World Physical Therapy 2011
20-23 June 2011
Amsterdam Netherlands

# A SUPERVISED VERSUS HOME-BASED EXERCISE PROGRAM EFFECTS ON LIVER TRANSPLANTED FAMILIAL AMYLOIDOTIC POLYNEUROPATHY PATIENTS: WALKING, FATIGUE AND QUALITY OF LIFE.

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INTRODUTION

# FAMILIAL AMYLOIDOTIC POLYNEUROPATHY

Autossomic neurodegenerative disease — North of Portugal

Systemic deposition of amyloidal fibre mainly on peripheral nervous system (but also in other systems like heart, gastrointestinal tract, kidneys, etc) and mainly produced in the **liver**

**Liver Transplantation**

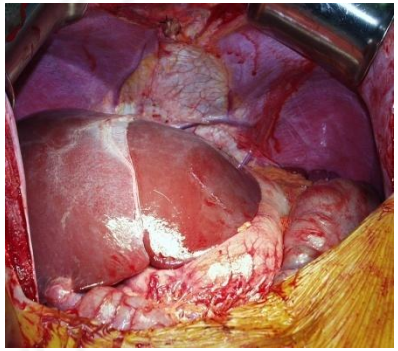
- Agressive medication for muscle and bone metabolism
- Previous impairments
- Surgery process

# INTRODUCTION

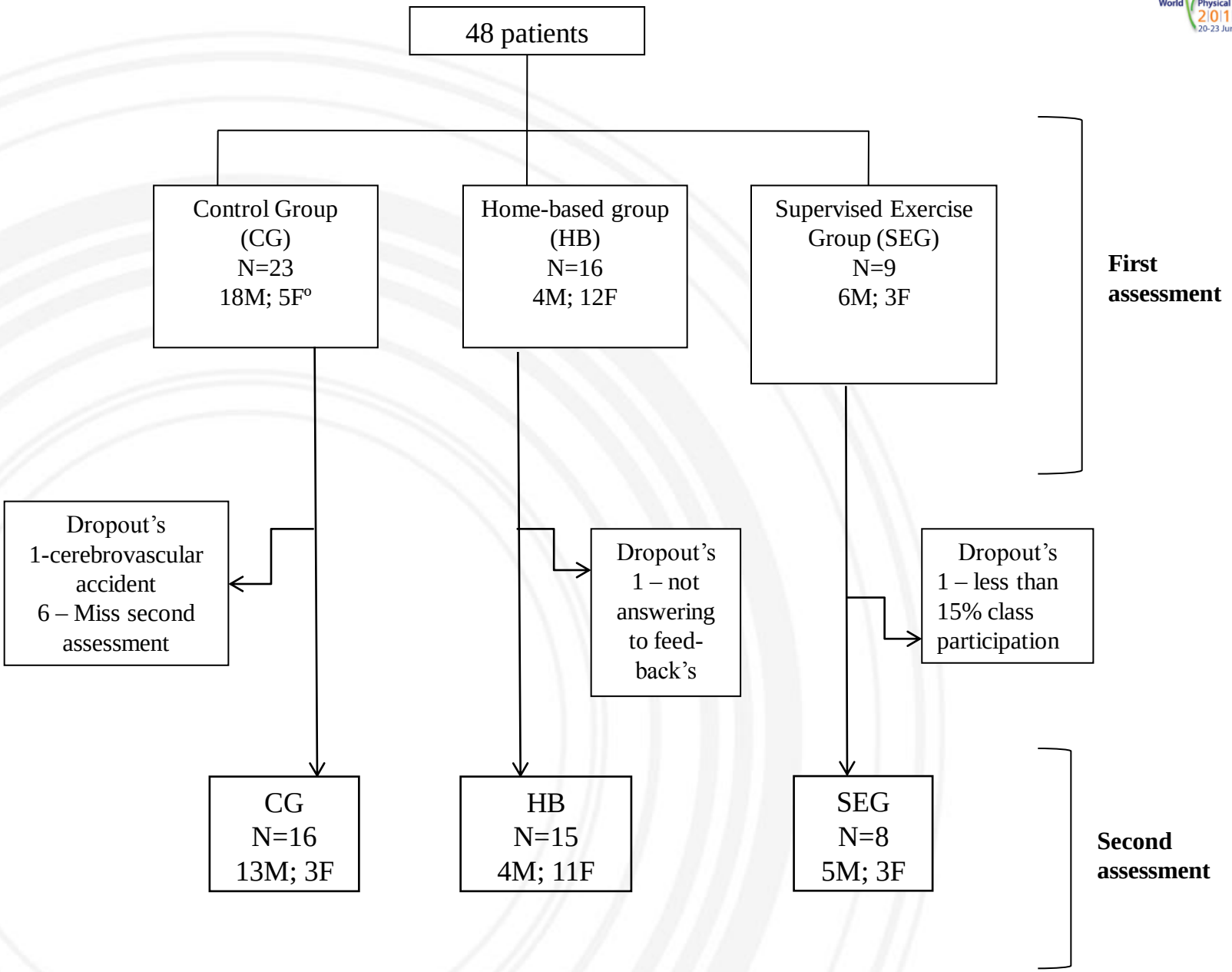
Both FAP and Transplantation result in functional limitations which may be ameliorated by exercise training, but the effects of exercise training in FAP patients after a liver transplant is currently unknown.

**PURPOSE**

To evaluate the effects of a six months exercise training program (supervised or home-based) on walking capacity, fatigue and health related quality of life (HRQL) on Familial Amyloidotic Polyneuropathy patients submitted to a liver transplant.



# MATERIALS and METHODS



# MATERIALS AND METHODS

| Characteristics | SEG (5M; 3F) | HBG (4M; 11F) | CG (13M; 3F) | p-value |
|---|---|---|---|---|
| Age (years)[b] | 34 7 (28-48) | 35 5 (28-44) | 33 9 (23-59) | NS |
| Weight (kg)[b] | 60.0 16.9 (49.8-101.2) | 61.2 12.7 (35.6-75.8) | 66.1 11.7 (49.6-95.4) | NS |
| Height (m)[a] | 1.71 0.09 (1.56-1.81) | 1.66 0.08 (1.53-1.85) | 1.71 0.08 (1.56-1.83) | NS |
| BMI ($kg.m^{-2}$)[b] | 20.4 4.5 (16.6-30.9) | 22.3 4.3 (15.2-30.6) | 22.6 3.3 (18.0-28.5) | NS |
| Prednisone (mg/day)[a] | 11.6 8.1 (0.0-20.0) | 12.8 4.1 (5.0-20.0) | 9.5 4.4 (0-15.0) | NS |
| Tacrolimus (mg/day)[a] | 4.9 1.7 (3.0-8.0) | 6.3 2.6 (3.0-12.0) | 6.0 2.0 (2.0-8.5) | NS |
| Post-TX time (months)[b] | 4.3 3.3 (2-10) | 3.1 1.2 (2-6) | 4.2 1.4 (2-7) | NS |
| Impatient time (days)[b] | 14.5 3.4 (11-22) | 20.1 13.1 (12-64) | 15.9 4.9 (9-28) | NS |
| Time referred since first symptoms (month)[b] | 26.4 16.7 (10.0-60.0) | 57.0 48.4 (12.0-180.0) | 27.8 16.3 (11.0-72.0) | 0.021 |

Combined exercise 3x/week; ≈60min

Combined exercise 3x/week AT HOME

NO EXERCISE

# MATERIALS AND METHODS

6 Minutes Walk Test → Walking Capacity

Multidimensional Assessment of Fatigue Questionnaire (MAF)

Medical Outcome Study-36 item Questionnaire (SF-36)

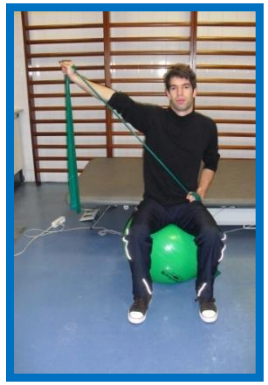
# TRAINING PROGRAMS

24 week's; 3x/week; ≈60min; low or moderate intensity (RPE<15)

AEROBIC EXERCISE – Treadmill, bicycle, rowing, walking and other exercises

STRENGTH TRAINING – Thera-band equipment; body weight; etc; 8-12 rep's; 6-8 exercises

SENSORIOMOTOR TRAINING – Thera-band equipment

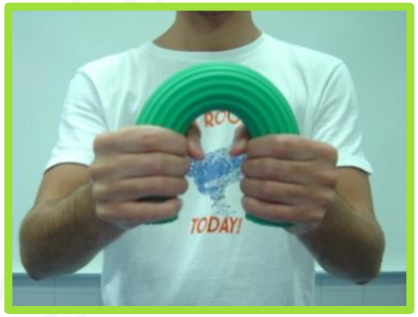


TRAINING PROGRAMS

**HOME-BASED**

- 6 Book's of exercises
- Feed-back's every 15 days (phone, mail, letter or in presence)
- Intensity or volume change every 15 days
- Different exercises, Thera-Band equipments, resistance and intensity every month


Exercise prescription was similar for both groups of exercise



# STATISTICAL ANALYSIS

DIFFERENCE variable was created (post-intervention – pre-intervention)

ONE-WAY ANOVA or Kruskall-Wallis with post-hoc's tests.

$p<0,05$

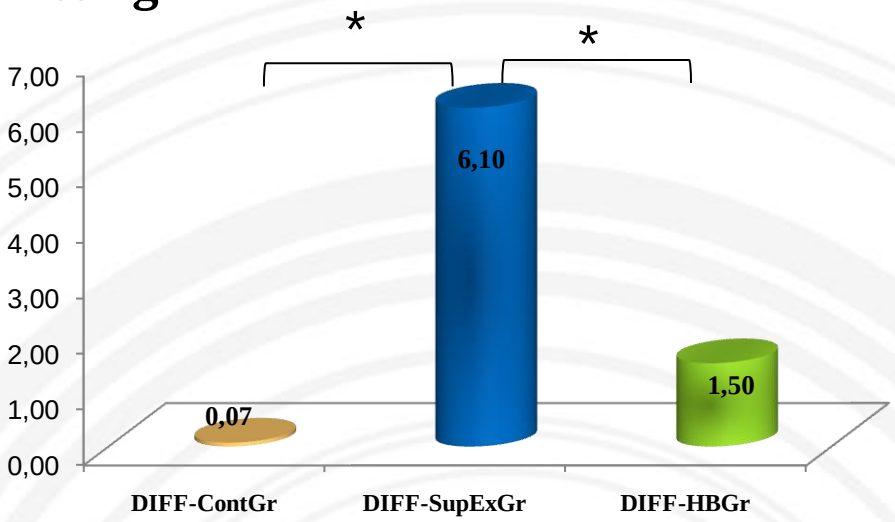
SPSS Statistics 17.0 for Windows®, SPSS Inc, Chicago, USA

# RESULTS

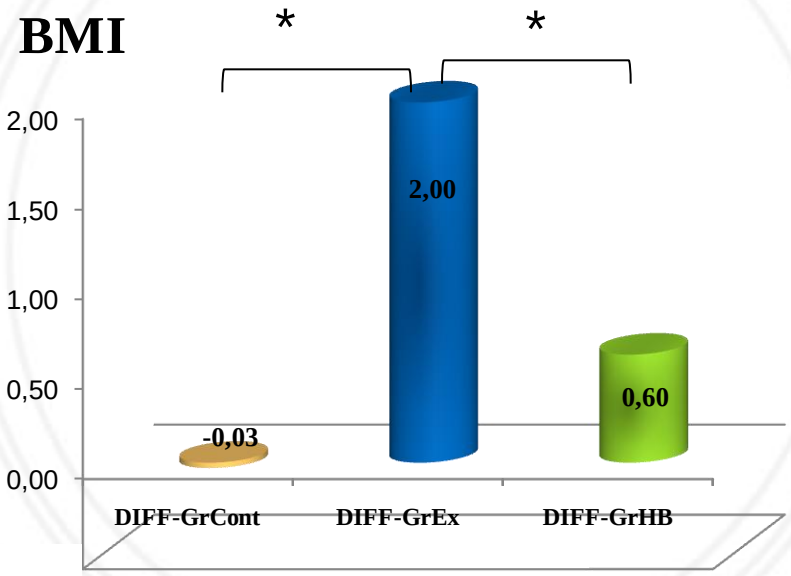
| Variable | Cont Gr (13M; 3F) Diff | SupEx Gr (5M; 3F) Diff | HB Gr (4M; 11F) Diff |
|---|---|---|---|
| **Weight [a]** | **0,07(1,7)** | **6,1(4,7)** | **1,5(4,9)** |
| **BMI [a]** | **-0,03(0,6)** | **2,0(1,6)** | **0,6(1,9)** |
| Tacrolimus | -1,2(1,1) | -0,7(0,7) | -2,3(2,6) |
| Prednisolona | -8,4(5,1) | -7,2(5,6) | -8,7(3,6) |
| 6MWT (m) | 51,6(31,1) | 73,4(44,8) | 48,7(42,4) |
| **Walking Capacity (Kg.Km) [a]** | **3,4(2,5)** | **7,9(3,5)** | **3,8(4,2)** |
| Global Fatigue Index (GFI) | -1,9(7,7) | -1,2(7,3) | -0,4(5,2) |

Values expressed as mean(SD)
[a]Difference between groups for Diff (post value – pre value) variables ($p<0,05$);
Cont Gr– control group; SupEx Gr– Supervised exercise group; HB Gr – Home-based group;
BMI – Body Mass Index; 6MWT – six-minute walk test; GFI – Global Fatigue Index (MAF scale)

## Weight

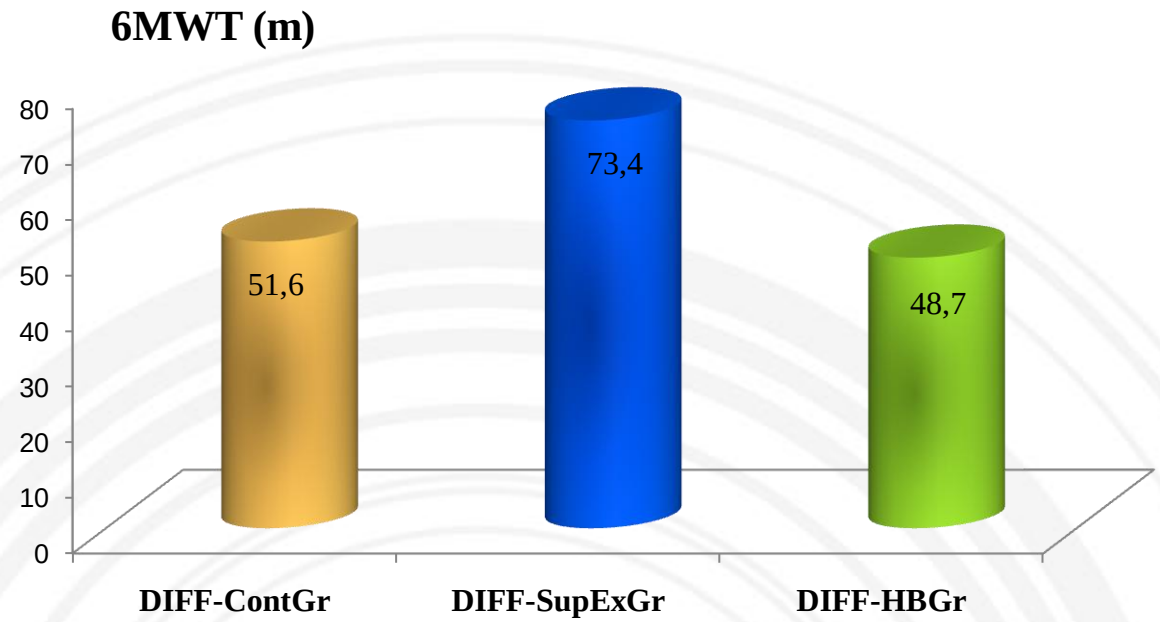



## BMI

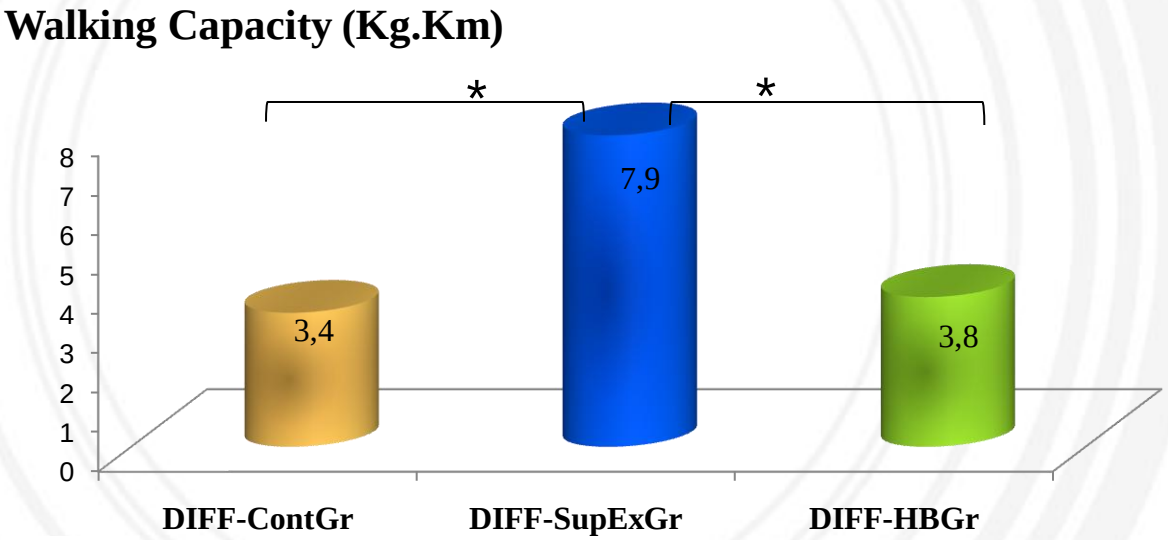



Only for **Supervised Exercise Group**, total body weigth (p=.004) and BMI (p=.008) increased significantly

* p<.05

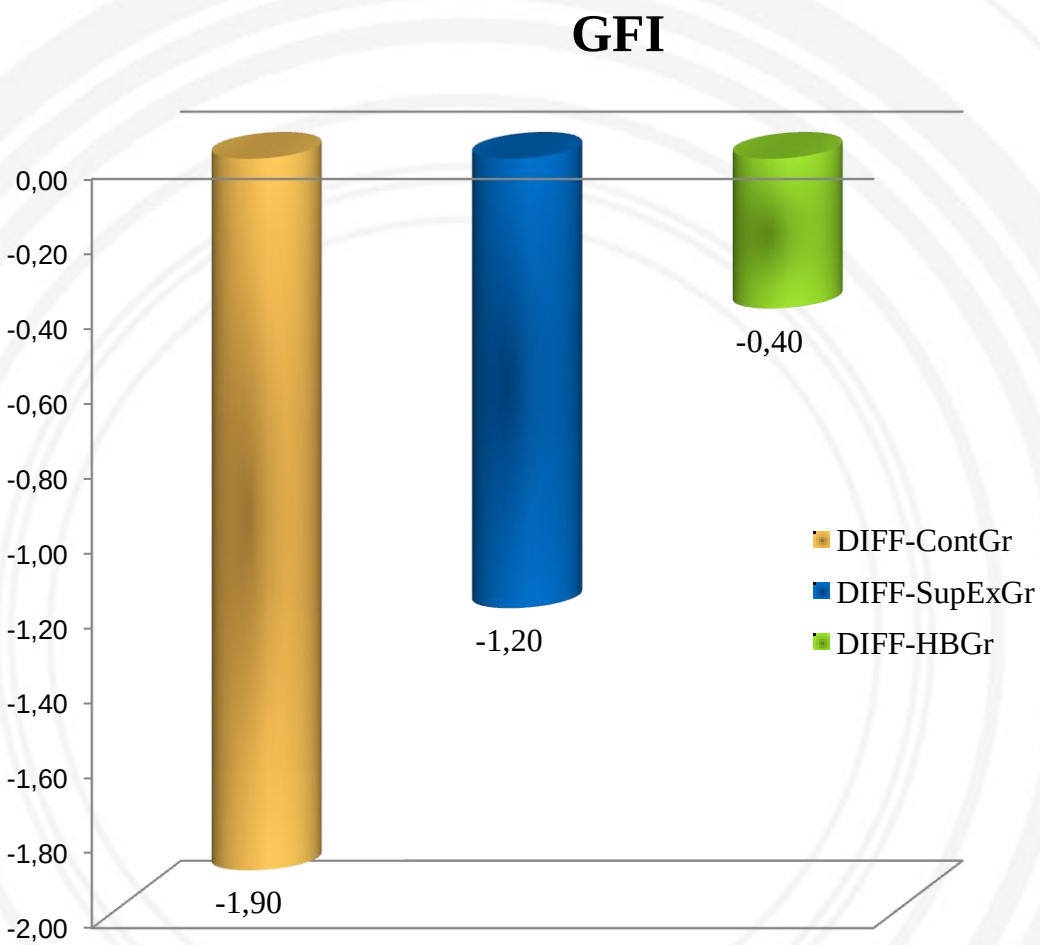



Neither groups had significantly changed. However, only **Supervised Exercise Group** increased more than the minimal clinical significant change (>70m or >54m)




Only for **Supervised Exercise Group** WCp increased significantly (p=.012)

* p<.05



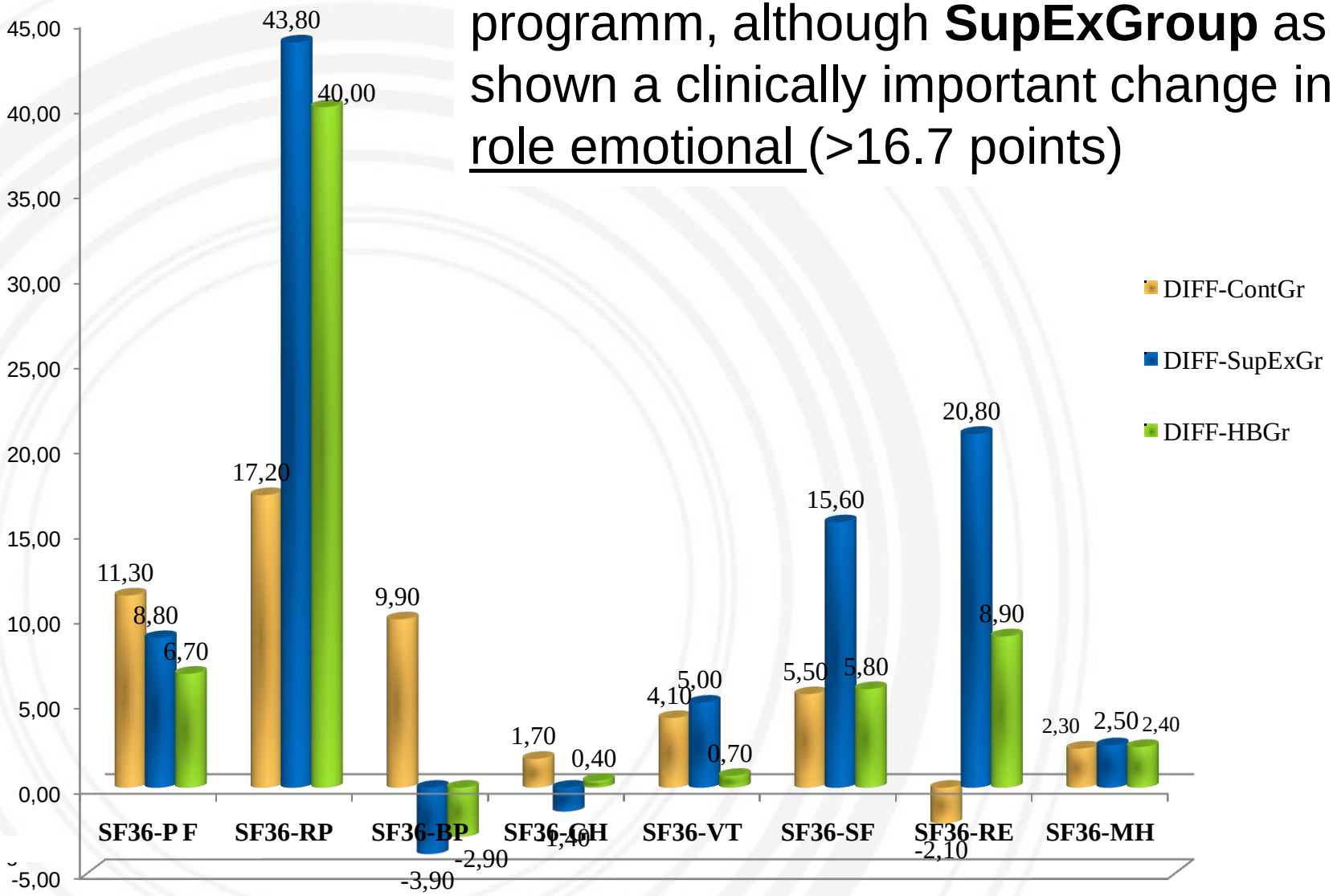

Althought differences, neither groups have reported <u>significant</u> changes in fatigue

# RESULTS

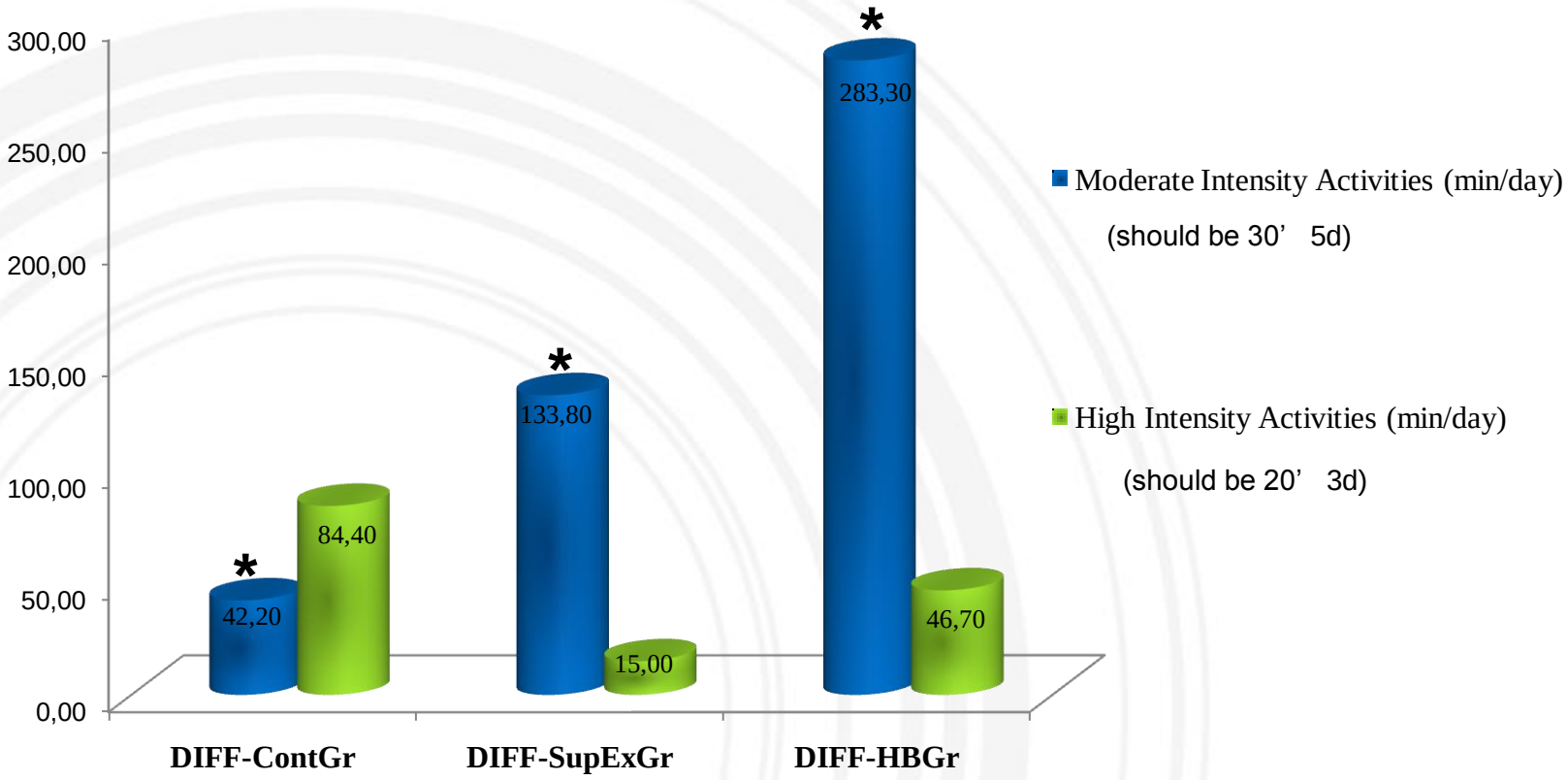
| Variable | Cont Gr (13M; 3F) Diff | SupEx Gr (5M; 3F) Diff | HB Gr (4M; 11F) Diff |
|---|---|---|---|
| SF36-P F | 11,3(14,1) | 8,8(12,2) | 6,7(18,0) |
| SF36-RP | 17,2(28,5) | 43,8(41,7) | 40,0(43,1) |
| SF36-BP | 9,9(15,5) | -3,9(18,0) | -2,9(24,2) |
| SF36-GH | 1,7(5,7) | -1,4(14,5) | 0,4(16,4) |
| SF36-VT | 4,1(14,0) | 5,0(12,5) | 0,7(11,5) |
| SF36-SF | 5,5(18,8) | 15,6(14,6) ) | 5,8(22,6) |
| SF36-RE | -2,1(31,0) | 20,8(30,5) | 8,9(36,7) |
| SF36-MH | 2,3(8,3) | 2,5(12,8) | 2,4(15,0) |
| SF36-RHT | -0,7(1,3) | -1,3(1,2) | -0,5(0,6) |

Values expressed as mean(SD)
[a]Difference between groups for Diff (post value – pre value) variables ($p<0,05$);
Cont Gr– control group; SupEx Gr– Supervised exercise group; HB Gr – Home-based group;
BMI – Body Mass Index; 6MWT – six-minute walk test; GFI – Global Fatigue Index (MAF scale)

Neither of groups reported significant changes in HRQL due to exercise programm, although **SupExGroup** as shown a clinically important change in <u>role emotional</u> (>16.7 points)



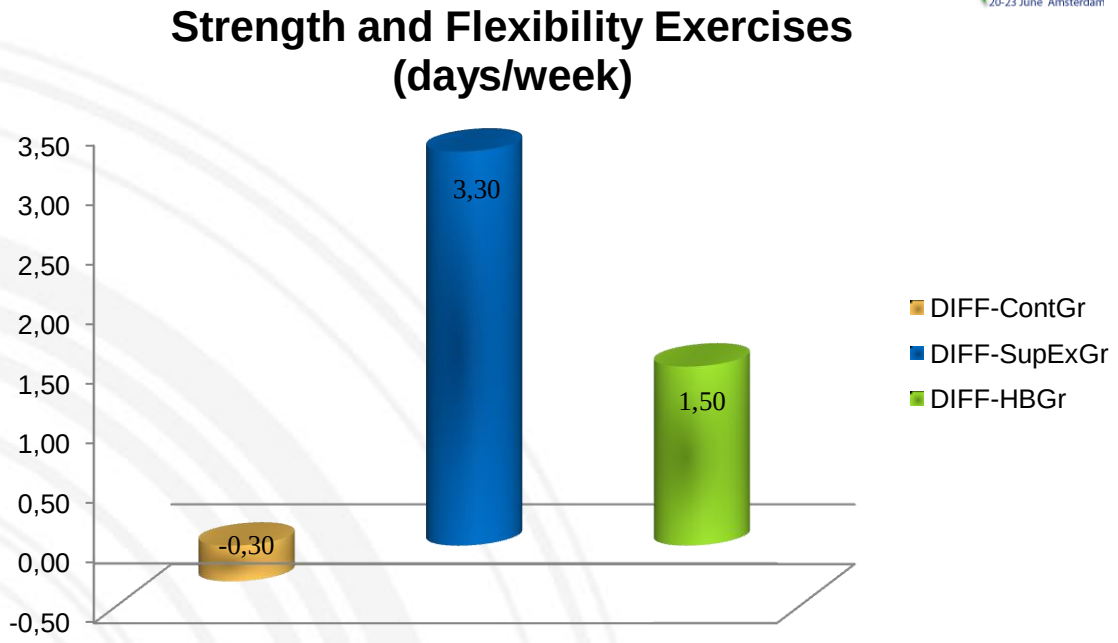
# Levels of Physical Activity

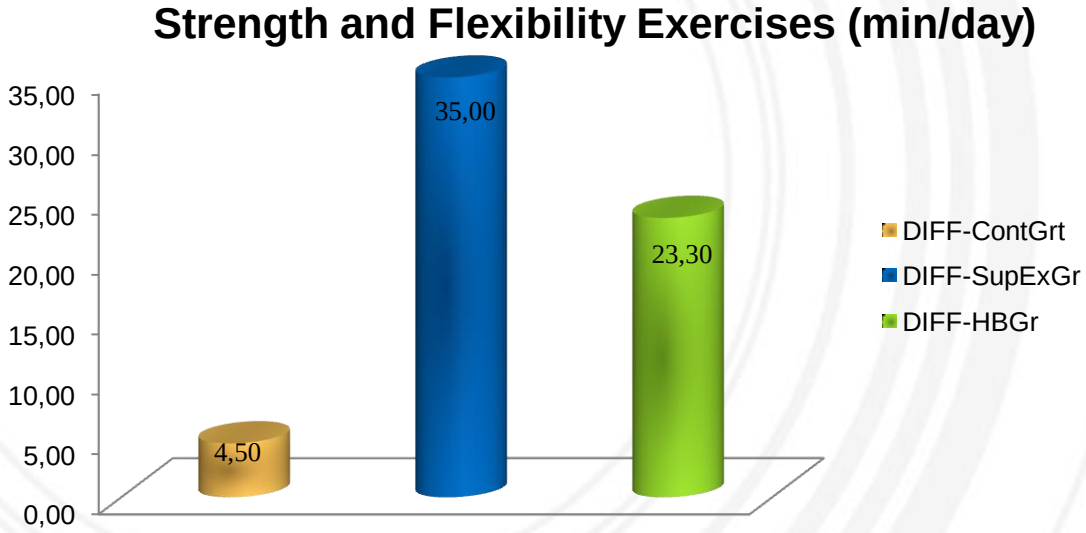



**Moderate Intensity Activities** (but not High Intensity Activities) had changed significantly (p=0.003) for all groups

# Levels of Physical Activity

All groups had changed significantly the number of days (p=.001) and the time in minutes per day (p=.006) they spend with strength and flexibility exercises




Should be 2d/W

# CONCLUSIONS

**Supervised exercise** is more effective than home-based exercise in improving WCp in liver transplanted patients

Although not significant, HBGr has presented higher values for difference in WCp than ContGr with a better functional exercise level for daily physical activities

# CONCLUSIONS

It seems that clearly these patients benefit from an exercise training program

**However, this exercise program has not changed fatigue levels and HRQL**

# OBRIGADO

# THANK YOU

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