

# FUNCTIONAL AND PSYCHOSOCIAL EFFECTS OF EXERCISE TRAINING WITH TRADITIONAL DANCING IN PATIENTS WITH CHRONIC HEART FAILURE

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## INTRODUCTION

Exercise training is recommended in patients with chronic heart failure (CHF), to improve functional capacity and quality of life and to relieve symptoms. Despite these benefits, the adherence to exercise training programs in CHF remains low, mainly due to lack of enthusiasm among patients. To stimulate patients to participate in rehabilitation programs, alternative forms of exercise are requested. Traditional dancing is a form of exercise that combines movement, social interaction and fun.

## PURPOSE

The aim of the study was to examine whether an exercise training program with Greek traditional dances (TD) affects functional capacity and quality of life in patients with CHF; Moreover, is capable to increase the compliance of the participants.

## SUBJECTS

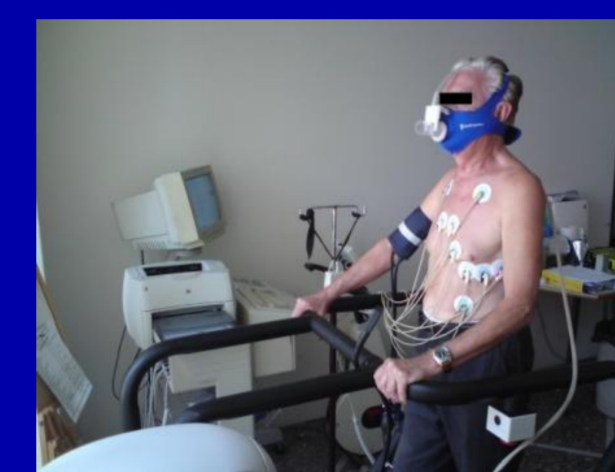
Fifty-one patients with CHF of NYHA class II-III and mean age 67.1±5.5 years, volunteered to participate in an 8-month study and were randomly assigned to:

- Group A, n=18 exercise training with Greek TD
- Group B, n=16 a mixed-type exercise training
- Group C, n=17 sedentary control group

## MEASUREMENTS

✓ At entry and the end of the study all patients underwent a symptom-limited cardiopulmonary test on a treadmill (Full Vision Inc, Newton, KS) using a Bruce protocol. The cardiopulmonary indices studied were:

- Peak oxygen consumption (VO<sub>2</sub>peak)
- Exercise Time (ExTime)
- Pulmonary ventilation (VE)
- Slope of expired minute ventilation for carbon dioxide output (VE/VCO<sub>2</sub>)



✓ The following functional capacity tests were performed to all subjects:

- isokinetic strength testing (Baseline<sup>®</sup> Leg Dynamometer)
  - sit to stand (STS) test
  - Berg Balance Scale (BBS)

✓ Health-related quality of life was assessed using two questionnaires:

- 36-item short form health survey (SF-36)
  - Life Satisfaction Inventory (LSI)

✓ The Intrinsic Motivation Inventory (IMI) was also used to assess participants' subjective experience

## EXERCISE TRAINING PROGRAMS

The 8-month supervised training programs were carried out in a public gym three times per week. Patients were required to attend 80% of all sessions over the eight-month period. At start the intensity of the programs was based on the initial exercise tolerance test and further gradually modified by the patients' perceived exertion and adaptation to the training prescription. Each session lasted 60 min and during the training sessions heart rate and blood pressure were measured. Patients were encouraged to reach perceived exertion 13-14 on the Borg 6-20 category scale.

### EXERCISE TRAINING PROGRAM WITH GREEK TD

- The dancing exercise program was specifically designed to meet the abilities of CHF patients. It consisted of:
- Warm up: 10 min (stretching)
  - Dance phase: 40 min consisted of basic, low impact steps, performed in a single group while holding hands in a hemi-cycle. The duration of each dance was 3-4 min and the breaks between dances lasted 15 s. All dances, were of moderate intensity between 60-85% of maximum heart rate
  - Relaxation: 10 min including stretching



### MIXED-TYPE EXERCISE TRAINING PROGRAM

- It consisted of:
- Warm up: 10 min (stretching)
  - Exercise phase: 20 min consisted of aerobic exercise on a stationary bicycle or a treadmill and 20 min resistance training for the low and upper extremities
  - Relaxation: 10 min including stretching

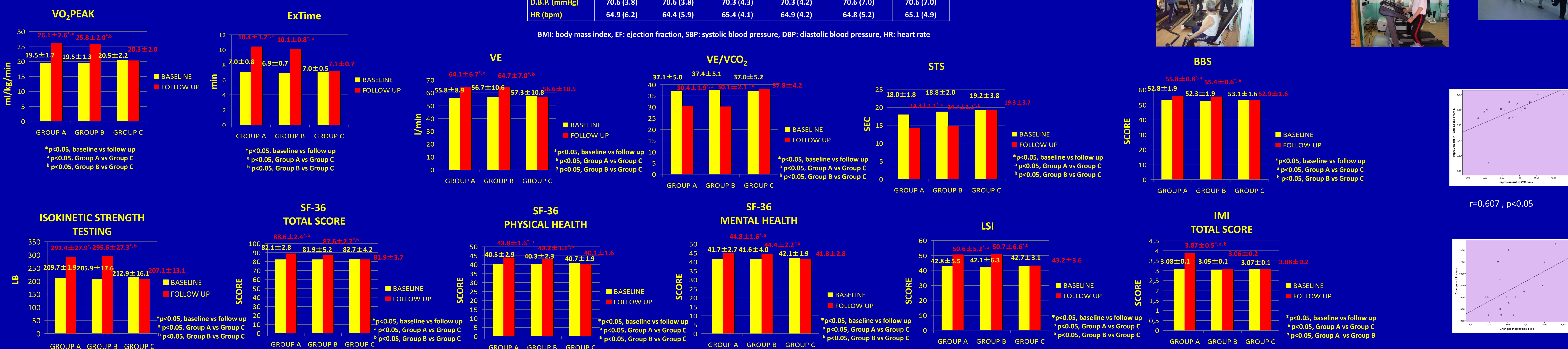


## RESULTS

Table 1. Demographic and clinical characteristics and means (standard deviations) of the patients who completed the study

	GROUP A		GROUP B		GROUP C	
	Baseline (mean ±SD)	Follow up (mean ±SD)	Baseline (mean ±SD)	Follow up (mean ±SD)	Baseline (mean ±SD)	Follow up (mean ±SD)
Age (years)	67.2 (4.2)	-	67.1 (7.2)	-	67.2 (5.0)	-
Height (cm)	170 (0.02)	-	170 (0.04)	-	171 (0.02)	-
Weight (kg)	83.5 (8.8)	83.2 (8.4)	82.7 (5.4)	82.4 (5.3)	83.5 (5.6)	83.5 (5.4)
BMI (kg/m <sup>2</sup> )	28.8 (2.7)	28.7 (2.6)	28.4 (2.0)	28.4 (2.0)	28.4 (2.0)	28.4 (2.0)
E.F. (%)	49.3 (3.4)	-	49.1 (2.4)	-	49.6 (3.5)	-
S.B.P. (mmHg)	119.7 (6.5)	118.6 (5.1)	118.4 (6.7)	117.8 (6.0)	119.4 (6.1)	118.2 (6.1)
D.B.P. (mmHg)	70.6 (3.8)	70.6 (3.8)	70.3 (4.3)	70.3 (4.2)	70.6 (7.0)	70.6 (7.0)
HR (bpm)	64.9 (6.2)	64.4 (5.9)	65.4 (4.1)	64.9 (4.2)	64.8 (5.2)	65.1 (4.9)

BMI: body mass index, EF: ejection fraction, SBP: systolic blood pressure, DBP: diastolic blood pressure, HR: heart rate



## CONCLUSION

The results indicate that exercise training with Greek TD is feasible and able to improve functional capacity and quality of life, similar to mixed exercise training in CHF patients. It well motivate patients to participate and complete a rehabilitation program. Therefore, exercise with Greek TD may be considered as an alternative way to exercise CHF patients