

Can daily collagen supplementation reduce pain and improve recovery in firefighters?

Submission date 04/09/2026	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 07/09/2026	Overall study status Completed	☐ Statistical analysis plan ☐ Results
Last Edited 07/09/2026	Condition category Other	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

Background and study aims

Firefighters carry out physically demanding work that can place stress on their muscles and joints. Repeated exposure to heavy lifting, awkward movements, prolonged activity, and emergency situations may lead to muscle soreness, musculoskeletal pain, and difficulties with recovery. Maintaining good musculoskeletal health is important to help firefighters stay healthy and able to perform their duties safely.

Collagen is a protein that is found naturally in the body and is important for the structure of muscles, tendons, ligaments, and joints. Collagen supplements are widely available and may help support musculoskeletal health, but there is limited research investigating their effects in firefighters. This study aims to find out whether taking a daily collagen supplement for 12 weeks can reduce musculoskeletal pain and improve recovery in operational firefighters.

Who can participate?

Operational firefighters employed by Kent Fire and Rescue Service who are aged 18 to 55 years, willing to take part in the study, and able to provide informed consent can participate.

What does the study involve?

Participants are randomly allocated to one of two groups. One group takes 10 grams of a commercially available collagen supplement each day with breakfast for 12 weeks. The other group does not receive collagen supplementation.

Participants attend study assessments at the start of the study, after six weeks, and after 12 weeks. Musculoskeletal pain is measured using questionnaires and a technique called algometry. During algometry, controlled pressure is applied to specific muscle areas to measure sensitivity to pressure-related pain. This procedure is non-invasive, although it may cause temporary discomfort or mild soreness.

Information is also collected about participants' work activities, including shift patterns and operational workload. Researchers compare changes in musculoskeletal pain, recovery, soreness, and readiness for work between the two groups over the 12-week study period.

What are the possible benefits and risks of participating?

Participants may not receive any direct benefit from taking part. However, they may gain a better understanding of their musculoskeletal health and recovery. The results could help researchers understand whether collagen supplementation is a useful strategy for supporting firefighter health and recovery.

The risks associated with participation are low. Algometry may cause temporary discomfort or mild, short-lived soreness. As with any dietary supplement, some people may experience minor unwanted effects, although commercially available collagen supplements are generally well tolerated.

Where is the study run from?

The University of East London and Kent Fire and Rescue Service in England, UK.

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

Participant recruitment began in January 2026 and ended in June 2026. The study is expected to be completed in September 2026.

Who is funding the study?

BUBS Naturals.

Who is the main contact?

Dr Drew Gonzalez, drewgonzalez418@shsu.edu

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Additional identifiers**Study information****Scientific Title**

Investigating the effects of collagen supplements on firefighters

Acronym

COLLAGEN-FIRE

Study objectives

The study investigates whether daily collagen supplementation can reduce musculoskeletal pain and support recovery, musculoskeletal health, and occupational readiness in firefighters exposed to the physical demands of firefighting.

The primary objective of this study is to determine whether 12 weeks of daily collagen supplementation reduces musculoskeletal pain in operational firefighters compared with a no-supplementation control condition. Secondary objectives are to evaluate the effects of collagen supplementation on recovery, perceived soreness, musculoskeletal health, and occupational readiness, and to explore the relationship between occupational workload and musculoskeletal pain and recovery.

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 27/08/2025, University of East London (University Way, London, E16 2RD, United Kingdom; +44 0208223 6683; researchethics@uel.ac.uk), ref: ETH2526-0015

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

Musculoskeletal pain, soreness, and recovery in operational firefighters

Interventions

This is a 12-week, two-arm randomized controlled trial investigating daily collagen supplementation compared with a no-supplementation control condition in operational firefighters from Kent Fire and Rescue Service.

Following informed consent and completion of baseline assessments, eligible participants are randomly allocated in a 1:1 ratio to either the collagen supplementation group or the no-supplementation control group using a computer-generated random allocation sequence.

Participants allocated to the intervention group receive a standardized, commercially available collagen supplement and are instructed to consume 10 g once daily with breakfast for 12 consecutive weeks. The intervention is not individually titrated or tailored; all participants allocated to the collagen group receive the same daily dose and supplementation schedule. Participants consume the supplement independently under free-living conditions as part of their normal daily routine.

Participants allocated to the control group receive no collagen supplementation during the 12-week study period and continue their usual dietary and occupational practices.

Adherence to the collagen supplementation protocol is monitored through weekly check-ins and supplement logs. No planned dose adjustments or tailoring of the intervention are undertaken. Any deviations or modifications required for participant safety or other unforeseen circumstances are documented.

Intervention Type

Supplement

Primary outcome(s)

1. Musculoskeletal pain and related symptoms measured using the Knee injury and Osteoarthritis Outcome Score (KOOS) at baseline, 6 weeks, and 12 weeks

Key secondary outcome(s)

1. Perceived muscle soreness in response to standardized pressure measured using a visual analogue scale (VAS) following application of 50 N of standardized pressure using a handheld Commander Algometer (JTECH Medical, Salt Lake City, UT, USA) at three specified sites of the quadriceps muscle at baseline, 6 weeks, and 12 weeks

Completion date

18/09/2026

Eligibility

Key inclusion criteria

1. Active operational firefighter engaged in frontline duties with Kent Fire and Rescue Service
2. Aged 18–55 years at the time of enrolment
3. Able and willing to provide informed consent
4. Willing and able to participate in the 12-week study and complete the required study assessments

Healthy volunteers allowed

Yes

Age group

Adult

Lower age limit

18 Years

Upper age limit

55 Years

Sex

All

Total final enrolment

30

Key exclusion criteria

1. Pre-existing musculoskeletal disorder requiring medical treatment
2. Current use of collagen supplements

Date of first enrolment

01/01/2026

Date of final enrolment

12/06/2026

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

Kent Fire and Rescue Service

Kent Fire and Rescue Service Headquarters, The Godlands, Straw Mill Hill, Tovil
Maidstone

England

ME15 6XB

Study participating centre

University of East London – SportsDock

Docklands Campus, University Way
London

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Sponsor information

Organisation

BUBS Naturals

Funder(s)

Funder type

Funder Name
BUBS Naturals

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			04/09/2026	No	Yes