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# Omega-3 fatty acids, curcumin, and citicoline with and without creatine and guanidinoacetic acid supplementation in older poeple

**Submission date**
08/09/2026

**Recruitment status**
Recruiting

**Registration date**
24/09/2026

**Overall study status**
Ongoing

**Last Edited**
09/09/2026

**Condition category**
Other

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

## Plain English summary of protocol

Background and study aims
As people age, they may experience changes in physical health, body composition, and cognitive abilities such as memory, attention, and processing speed. Some nutritional supplements, including omega-3 fatty acids, curcumin, citicoline, creatine, and guanidinoacetic acid, may support brain function and overall health, but more research is needed to understand their effects in older adults.

The aim of this study is to investigate whether taking a combination of omega-3 fatty acids, curcumin, and citicoline, with or without creatine and guanidinoacetic acid, for 12 weeks can improve health and cognitive function in adults aged 45 to 75 years. All participants will also take part in a supervised exercise programme and follow a calorie-controlled diet.

Who can participate?
Adults aged 45 to 75 years who are generally healthy, able to complete the study procedures in English, and willing to follow the exercise, diet and supplement programmes can take part. Participants must meet minimum scores on memory and cognitive screening questionnaires and must not have diagnosed cognitive impairment or certain medical conditions that could affect participation or study results.

What does the study involve?
Participants first complete telephone screening and an in-person assessment. Eligible participants undergo baseline testing, including measurements of body weight, body composition, physical fitness, memory and thinking abilities, quality of life, mood, physical activity, blood pressure, and blood markers of health. Blood samples are also collected.

Participants are then randomly allocated to one of three groups. One group receives a placebo supplement, the second receives omega-3 fatty acids, curcumin and citicoline plus placebo, and the third receives omega-3 fatty acids, curcumin, citicoline, creatine and guanidinoacetic acid. Participants and study staff do not know which treatment each participant receives.

All participants follow a supervised exercise programme four days per week and a calorie-controlled diet for 12 weeks. Study assessments are repeated after 6 weeks and again after 12 weeks to compare changes in health, physical performance and cognitive function between the groups.

What are the possible benefits and risks of participating?
Participants may benefit from taking part in a supervised exercise programme, receiving dietary guidance, and learning more about their health, fitness and cognitive performance. The information gained may help researchers better understand whether nutritional supplements can support healthy ageing and cognitive function.

Potential risks include discomfort, bruising or dizziness during blood collection, fatigue during exercise testing and training, and possible side effects from the supplements. Study staff will monitor participants throughout the study to help minimise risks.

Where is the study run from?
The Texas A&M University, USA.

When is the study starting and how long is it expected to run for?
Participant recruitment began in September 2026 and is expected to finish in December 2026. The overall study is expected to run until March 2027. Individual participants take part in the intervention for 12 weeks.

Who is funding the study?
WoodNext Foundation, USA.

Who is the main contact?
Mr Christopher Rasmussen, crasmussen@tamu.edu

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# Additional identifiers

# Study information

**Scientific Title**
Effects of 12 weeks of omega-3 fatty acids, curcumin, and citicoline with and without creatine and guanidinoacetic acid supplementation during an exercise and diet intervention on markers of health and cognitive function in older adults

**Acronym**
OCC Study

**Study objectives**
The aim of this study is to evaluate the effects of 12 weeks of Omega 3-Fatty Acids, Curcumin, and Citicoline supplementation with and without Creatine Monohydrate and Guanidinoacetic Acid supplementation during an exercise and diet intervention on markers of health and cognitive function in older adults.

**Ethics approval required**
Ethics approval required

**Ethics approval(s)**
Approved 05/08/2026, Texas A&M University Institutional Review Board (IRB) (301 Old Main Suite 3104 1112 TAMU, College Station, Texas, 77843-4243, United States of America; +1 9798458585; irb@tamu.edu), ref: STUDY2026-0702

**Primary study design**
Interventional

**Allocation**
Randomized controlled trial

**Masking**
Blinded (masking used)

## Control
Placebo

## Assignment
Parallel

## Purpose
Treatment

## Study type(s)

## Health condition(s) or problem(s) studied
Supplementation, exercise and diet intervention on markers on health and cognitive function in older adults.

## Interventions
Screening:
Potential study participants will undergo a phone screening using the study phone script to determine general eligibility. If they pass this initial screening, they will be invited to a familiarization session.

Familiarization:
During the familiarization, participants will first be informed about the study. Next, participants will be asked to complete the Mini-Mental State Examination (MMSE). If they score less than a 23, they will be omitted from further study participation. To continue with the study, they will need to achieve a score of 23 or above. The MMSE is effective as a screening tool for cognitive impairment with older, community dwelling, hospitalized and institutionalized adults. Participants will then be asked to complete the Memory Complaint Questionnaire (MAC-Q). If they score less than 25, they will be omitted from further study participation. To continue with the study, they will need to achieve a score of 25 or above. The MAC-Q is a self-reporting questionnaire for elderly people which includes memory problems in general and daily living. We are not using these two questionnaires to diagnose or treat, simply to correlate results too. Next, participants will be asked to sign informed consent statements in compliance with University IRB. Participants must be healthy enough to be able to participate in a general fitness program and perform the study testing (including cognitive function tests). They must be competent enough to participate such that a legal representative or guardian doesn't need to explain and approve their participation. However, this is not a study to identify, diagnose or treat Mild Cognitive Impairment (MCI). We simply want to see if the MMSE and MAC-Q scores relate or improve when given CrM and/or GAA and/or improves with CrM and/or GAA. We will then have participants complete a health history form that is included with the general screening form. Participants will respond to health history questionnaires and undergo a general physical assessment including having height and weight measured on a calibrated scale and resting heart rate (RHR) and resting blood pressure (RBP) determined using a blood pressure cuff. These measurements will be recorded on the General Screening Form. They will next be informed of the general methods of the study. They will also be given instructions about how to follow the training and diet programs and how to complete the 4-day food log. Participants will then practice each exercise modality. Those eligible to participate will be scheduled for baseline assessments. Participants will be asked to record food and fluid intake for 4-days prior to testing, refrain from consuming atypical amounts of caffeine and other stimulants not normally consumed in their diet for 48-hours, avoid intense exercise for 24-hours, and fast for 12-hours prior to testing. Those eligible to participate will be scheduled for baseline assessments.

Testing:
Participants will first report to the ESNL, return their 4-day food log, be weighed, have hip and waist measures taken using a Gulick tension regulate tape and donate a fasting blood sample of approximately 20 milliliters (~ 4 teaspoons). We are requesting blood draws to help answer scientific questions [i.e., dependent variables like a lipid panel (Lipid-4), complete blood count (CBC-23), comprehensive metabolic panel (Chem-18), hemoglobin A1c (HbA1c), and homocysteine (Hcy)]. Venous blood will be taken from the most common site for performing a venipuncture, the antecubital area of the arm. Once a suitable vein in the forearm is identified and a disposable rubber tourniquet is applied the phlebotomist will clean the insertion site with an alcohol prep pad saturated with 70% isopropyl alcohol. A winged blood collection set also known as a "butterfly" set will be inserted into the vein. We will collect approximately 20 milliliters (~ 4 teaspoons) of venous blood into two (2) SST Tiger Top vacutainer tubes and one (1) EDTA Purple Top vacutainer tube. After the blood is collected the needle and set will be removed and immediately placed into a biohazard sharps container. Finally, a Band-Aid will be placed over the insertion site. A blood draw attempt will not occur more than two times per visit if we are unable to obtain a blood sample. Next, they will be asked to lie motionless on a DXA body composition scanner for approximately three minutes while it scans their body. After the DXA we will place a small electrode on their right hand and right foot, connect a couple cables and run a small electrical current through their body to measure their body water (BIA). Then they will be asked to lie motionless on an exam table/bed for approximately 30 minutes while we place a large clear canopy over their head to measure their Resting Energy Expenditure (REE). Following the REE we will measure their RHR and RBP. Next, they will be asked to complete a series of questionnaires including:
1. The SF-36 Quality of Life (QOL) Questionnaire. This is a set of generic, coherent, and easily administered quality-of-life measures.
2. The International Physical Activity Questionnaire (IPAQ) – Long Form. This is a standardized measure to estimate habitual practice of physical activities of populations from different countries and socio-cultural contexts.
3. The Profile of Mood States (POMS). This is a widely used questionnaire in the clinical field when examining psychotherapeutic, psychological, and somatic questions.
4. The Mini-Mental State Examination (MMSE). The MMSE is effective as a screening tool for cognitive impairment with older, community dwelling, hospitalized and institutionalized adults.
5. The Memory Complaint Questionnaire (MAC-Q). This is a self-reporting questionnaire for elderly people which includes memory problems in general and daily living.
6. The Wechsler Memory Scale (WMS - VAP1 and VAP2). This provides information on a range of memory components, namely, auditory memory, immediate memory, delayed memory, visual memory, and visual working memory.
7. A Menstrual Status Questionnaire (females only). This is a questionnaire about menstrual experiences and general health.
8. A Menopause Status Questionnaire (females only). This is a questionnaire about menopause experiences and general health.
9. A Side-Effects Questionnaire. This is a questionnaire that asks to rate the frequency and severity of common side effects.

The menstrual and menopause status questionnaires are intended to assess whether the supplements have any effect on female health. Following these questionnaires, we will ask participants to perform the NeuroTracker Light Reaction Test. This is a 3D visual exercise that trains the brain using a multiple-object tracking test. Next, we will ask participants to complete the COMPASS Cognitive Function Test Battery. This consists of seven (7) components including:
1. Immediate and Delayed Word Recall
2. Delayed Word Recognition

3. Delayed Picture Recognition
4. Corsi Blocks Task
5. Digit Vigilance
6. Stroop Test
7. Choice Reaction Time.

Next, we will ask participants to lie on an exam table while we prepare them with ECG electrodes for a maximal cardiopulmonary test (GXT). They will be asked to walk on a treadmill that gradually increases speed and grade while we collect their air exchange. One Repetition Maximum (1RM) testing will be done on the bench press and leg press followed by a muscular endurance test where we will ask participants to complete as many repetitions as possible to failure at a weight equal to 70% 1RM. Participants will then be randomly assigned to one of the treatment groups and begin training and dieting for 12-weeks. The method of randomization was Block Randomization (Permuted Block) using sealed envelopes.

Follow-Up:
Participants will repeat all testing at 6 weeks and 12-weeks after baseline.

Treatment Groups:
Participants will be randomized into one of the following three (3) treatment groups:
Treatment 1. Placebo (2 x 6 g/day maltodextrin)
Treatment 2. Omega 3-Fatty Acids* (2 x 1 g/day), Curcumin (2 x 500 mg/day), Citicoline (2 x 500 mg/day) + Placebo (2 x 6 g/day maltodextrin)
Treatment 3. Omega 3-Fatty Acids* (2 x 1 g/day), Curcumin (2 x 500 mg/day), Citicoline (2 x 500 mg/day) + Creatine [CrM] (2 x 5 g/day), Guanidinoacetic Acid [GAA] (2 x 1 g/day)
*Omega 3-Fatty Acids (3:1 DHA:EPA Ratio)

All supplements will be prepared in generic packets for double-blind. Participants will be asked to consume the supplement dose with breakfast at approximately 8:00 a.m. every day and dinner at approximately 6:00 p.m. every day for 12 weeks. The group they will be assigned to will be chosen by chance, like flipping a coin. Neither the participant nor the study staff know what treatment they get. They will have an equal chance of being in each group.

Training Intervention:
All participants will participate in a supervised exercise training four (4) days per week at the HCRF consisting of a 5-minute warm-up, light stretching, resistance training (3 sets of 10 repetitions @ 60%-80% 1RM on the bench press, seated row, shoulder press, lat pulldown, biceps curl, triceps extension, leg press, leg extension, leg curl, abdominal crunch/curl, and back extension) and cardiovascular training (walking or cycling for 20 to 30 minute training at 60% to 80% heart rate reserve [HRR]). Each exercise session will last about one hour. Additionally, participants will be asked to accumulate 10,000 steps per day of brisk walking on non-training days (goal > 150 minutes per week of moderate exercise). A 10,000 step per day goal serves as a standardized benchmark for physical activity volume. This target roughly corresponds to standard public health goals of 150 minutes of moderate activity per week. It provides a clear, easily trackable metric for compliance across study cohorts. When participants cannot meet the step goal due to illness, injury, or safety concerns, we will consider a temporary exemption, goal adjustment, protocol withdrawal, or data exclusion depending on the individual circumstance and the extent to which they fall short of 10,000 steps. Training will be recorded on training logs.

Diet Intervention:
All participants will be given 1,400, 1,500, or 1,600 kcal/day diets based on REE determination designed to promote an approximate 300 kcal/day energy intake deficit following the American

Heart Association (AHA) macronutrient distribution recommendations (55% CHO, 30% FAT, 15% PRO). A goal energy intake, weekly diet plan, examples, and a food substitution list will be provided. Scientific studies on healthy participants using a calorie-restricted diet are justified by the need to isolate the metabolic, hormonal, and cellular mechanisms of aging and markers of health. Interventions must restrict energy intake while preserving nutrient density to separate the metabolic adaptations of a chronic calorie deficit from simple weight loss. DEXA tracks changes in bone mineral density and lean body mass, allowing study personnel to intervene if adverse musculoskeletal declines exceed safe thresholds.

## Intervention Type
Supplement

## Primary outcome(s)
1. Body weight measured using a calibrated, digital scale at 0, 6 and 12 weeks

2. Body fat mass (kg) measured using dual-energy-x-ray absorptiometry (DXA) at 0, 6 and 12 weeks

3. Body composition (%) measured using DXA at 0, 6 and 12 weeks

4. Waist to hip circumference (W/H) measured using a tension-regulated tape measure at 0, 6 and 12 weeks

5. Subjective memory complaints measured using the Memory Complaint Questionnaire (MAC-Q) at 0, 6 and 12 weeks

6. Various aspects of memory and learning measured using the Wechsler Memory Scale (WMS-VAP1 and VAP2) at 0, 6 and 12 weeks

7. A range of cognitive skills including processing speed, memory, attention, executive function, and visoperceptual skills measured using COMPASS Cognitive Function Test Battery at 0, 6 and 12 weeks

8. Various aspects of mental function measured measured using the Mini-Mental State Examination at 0, 6 and 12 weeks

## Key secondary outcome(s)
1. Resting Energy Expenditure (REE) measured using a calibrated ParvoMedics TrueOne2400 metabolic cart at 0, 6 and 12 weeks

2. Graded Exercise Test (GXT - VO2 max) measured using calibrated ParvoMedics TrueOne 2400 metabolic cart at 0, 6 and 12 weeks

3. Muscular strength measured using bench press One-Repetition Maximum (1 RM) at 0, 6 and 12 weeks

4. Muscular strength measured using leg press One-Repetition Maximum (1 RM) at 0, 6 and 12 weeks

5. Muscular endurance measured using bench press muscular endurance (total work - total repetitions at 70% 1RM) at 0, 6 and 12 weeks

6. Muscular endurance measured using leg press muscular endurance (total work - total repetitions at 70% 1 RM) at 0, 6 and 12 weeks

7. Complete Blood Count (CBC) measured using automated analyzers from Clinical Pathology Laboratories (CPL) at 0, 6 and 12 weeks

8. Blood Chemistry Panel (Chem Panel) measured using automated analyzers from Clinical Pathology Laboratories (CPL) at 0, 6 and 12 weeks

9. Blood Lipids measured using automated analyzers from Clinical Pathology Laboratories (CPL) at 0, 6 and 12 weeks

10. Hemoglobin A1c measured using automated analyzers from Clinical Pathology Laboratories (CPL) at 0, 6 and 12 weeks

11. And individual's overall well-being encompassing their physical health, psychological state, and social relationships measured using the Quality of Life Questionnaire (SF-36) at 0, 6 and 12 weeks

12. Physical activity and inactivity in adults over the past 7 days measured using the International Physical Activity Questionnaire (IPAQ) at 0, 6 and 12 weeks

13. Fluctuation in six mood states (tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment) measured using the Profile of Mood States (POMS) at 0, 6 and 12 weeks

14. Adverse effects measured using the Side-Effects Assessment at 0, 6 and 12 weeks

### Completion date
01/03/2027

# Eligibility

### Key inclusion criteria
1. Apparently healthy males and females between 45 to 75 years of age
2. Willing to complete the study, comply with the study procedures, consume the study supplements daily for the duration of the study, and provide voluntary written informed consent in English
3. Willing to refrain from alcohol intake, common stimulants, and strenuous exercise for 48-hours prior to each testing session
4. Willing to abstain from dietary supplements that may affect cognitive function during the study
5. Willing to comply and understand the cognitive function tests in English
6. Score 23 or greater on the memory Complaint Questionnaire (MAC-Q) given during the Familiarization

### Healthy volunteers allowed
Yes

### Age group
Mixed

### Lower age limit
45 Years

### Upper age limit
75 Years

### Sex
All

### Total final enrolment
0

### Key exclusion criteria
1. A known vitamin B12/B6 or folate deficiency
2. Known homocystinuria
3. High homocysteine levels
4. A history of kidney disease requiring dialysis
5. Diagnosed cognitive impairment or neurological disease
6. Pregnant, breastfeeding, or wishing to become pregnant during the study
7. Uncontrolled heart disease, hypertension, diabetes, thyroid disease, neurological disease, or medically treated major psychological or depressive disorder that may affect results of the study
8. Known allergy or sensitivity to meat or fish or any of the ingredients in the supplement products
9. Score less than 23 on the Mini-Mental State Examination (MMSE) given during the familiarization
10. Score less than 25 on the Memory Complaint Questionnaire (MAC-Q) given during the familiarization
11. Have any other condition which, in the PI's opinion, may adversely affect your ability to complete the study, its measurements, or pose a significant risk

### Date of first enrolment
01/09/2026

### Date of final enrolment
01/12/2026

## Locations

### Countries of recruitment
United States of America

## Sponsor information

### Organisation
WoodNext Foundation

# Funder(s)

**Funder type**

**Funder Name**
WoodNext Foundation

# Results and Publications

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**
Not expected to be made available