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# Brief, weekly magnetic muscle therapy improves mobility and lean body mass in older adults: a Southeast Asia community case study

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## Abstract

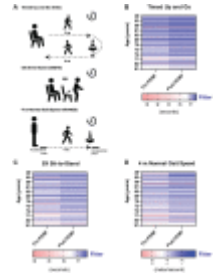
Brief (10 min) weekly exposure to low energy pulsed electromagnetic fields (PEMFs) has been shown to improve human muscle mitochondrial bioenergetics and attenuate systemic lipotoxicity following anterior cruciate ligament surgical reconstruction. Here we present data generated from 101 participants, 62% female, aged 38-91 years, recruited from the QuantumTx Demo Centre in Singapore,

wherein 87% of participants ( $n = 88$ ) presented with pre-existing mobility dysfunction and 13% ( $n = 13$ ) were healthy volunteers. Participants were recruited if: (i) not pregnant; (ii) above 35 years of age and; (iii) without surgical implants. All participants completed mobility testing, pre- and post- PEMF intervention for 12 weeks, whereas bioelectrical impedance analysis was conducted in a subgroup of 42 and 33 participants at weeks 4 and 8, respectively. Weekly PEMF exposure was associated with significant improvements in mobility (Timed Up and Go, 5 times Sit-to-Stand, and 4m Normal Gait Speed) and body composition (increased skeletal muscle mass and reduced total and visceral fat mass), particularly in the older participants. Perception of pain was also significantly reduced. PEMF therapy may provide a manner to counteract age-associated mobility and metabolic disruptions and merits future investigation in randomized controlled trials to elucidate its clinical benefits in the frail and older adult populations.

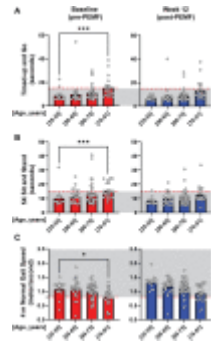
**Keywords:** frailty; intra-abdominal fat; muscle weakness; sarcopenia; type 2 diabetes mellitus.

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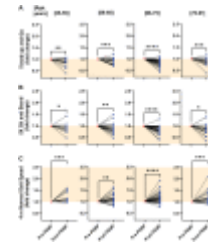
## Figures



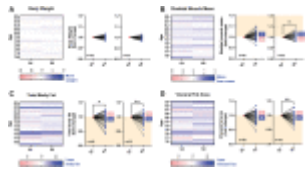
**Figure 1 Individual functional assessments pre- and...**



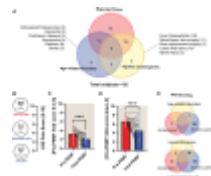
**Figure 2 Age-stratified changes in mobility function,...**



**Figure 3 Normalized age-stratified changes in mobility...**



**Figure 4 Changes in body composition before...**



**Figure 5 Visual analogue scale (VAS) scoring...**

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