

THE FRACTURES TRIAL FREQUENTLY ASKED QUESTIONS

WHAT IS THE FRACTURES TRIAL?

The Fractures Trial is the first of its kind. The study explored how the food served at aged care facilities impacts the health of the residents. Specifically, this trial investigated how increasing intake of milk, cheese and yoghurt impacted on a variety of health outcomes including fractures, falls, bone health, heart health, muscle strength and function.

Across two years, the food service teams at 30 aged-care facilities across Victoria, Australia added additional dairy foods to their menu. Examples of the modifications included serving cheese and crackers at morning tea and fortifying desserts such as cheesecake with skim milk powder. An additional 30 facilities continued with their usual menu.

Scientific papers have been published from the Fractures Trial, with the most recent titled 'Dietary Sources of Calcium and Protein Reduce Hip Fractures and Falls in Institutionalised Older Adults: a Cluster-Randomised Controlled Trial'. The paper was published in the **British Medical Journal**.

WHAT WERE THE MAJOR FINDINGS OF THE MOST RECENT PUBLISHED PAPER?

Compared to the group who continued with their regular menu, the intervention group:

- Increased their dairy intakes from 2 to 3.5 serves
- Increased calcium and protein intakes significantly
- Reduced their risk of falls by 11%
- Reduced their risk of all fractures and hip fractures 33% and 46%, respectively.

WHY ARE THE FINDINGS SO IMPORTANT?

Around 7% of older adults live in residential aged care; this is projected to grow in line with Australia's ageing population. A 2016 publication from the Fractures Trial found that 68% of those in Australian residential aged care are malnourished or at risk of malnutrition; which is associated with increased risk of falls and fractures. In fact, institutionalised individuals are the source of ~30% of all hip fractures.

There has never been such a large, well-designed trial specifically investigating dairy intake, and health of older adults. The study showed that improving calcium and protein intakes using dairy foods is a readily accessible intervention that reduces risk of falls and fractures commonly occurring in aged-care residents.

WHAT ARE THE PRACTICAL APPLICATIONS OF THE STUDY?

The results of the study provide compelling scientific evidence that can be used to improve the health of high-risk populations such as older adults in aged care. These types of well-designed trials are important for informing dietary guidelines and guiding good clinical practice including aged care and food provision policies.

WHO FUNDED THE STUDY?

The study was funded by dairy organisations in Australia, The United States and Europe and product was provided by a dairy company. Funding was also received from The University of Melbourne and Austin Health. While the dairy industry partly funded the trial, this did not impact the results of the study in any way. The dairy organisations played no role in the design, execution, analyses, interpretation of the data, writing of the manuscript or any other aspect of the study.

WHAT MAKES THE FINDINGS OF THIS STUDY DIFFERENT TO OTHER STUDIES ON DAIRY AND BONE HEALTH?

Few studies have investigated the efficacy and safety of a nutritional or whole food approach to fracture risk, with most looking at supplementation with single nutrients (i.e. calcium or vitamin D supplements). This is the first randomised controlled trial to show a benefit of dairy food intake on fracture risk in aged-care residents.

ARE THE BENEFITS OF THE STUDY DUE TO THE INCREASED MILK, CHEESE AND YOGHURT, OR IS THIS DUE TO THE INCREASED CALCIUM AND PROTEIN? COULD THE SAME RESULTS BE ACHIEVED USING SUPPLEMENTS?

Dairy foods are natural sources of bone and muscle friendly nutrients including calcium and high-quality protein in a form that's well absorbed by the body. These nutrients are likely responsible for the link between dairy foods and better bone health outcomes.

Supplements can play an important role in this high-risk population, but are not always easily consumed and can be costly. Consuming additional calcium and protein in the form of dairy foods which are widely available, palatable, safe and affordable provided an additional benefit to the study population and ensured they were easily able to meet their nutritional needs.

DOES IT MAKE A DIFFERENCE IF I CONSUME MORE OF ONE OF THE DAIRY FOODS (MILK, CHEESE, YOGHURT) OR DO I NEED TO CONSUME THEM ALL TO GET THE BENEFIT?

The study looked at calcium and protein levels that were consumed from total intakes of milk, cheese and yoghurt, rather than individual types. Benefits would therefore be achieved from consuming any combination of these foods, as long as adequate dairy serves are met. It's especially important to incorporate foods which are enjoyed the most, and most easily incorporated in the daily menu.

WHAT ROLE DOES DAIRY PLAY IN BONE AND MUSCLE HEALTH?

Milk, cheese and yoghurt contain a unique package of nutrients housed within complex structures. Dairy foods are natural sources of bone and muscle friendly nutrients including calcium and high-quality protein in a form that's well absorbed by the body.

Dairy foods play a key role in optimising musculoskeletal health throughout the lifecycle to accommodate needs during gradual growth in childhood, accelerated growth during adolescence, maintenance of muscle and bone during adulthood, and attenuation of loss of both muscle and bone during old age.

I UNDERSTAND HOW DAIRY FOODS PLAY A ROLE IN FRACTURE PREVENTION, BUT WHAT IS THE LINK WITH FALLS REDUCTION?

The finding that increased dairy foods plays a role in falls reduction can be linked back to the protein content of milk, cheese, yoghurt and milk powder. In the control group (no additional dairy), the participants lost muscle in their arms and legs, while this was maintained in the intervention (dairy group). Additionally, dairy foods, particularly milk contain the amino acid leucine which is well known as a potent stimulus for muscle protein synthesis.

INCREASING DAIRY SERVES FROM TWO TO 3.5 SERVES APPEARS TO BE A LARGE JUMP IN INTAKE. WOULD OLDER ADULTS EASILY CONSUME THE ADDITIONAL SERVES?

This new study showed that increasing dairy serves is a feasible strategy to improving the health of older residents. If residents were unable to consume increased dairy serves, average intakes would remain low and the researchers would have observed no changes to dairy consumption levels.

Importantly, this study showed that these changes were able to be sustained over a long period of time (two years). In the aged care setting, it's important that menus are varied, attractive, tasty, high in protein and energy, and offered in small portions to assist compliance.

WHY WAS THE STUDY CONDUCTED IN AGED CARE RESIDENTS? CAN THE FINDINGS BE APPLIED TO ALL OLDER PEOPLE?

The intervention was conducted in aged care residents due to their high risk for falls and fractures. As a result of their health status, they have often entered aged care because of an injury or fracture from a prior fall. Having such a large number of high-risk elderly in the one location meant the study could test the anti-fracture efficacy of dairy foods at the recommended intake level, in a location where falls and fractures are monitored, the food is provided to the residents, and compliance with the food could be measured.

This study demonstrated that falls and fractures can be reduced by residents consuming the recommended intake for dairy serves. While the population of interest was aged care residents, this is a health message that can extend beyond just aged care and into elderly in the community who may also be at risk of falls and fractures.

With 99% of older Australians in the general population not meeting dairy recommendations alongside an increasing ageing population, it is more important than ever to apply the findings of this research to public health strategies around fracture and falls risk prevention with dairy.