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Effects of strength versus power/agility-focused training programs on cardiorespiratory fitness, physical performance, body composition, and health-related quality of life in older adults: the Physical Fitness in the Golden Age program in El Paso, USA

Submission date 14/02/2026	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 16/02/2026	**Overall study status** Completed	
Last Edited 16/02/2026	**Condition category** Other	

Plain English summary of protocol

Background and study aims

This study looked at how two types of exercise programs affect fitness, body composition, and quality of life in older adults. One program focused on strength training, while the other focused on power and agility. The researchers wanted to see whether these programs could improve fitness, reduce signs of muscle loss, and help people feel better in their daily lives.

Who can participate?

The study included adults aged 60 years and above who were living in the community and not regularly active. People needed approval from a health care provider to take part. Those with long-term conditions such as diabetes, asthma, or osteoarthritis could join if their doctor agreed. People who were already very active or who lived outside the El Paso area were not included.

What does the study involve?

Participants took part in a 16week exercise program. They were placed in either a strength training group or a power and agility group. Both groups also did cardiovascular, balance, and flexibility exercises. Fitness, muscle strength, walking ability, and body composition were measured at the start of the study and again after the 16 weeks.

What are the possible benefits and risks of participating?

Taking part could help improve strength, balance, mobility, and overall fitness. It could also improve quality of life and reduce the impact of agerelated muscle loss. The risks were similar to those of normal exercise, such as muscle soreness or minor injuries. Participants were screened by a health professional to help reduce these risks.

Where is the study run from?
The study took place in El Paso, Texas. Exercise sessions were held at the University of Texas at El Paso's Fitness Research Facility and at a local Recreation Centre operated by the El Paso Parks and Recreation Department.

When is the study starting and how long is it expected to run for?
Participants were enrolled between July 4 and July 29, 2016. The exercise program ran for 16 weeks, with final assessments completed in December 2016.

Who is funding the study?
The study was funded by the National Strength and Conditioning Association (USA)

Who is the main contact?
The main scientific contact is Professor Alan Hayes (alan.hayes@vu.edu.au), Victoria University, Australia. The principal investigator is Professor Sandor Dorgo (sandor.dorgo@utsa.edu) at The University of Texas at San Antonio.

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Study information

Scientific Title
Effects of strength versus power/agility-focused training programs on cardiorespiratory fitness, physical performance, body composition, and health-related quality of life in older adults: the Physical Fitness in the Golden Age program in El Paso, USA

Study objectives
The primary aim of this study was to assess the effects of strength (ST) versus power/agility training (PT) programs on fitness, body composition, and health-related quality of life (HRQoL) measures in community-dwelling older adults, El Paso, TX, USA. Secondary aims were to explore prevalence of sarcopenia and whether improvements in sarcopenia components (lean mass, strength, and function) are associated with improvements in HRQoL, and whether ST or PT training specifically may elicit more improvements in sarcopenia components and HRQoL

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 26/02/2016, Institutional Review Board (The University of Texas at El Paso 2101 Sun Bowl Drive 500 W University Ave, El Paso, 79968-0587, United States of America; +1 915 747-8841; irb@utep.edu), ref: 718459-4 (Approved for previously collected data - original Ref No: 718459 - and new data as part of the Golden Age program))

Primary study design
Interventional

Allocation
Non-randomized controlled trial

Masking
Open (masking not used)

Control
Uncontrolled

Assignment
Parallel

Purpose
Basic science

Study type(s)

Health condition(s) or problem(s) studied
Resistance training

Interventions
The study was quasi-experimental pretest-posttest design (non-randomised control trial) comparing two different 16-week interventions (ST and PT), delivered at two different locations, within the Physical Fitness in the Golden Age program, El Paso, TX, USA. Both intervention sessions included cardiovascular exercises, balance drills, and flexibility training following American College of Sports Medicine ACSM guidelines. However, while ST subjects completed weight resistance training exercises targeting both upper- and lower-body muscle groups, PT subjects completed explosive movements for power and agility development. ST group exercise selection focused on large muscle group free-weight exercises, such as squats, lunges, step-ups, bench press, shoulder press, and dumbbell rows. PT group power exercises included hammer slams, medicine ball throws, hurdle hops, bodyweight plyometrics, and battle rope slams, while agility exercises included agility ladder drills, multi-directional cone agility drills, and reaction ball exercises.

This study had two locations:

• Fitness Research Facility, Department of Kinesiology at The University of Texas at El Paso (UTEP), TX, USA
• Recreation Centre, El Paso Parks and Recreation Department, TX, USA

Data was collected at baseline (Aug 2016) and following the 16-week intervention (Dec 2016).

Intervention Type
Behavioural

Primary outcome(s)
1. Fitness measured using leg balance, twoleg vertical jump, oneleg vertical jump, seated medicine ball throw, standing medicine ball throw, speed walk, handgrip strength (left), backleg strength, upandgo test, ramp walk 30°, stair climb, 30second chair stand, 30second arm curl, and 6minute walk at baseline and 16 weeks

2. Body composition measured using dualenergy Xray absorptiometry (DXA) for bone mineral density, total lean mass, body mass index, and appendicular lean mass at baseline and 16 weeks

3. Healthrelated quality of life measured using the Assessment of Quality of Life–4 Dimensions (AQoL4D) questionnaire at baseline and 16 weeks

4. Sarcopenia prevalence measured using European and American sarcopenia definitions at baseline and 16 weeks

5. Lean mass measured using dualenergy Xray absorptiometry (DXA) for ALM, ALM/BMI, and ALM /h² at baseline and 16 weeks

6. Strength measured using handgrip strength via handgrip dynamometer at baseline and 16 weeks

7. Physical function measured using gait speed via the 6minute walk test at baseline and 16 weeks

Key secondary outcome(s)

Completion date
16/12/2016

Eligibility

Key inclusion criteria
1. Healthy physically inactive and sedentary community-dwelling older adults (aged 60 years and above).
2. No regular participation in physical activity, defined as less than 20 minutes of vigorous physical activity three days a week (less than 60 total minutes per week).
3. A medical release form or a health care provider's written approval indicating a level of physical health conducive to participation in the exercise program was required.
4. Individuals with existing chronic conditions or physical limitations, including diabetes, asthma, or osteoarthritis were also included in the study upon the approval of their health care provider.

Healthy volunteers allowed
Yes

Age group
Mixed

Lower age limit
60 Years

Upper age limit
100 Years

Sex
All

Total final enrolment
113

Key exclusion criteria
Physically active community-dwelling older adults (over 60 min of vigorous exercise a week) outside of El Paso region.

Date of first enrolment
04/07/2016

Date of final enrolment
29/07/2016

Locations

Countries of recruitment
United States of America

Sponsor information

Organisation
The University of Texas at El Paso

ROR
https://ror.org/04d5vba33

Funder(s)

Funder type

Funder Name
National Strength and Conditioning Association

Alternative Name(s)
The National Strength and Conditioning Association, NSCA

Funding Body Type
Private sector organisation

Funding Body Subtype
Associations and societies (private and public)

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available