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INTRODUCTION

- ❖ The greatest preventable causes of disease and disability in adults are inactivity, loss of skeletal muscle mass, and excessive adipose tissue directly correlating to probability of mortality (Haber, 2013)
- ❖ Inactivity surpasses smoking and hypertension in predicating mortality from heart disease (Haber, 2013)
- ❖ Healthy body tissue composition requires proper diet AND regular activity (CDC, 2016a)
- ❖ Body tissue composition includes % adipose and lean body tissue (skeletal muscle, visceral muscle, bone)
- ❖ Recommended ideal % adipose tissue: Males 18-24%, Females 25-31% (Fit Life, 2009)
- ❖ Gaps exist in the literature establishing the most effective activity to maintain body tissue composition

PROBLEM

- ❖ Adults and Older adults:
 - Are not engaged in effective exercise regimens (Haber, 2013)
 - Are increasing in percentage fat and body mass index (RWJF, 2011)
 - 70.7% adults and older adults are overweight or obese (CDC, 2016b)



VS.



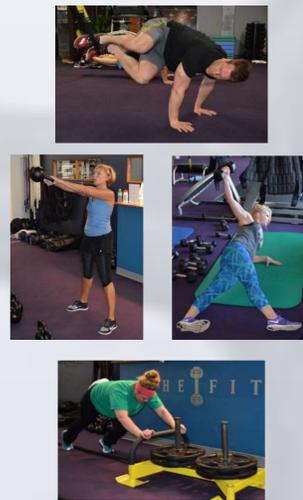
PURPOSE

- ❖ This pilot study examined the effects of metabolic resistance training (MRT) and aerobic exercise (AE) on body tissue composition

RESEARCH QUESTION

- ❑ Does MRT more effectively produce desired changes in body tissue composition, as measured by greater loss of adipose tissue and increase in skeletal muscle mass when compared to traditional AE?

MRT Group



AE Group



METHODS

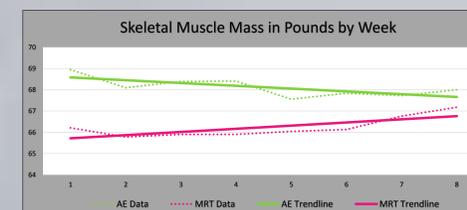
- ❖ IRB expedited review obtained
- ❖ Interventional quasi-experimental 2 group self-selected assignment
- ❖ 18 adults recruited for 8 week exercise study
 - Study groups either MRT or AE
 - Sessions allotted one hour
 - Each week all subjects complete 4 sessions:
 - 2 strength sessions AND
 - Either 2 metabolic OR 2 aerobic sessions
- ❖ Both groups received Certified Strength and Conditioning Specialist-led training
- ❖ Body tissue composition was measured weekly using bioelectrical impedance analysis

SAMPLE

- ❖ Total Group: 18 participants, age range 40-61, median age = 48, 72% female
 - MRT: 10 participants, age range 40-58, median age = 46.5, 70% female
 - AE: 8 participants, age range 42-61, median age = 50, 75% female
- ❖ Self selection resulted in comparable demographic and body composition groups
- ❖ All enrolled received health care provider medical release

RESULTS

- ❖ 100% of Participants completed ALL 8 weeks of the program
- ❖ Skeletal Muscle Mass in Pounds:
 - MRT **GAINED** 0.97 lbs. skeletal muscle mass
 - AE **LOST** 0.95 lbs. skeletal muscle mass
 - Significant difference: $t=2.519$, $df=16$, $p=0.023$



- ❖ % Adipose Tissue: Both groups lost comparable percentages of adipose tissue
- ❖ Post Program Participant Satisfaction Survey with Exercise and Results (% Marking Agree and Strongly Agree)

Question	MRT	AE
Exercise helped body tissue composition	87.5	62.5
Feel healthier if continue same exercise	100	75
Will continue this exercise	100	75
Prefer a <i>Different</i> exercise	37.5	75

- The MRT group expressed greater likelihood of continuing with MRT

CONCLUSIONS

MRT group experienced significant change in body tissue composition

- ❖ Metabolic activity results in statistically significant skeletal muscle mass gain which suggests that MRT is a more effective exercise to achieve desirable health outcomes
- ❖ Although proper nutrition is important, body composition may be altered without drastic diet changes

IMPLICATIONS

- Research:** Expand MRT research to wider population variety, less physically fit, and subgroups by race and ethnicity
- Practice:** Incorporate resistance training to improve body tissue composition and optimal health
- Policy:** Create local and national level policy strategizing incentives, insurance reimbursement, and workplace programs to include MRT as an exercise option
- Education:** Educate patients and health professionals on the benefits of MRT and the importance of body tissue composition as it relates to optimal health

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