

# Gambian bone and muscle ageing study

<b>Submission date</b> 09/06/2017	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 17/06/2019	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 03/07/2025	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Musculoskeletal diseases are diseases of the bones, muscles and their attachments (e.g. joints and ligaments). They form a major part of the current global non-communicable (not caused by infections) disease burden. By 2050, the vast majority of the world's ageing population will live in low- and middle-income countries. There is very little information about musculoskeletal diseases from countries in sub-Saharan Africa. This study is investigating men and women from a poor, subsistence farming community of The Gambia, West Africa. The study is designed to measure changes in bone and muscle health using state of the art techniques and identify possible ways of preventing bone and muscle loss as people get older, and the accompanying risk of falls and fractures which lead to poor health, disability and premature deaths.

### Who can participate?

Men and women aged 40 and over living in villages in the Kiang West area of The Gambia

### What does the study involve?

Participants are invited to undergo measurements both in the MRC research facilities in The Gambia and whilst they are at home. After measurements have been made at the start of the study they are then seen every 1.5-2 years for follow-up measurements. The data collected includes measurements of bone and muscle strength, hormones and metabolites in urine and blood samples, dietary intake, and blood pressure. Questionnaires are used to obtain information on health, lifestyle, musculoskeletal pain, socioeconomic status, physical activity and reproductive history.

### What are the possible benefits and risks of participating?

There are no direct benefits to the participants, other than participation in research aimed at improving health and informing public health nutrition policy in The Gambia and other countries. Participants who have results which may be clinically relevant and suggest previously undiagnosed health problems are referred to the study physician or nurse for initial follow up and then decisions are taken as to whether treatment or further investigation is needed. Ultimately, the findings from this study will contribute to the understanding of musculoskeletal health in populations transitioning from traditional to more western lifestyles. The results are also compared with those obtained from studies of older people in the UK.

Where is the study run from?

The study is being run by the Medical Research Council and takes place in rural villages in The Gambia, West Africa

When is the study starting and how long is it expected to run for?

April 2010 to December 2023

Who is funding the study?

Medical Research Council (UK)

Who is the main contact?

Kate Ward

## Contact information

**Type(s)**

Scientific

**Contact name**

Dr Kate Ward

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**Contact details**

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## Additional identifiers

**Clinical Trials Information System (CTIS)**

Nil known

**ClinicalTrials.gov (NCT)**

Nil known

**Protocol serial number**

N/A

## Study information

**Scientific Title**

Gambian Bone and Muscle Ageing Study (GamBAS): a longitudinal observational study in men and women in rural Gambia

## **Acronym**

GamBAS

## **Study objectives**

To characterise changes in bone and muscle outcomes and to identify possible preventative strategies for fracture and sarcopenia.

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

Approved 17/12/2010, Medical Research Council/Gambian Government Joint Ethics Committee (Clo MRC Laboratories, Fajara, P.O. Box 273, Banjul, The Gambia, West Africa; +220-4495919 or 4496 513; +220-4495442-6 ext. 2308), ref: 1222.

## **Study design**

Prospective longitudinal observational study

## **Primary study design**

Observational

## **Study type(s)**

Other

## **Health condition(s) or problem(s) studied**

Musculoskeletal health

## **Interventions**

Measurements are made at baseline and follow-up every 1.5-2 years.

Methods include bone imaging (DXA and pQCT), muscle strength (jumping mechanography, grip strength), anthropometry, blood and urine biochemistry, blood pressure, and dietary intake. Questionnaires to obtain information on health, lifestyle, physical activity, socio-economic status, musculoskeletal pain, reproductive history.

## **Intervention Type**

Other

## **Primary outcome(s)**

1. Bone mineral content (BMC) is measured using DXA measurements at baseline and follow-ups.
2. Areal bone mineral density (BMD) is measured using DXA at baseline and follow-ups.
3. Bone area is measured using DXA at baseline and follow-ups.
4. BMC is measured using peripheral quantitative CT (pQCT) at baseline and follow-ups.
5. Volumetric BMD is measured using pQCT at baseline and follow-ups.

## **Key secondary outcome(s)**

1. Bone shape and size by DXA and pQCT.
2. Muscle force/ strength Hand dynamometry for grip force: muscle force/ strength
3. Lateral vertebral assessment using DXA at baseline and follow-ups.
4. Regional and total fat and lean mass are measured using DXA at baseline and follow-ups.
5. Muscle 'density' and area are measured using pQCT at baseline and follow-ups.
6. Height (standing and sitting), demi-span and other limb dimensions, weight, mid-upper arm circumference (MUAC) and 4 skinfolds are measured at baseline and follow-ups.
7. Standing, sitting and lying blood pressure is measured at baseline and follow-ups.
8. Fasting blood, 2-h fasting urine, 24-h urine: including for markers of calcium, phosphate and vitamin D metabolism, bone metabolism, liver and kidney function, clinical chemistry, sex hormones are measured at baseline and follow-ups.
9. Dietary assessment is conducted at baseline and follow-ups.

**Completion date**

31/12/2023

## Eligibility

**Key inclusion criteria**

1. Men and women aged 40 years and above
2. Able to give informed consent

**Participant type(s)**

Healthy volunteer

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

40 years

**Sex**

All

**Total final enrolment**

488

**Key exclusion criteria**

1. Pregnant or lactating women
2. Individuals deemed too physically frail or incapable, due to existing disability or chronic illness to attend for measurements

**Date of first enrolment**

17/10/2011

**Date of final enrolment**

31/12/2012

## Locations

### Countries of recruitment

Gambia

### Study participating centre

Kiang West, Lower River Division

Gambia

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## Sponsor information

### Organisation

Medical Research Council

### ROR

<https://ror.org/03x94j517>

## Funder(s)

### Funder type

Research council

### Funder Name

Medical Research Council

### Alternative Name(s)

Medical Research Council (United Kingdom), UK Medical Research Council, Medical Research Committee and Advisory Council, MRC

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United Kingdom

# Results and Publications

## Individual participant data (IPD) sharing plan

The data sharing plans for the current study are unknown and will be made available at a later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	Sex-specific associations between cardiovascular risk factors and physical function	08/11/2022	03/07/2025	Yes	No
<a href="#">Results article</a>	Vertebral fracture prevalence and risk factors for fracture	07/11/2024	03/07/2025	Yes	No
<a href="#">Abstract results</a>		26/10/2021	03/07/2025	No	No
<a href="#">Other publications</a>	baseline data	31/08/2017	11/06/2019	Yes	No