. Measurements result

		Group	Pre	Post	F	P	Contrasts	M±SD
Fitness	strength (kg)	back	NE	90.4±16.6	90.5±21.8	0.248	0.782	
		SG	86.7±11.0	84.3±16.1				
		SNPEG	63.1±10.1	62.7±7.1				
	grip	NE	28.8±5.1	27.9±5.3	0.503	0.611		
		SG	26.0±3.5	25.7±3.3				
		SNPEG	23.3±10.5	22.2±1.9				
flexion (cm)	Trunk ex.-backward	NE	47.8±8.7	49.5±7.8	3.926	0.033	NE, SG< SNPEG	
		SG	48.2±11.5	51.4±6.7				
	Trunk flex.-forward	NE	18.0±9.2	18.0±8.6	0.786	0.467		
		SG	22.0±5.7	22.0±6.5				
Functional Movement	FMS (total score)	NE	12.2±1.8	12.1±1.9	7.921	0.002	NE<SG, SNPEG	
		SG	13.2±2.3	14.9±1.7				
		SNPEG	11.9±1.8	12.6±2.3				
ROM	neck (°)	rotation	NE	57.8±20.2	62.1±13.3	3.220	0.050	NE<SG, SNPEG
		SG	49.4±9.2	64.6±8.0				
		SNPEG	56.6±18.9	53.7±8.9				
	shoulder (°)	internal rotation	NE	60.9±12.1	65.3±14.8	4.182	0.028	SG, SNPEG<NE
			SG	73.8±24.6	57.8±13.0			
			SNPEG	72.0±14.2	62.4±14.4			
	external rotation	NE	84.6±7.9	86.8±12.1	4.985	0.015	NE, SG< SNPEG	
		SG	80.8±9.8	91.3±10.4				
		SNPEG	73.1±19.8	93.9±8.2				
	waist (cm)	flexion	NE	23.7±2.8	25.7±2.6	5.975	0.008	NE, SG< SNPEG
			SG	22.5±1.5	22.4±1.4			
			SNPEG	25.1±2.1	22.9±1.2			
extension		NE	11.8±1.0	12.2±1.1	0.319	0.730		
		SG	11.2±1.0	11.3±1.3				
		SNPEG	12.4±1.3	12.6±1.4				
hip (°)	internal rotation	NE	26.4±9.0	30.6±9.9	0.218	0.806		
		SG	28.9±8.3	34.2±12.1				
		SNPEG	27.1±14.8	29.0±6.5				
	external rotation	NE	33.7±10.8	33.0±11.6	4.900	0.016	NE, SNPE< SG	
		SG	30.4±13.3	42.3±8.0				
		SNPEG	38.0±13.0	37.1±4.9				
Pain	neck (VAS score)	NE	4.8±2.3	3.1±2.4	0.256	0.776		
		SG	4.9±3.1	3.7±1.9				
		SNPEG	4.0±3.0	2.1±2.6				
	scapular (VAS score)	NE	3.8±2.6	2.9±2.2	4.333	0.026	NE, SG< SNPEG	
		SG	4.7±2.6	4.6±1.5				
		SNPEG	4.1±1.7	1.3±1.5				
	waist (VAS score)	NE	2.8±1.5	3.1±2.6	0.747	0.485		
		SG	4.0±1.0	3.7±1.8				
		SNPEG	3.2±2.7	2.1±1.9				
	hip (VAS score)	NE	1.1±2.4	2.6±3.2	5.610	0.011	NE, SG< SNPEG	
		SG	3.4±1.9	3.3±1.8				
		SNPEG	2.8±2.2	0.4±0.7				
calf (VAS score)	NE	4.6±2.3	4.8±2.3	4.344	0.026	NE<SG, SNPEG		
	SG	7.6±1.5	4.7±2.4					
	SNPEG	5.7±1.9	3.6±2.3					

P<.05

