

# EFFECT OF TWO DIFFERENT EXERCISE PROGRAMS ON PAIN, DISABILITY AND QUALITY OF LIFE IN PEOPLE WITH SUBACUTE AND CHRONIC NONSPECIFIC NECK PAIN

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## BACKGROUND AND AIM

Neck pain is one of the most common musculoskeletal disorders in the world [1]. Exercise therapy is one of the various treatment approaches [2]. At San Raffaele Hospital takes place a program of rehabilitation where small groups of patients learn exercises for neck pain. The aim of this study is to compare the efficacy of two different exercise programs on pain, disability and quality of life in people with sub-acute and chronic nonspecific neck pain.

## MATERIALS and METHODS

This is a randomized and controlled study. Sixteen subjects were randomized into Experimental Group (SG) and Control Group (CG). SG (N=8) did an exercise program based on neck retraction and extension. CG (N=8) did an exercise program based on general mobilization of neck. Both groups did 15 minutes of aerobic and elastic resistance training. Primary outcomes were pain (measured with VAS), disability (measured with Neck Disability Index, NDI), and quality of life (measured with SF12, physical (PCS) and mental (MCS) section). Secondary outcomes were fear avoidance beliefs (measured with FABQ [3]), headache, dizziness, and drug consumption. Data were collected at baseline (T0), at the end of the program (T1: after 3-5 weeks of training, 2-3 times per week, for a total of 10 treatments), and follow up was performed one month after the end of the program (T2).



Fig. 1. Example of SG exercise      Fig. 2. Example of CG exercise

## RESULTS

A non-parametric statistic was used. The two groups were homogeneous at baseline. In the between-groups analysis, NDI ( $\Delta$  T1-T2,  $p=0.052$ ), SF12-MCS ( $\Delta$  T1-T2,  $p=0.052$ ) and SF12-PCS ( $\Delta$  T0-T2,  $p=0.020$ ) had significantly improved in SG compared with CG [Table 1]. In the SG the within-group analysis (considering the three times of measure together) showed a significant improvement in NDI ( $p=0.013$ ) and SF12-MCS ( $p=0.030$ ). A statistically significant improvements were in NDI T0-T2 ( $p=0.028$ ), SF12 T0-T2 (MCS  $p=0.046$ , PCS  $p=0.046$ ) and in SF12-MCS T1-T2 ( $p=0.046$ ). For CG, only VAS T0-T1 improvement was statistically significant ( $p=0.028$ ). There were no significant changes in secondary outcomes.

VARIABLE	GROUP	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	FRIEDMAN TEST <i>p</i> value
VAS	SG	4.03 [1.48 – 7.11]	1.29 [0.00 – 4.00]	3.00 [0.37 – 5.10]	0.223
	CG	4.83 [1.60 – 9.00]	2.96 [0.37 – 6.30] <sup>Σ</sup>	5.00 [2.00 – 9.00]	0.127
NDI	SG	14.00 [8.0 – 36.0]	13.50 [2.0 – 25.0]	8.33 [2.00 – 22.0] <sup>Σ</sup>	<b>0.013</b>
	CG	18.00 [2.0– 46.0]	14.67 [2.0 – 26.0]	17.77 [4.0 – 32.0]	0.486
SF12 - PCS	SG	46.55 [38.1–53.9]	50.65 [39.7 –58.5]	50.85 [41.3 –54.5] <sup>Σ</sup>	0.115
	CG	40.70 [33.8–55.4]	46.55 [31.1 –59.7]	40.30 [31.1 –56.4]	0.368
SF12 - MCS	SG	40.90 [25.7 -53.7]	41.30 [30.8 -57.5]	54.65 [52.3 -55.8] <sup>Σ</sup>	<b>0.030</b>
	CG	40.10 [34.7 -51.2]	45.60 [31.3 -62.7]	51.80 [33.2 -62.7]	0.196

Table 2. Within group analysis. Statistical improvement using Wilcoxon Test as post-hoc.  $\Sigma = p < 0.05$

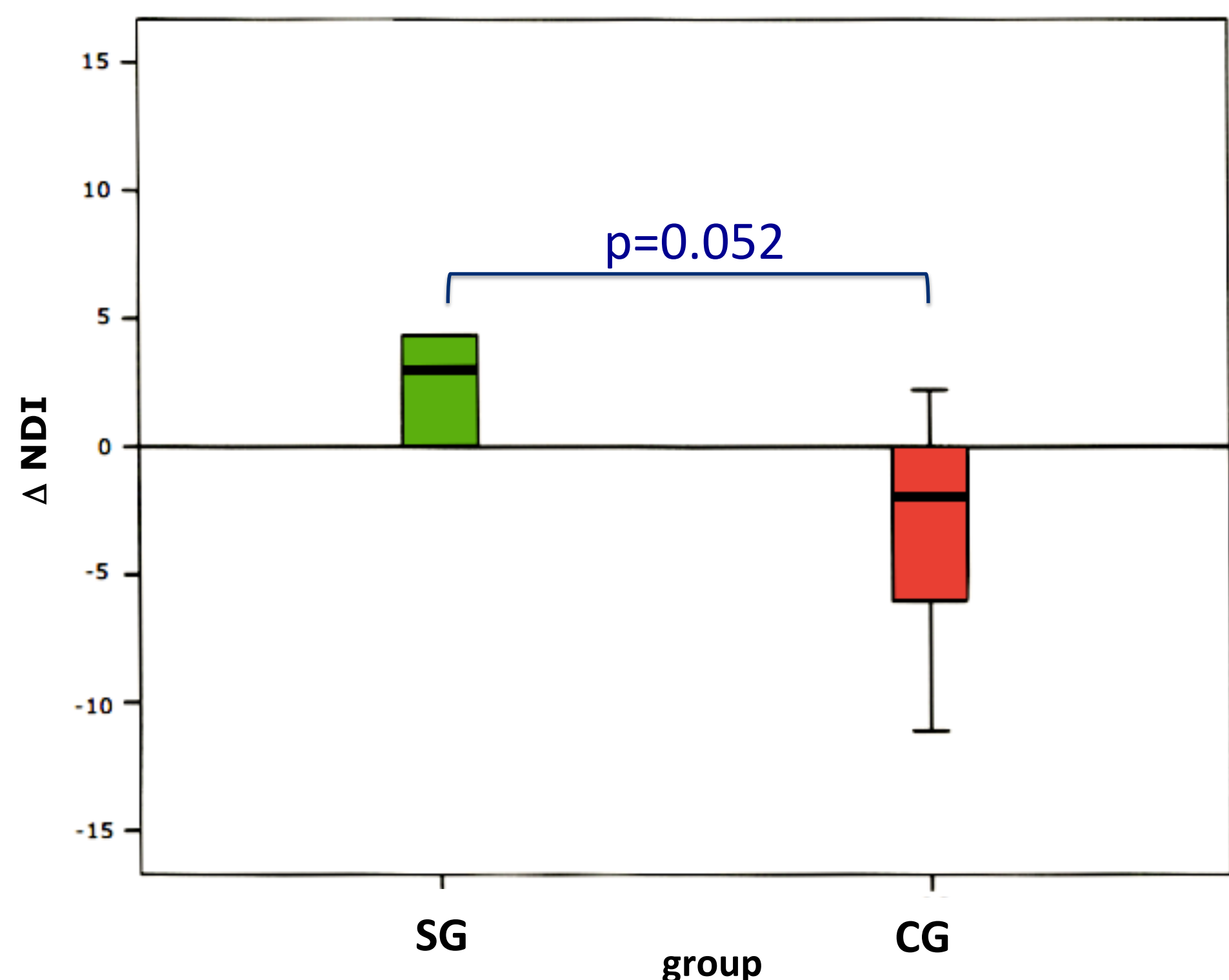


Table 1. Box-plots comparing the NDI differences in the between group analysis post-follow up (T<sub>1</sub>-T<sub>2</sub>). As shown, SG significantly improved in comparison to CG.

## DISCUSSION AND CONCLUSION

SG seems to reduce disability and to have positive effects on quality of life, especially in follow-up measures (long term results). CG have benefits in pain only during the program of rehabilitation (short term results). SG seems to be better than CG in reducing disability and improving quality of life, but further investigations are needed.

## REFERENCES

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