1st WORLD CONGRESS ON HEALTHY AGEING

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1ST WORLD CONGRESS ON HEALTHY AGEING
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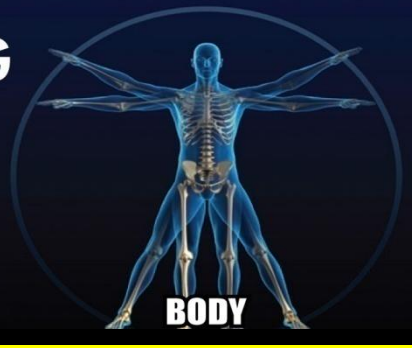

FUNCTIONAL CAPACITY OF MIDDLE AGE AND ELDERLY WITH TYPE 2 DIABETES MELLITUS FOLLOWING A 16-WEEK HOME BASE PROGRESSIVE RESISTANCE TRAINING

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BERILMU BERBAKTI

INTRODUCTIO

- Diabetes Mellitus (DM), a multifactorial pathogenesis of disease.
- Global prevalence in adults :4.2% in 2000 and rise up to 5.4% in 2025.
- Type 2 DM - 90% of the total DM cases.
- Prevalence in Malaysia increasing steadily
- Estimated about 1.2 million diabetics in the country *(www.diabetes.org.my, 2007).*
- Malaysian population growth is estimated to increase from 6.3% in 2000 to 12% in 2030 *[Mat & Mat Taha 2003].*

CURRENT APPROACH

WEIGHT LOSS/DIET

- Low compliance
- Muscle & Bone Loss
- Decreased Metabolic Rate

AEROBIC EXERCISE

- Aerobic exercise shown to improve glucose control
- Intensity??

DRUGS

- Iatrogenesis
- Weight Gain
- No Treatment of Underlying Causes of Visceral Obesity/Inactivity

PRT

- Weight-lifting exercise @ PRT directly targets the cause of metabolic syndrome:
  - visceral obesity and inactivity.
- Enhance insulin sensitivity.
- PRT has been shown to reduce blood pressure and improve lipid profile.
- Unique benefits: metabolic, cardiovascular, body composition and functional capacity
- Potentially superior to any other single pharmacologic or diet modification treatment for type 2 DM and metabolic syndrome in older adults *(Willey & Singh 2003).*

AIM

A quasi experimental study on the effect of the progressive resistance training (PRT) using resistance tube

- Glucose homeostasis,
- Cardiovascular health and
- FUNCTIONAL CAPACITY

Among Elderly with Type 2 Diabetes Mellitus patients.

PROTOCOL

FITT principle

- 3 times a week
- 15 – 18 on Borg Scale
- 8-10 reps/set
- 3 set/exercise

} Resistance Training

- 4 months

a single set for the first 2 weeks, followed by 2 sets for 3rd and 4th weeks. The remaining weeks subjects will be asked to performed 3 sets of each exercise.

LIST OF EXERCISES

Upper Body

- chest press,
- shoulder press ,
- triceps extension,
- biceps curl,
- lateral shoulder raises,
- seated row

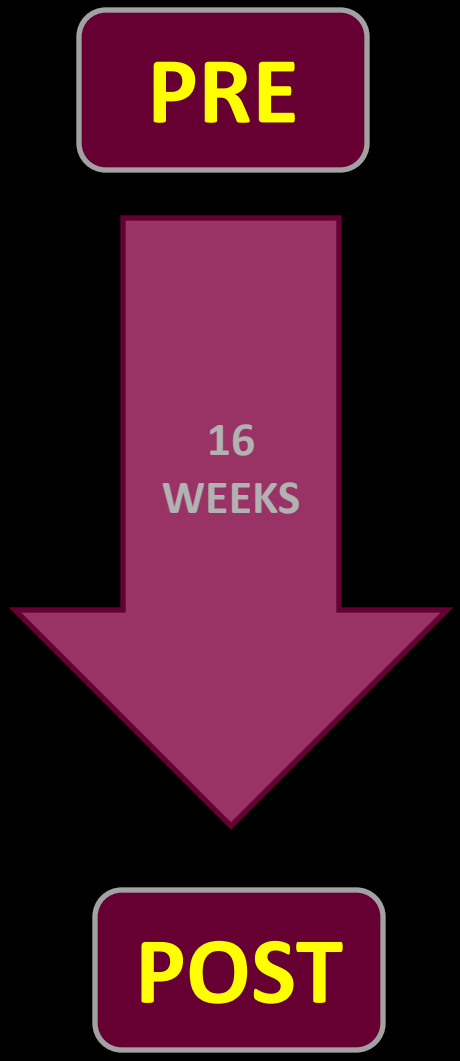
Lower Body

- chair squat
- leg extension
- leg curl
- calf raises,
- hip flexion
- hip extension.

ASSESSMENTS

- Performance Based Tests
  - Sit-to-Stand, Stair Climb, 6 MWT
- Muscle Strength Test
  - Dynamometer
- Static Balance

- Statistical - SPANOVA



SIT-to-STAND

- Intervention = 17.52 ± 7.10 sec and 14.86 ± 5.52 sec
- Control = 13.30 ± 4.46 sec and 13.69 ± 4.45 sec
- $F(1, 57) = 21.16$, $p < .001$, partial $\eta^2 = .27$, power > .85

STAIR CLIMB

- intervention = 223.91 ± 79.22 Watt and 249.34 ± 79.45
- control = 228.19 ± 76.68 Watt and 215.83 ± 75.23
- $F(1, 57) = 37.80$, $p < .001$, partial $\eta^2 = .40$. power > .85

6MWT

- Intervention = 493.02 ± 15.87 m and 537.98 ± 106.33 m
- Control = 522.29 ± 93.51 m and 522.25 ± 93.97 m
- $F(1, 57) = 19.17$, $p < .001$, partial $\eta^2 = .25$, power > .85.

HAND GRIP STRENGTH

- Intervention = 21.06 ± 6.63 kg and 22.57 ± 5.83 kg
- Control = were 24.25 ± 5.71 kg and 23.94 ± 5.64 kg
- $F(1, 57) = 12.49$, $p < .01$, partial $\eta^2 = .18$.

UPPER BODY

- Intervention = 99.53 ± 44.95 kg and 133.38 ± 42.02 kg
- Control = 126.70 ± 50.15 kg and 134.05 ± 50.23 kg
- $F(1, 57) = 4.92$, $p < .05$, partial $\eta^2 = .08$, power < .85

LOWER BODY

- Intervention = 160.58 ± 44.99 kg and 238.14 ± 82.98
- Control = 223.83 ± 49.41 kg and 241.99 ± 54.64 kg
- $F(1, 55) = 6.36$, $p < .05$, partial $\eta^2 = .10$, power < .85

STATIC BALANCE

- Intervention = 1.47 ± 0.24 and 1.50 ± 0.23
- Control = 1.65 ± 0.21 and 1.62 ± 0.19
- $F(1, 57) = 2.73$, $p > .05$, partial $\eta^2 = .05$.

CONCLUSION

Exercise protocol applied is effective in improving the functional capacities of the subjects

THANK YOU

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