

Preventing Fractures & Falls in Older Adults in Aged Care by Improving Dairy Consumption



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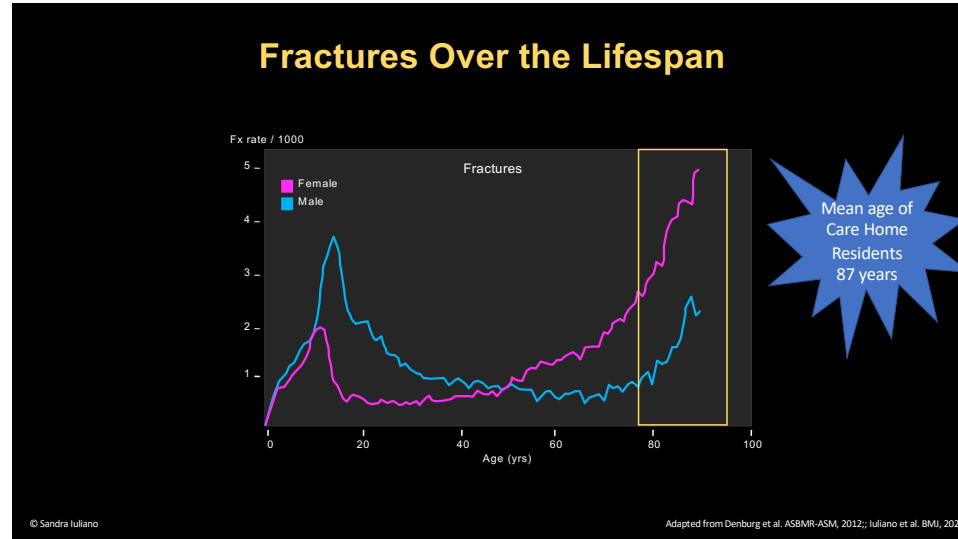
Disclosures

- European Milk Forum: Travel support / lecture fees
- Abbott: Advisory board / lecture fees
- UK Dairy Council: Expert group-healthy aging
- Nestle Health Sciences: Lecture fees
- Israel Milk Board: Lecture fees
- Northern Ireland Dairy Council: Lecture fees
- Research support

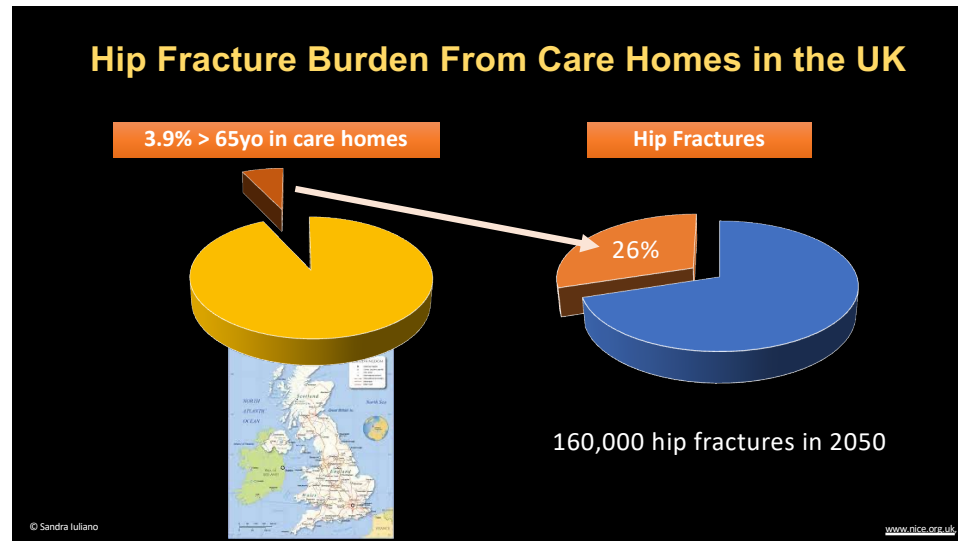


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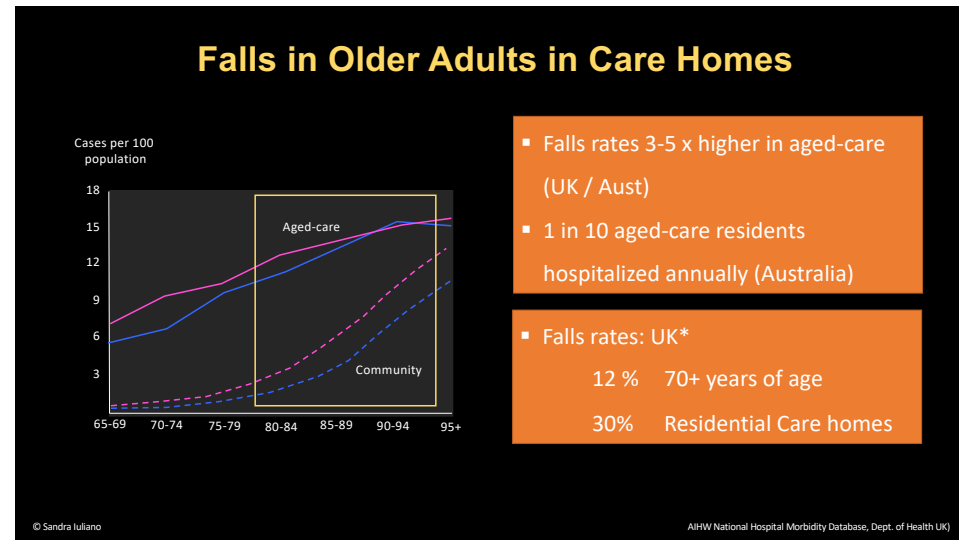
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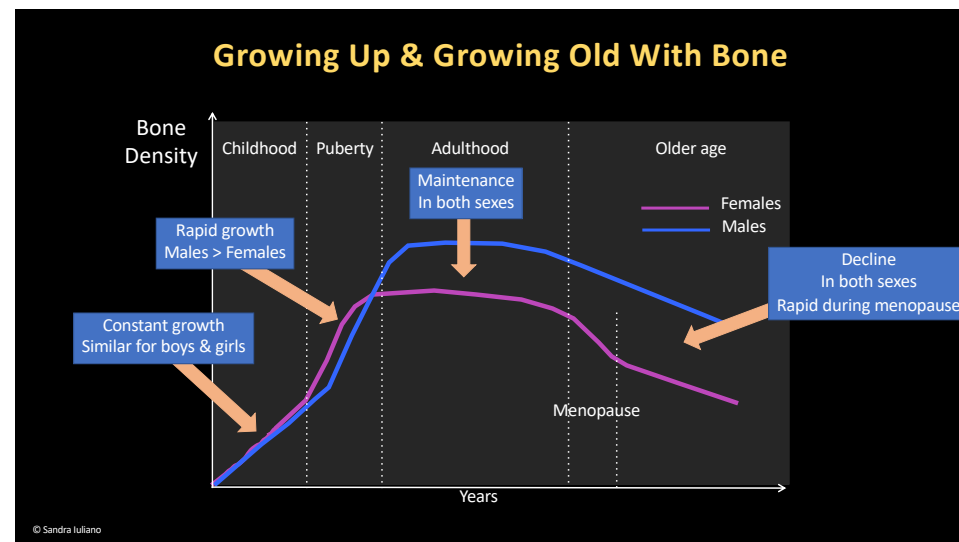
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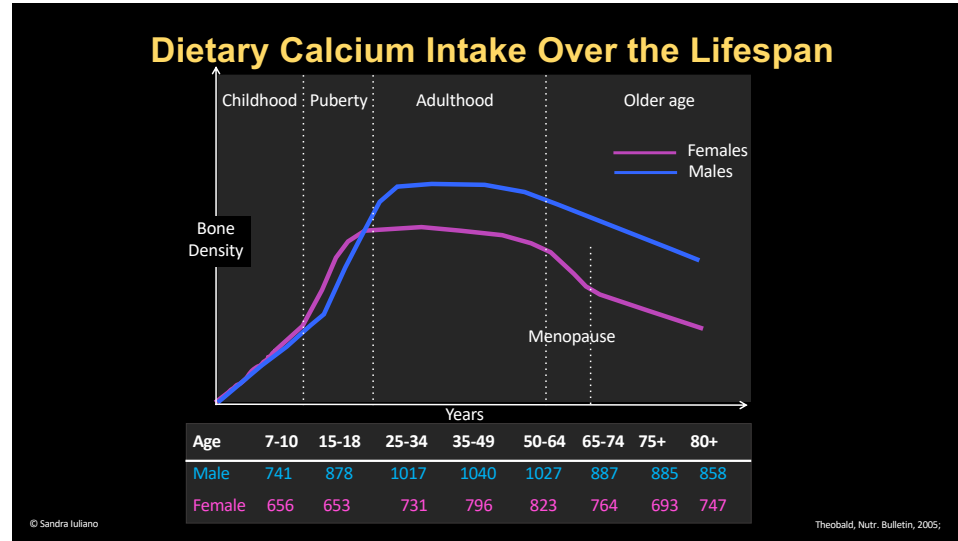
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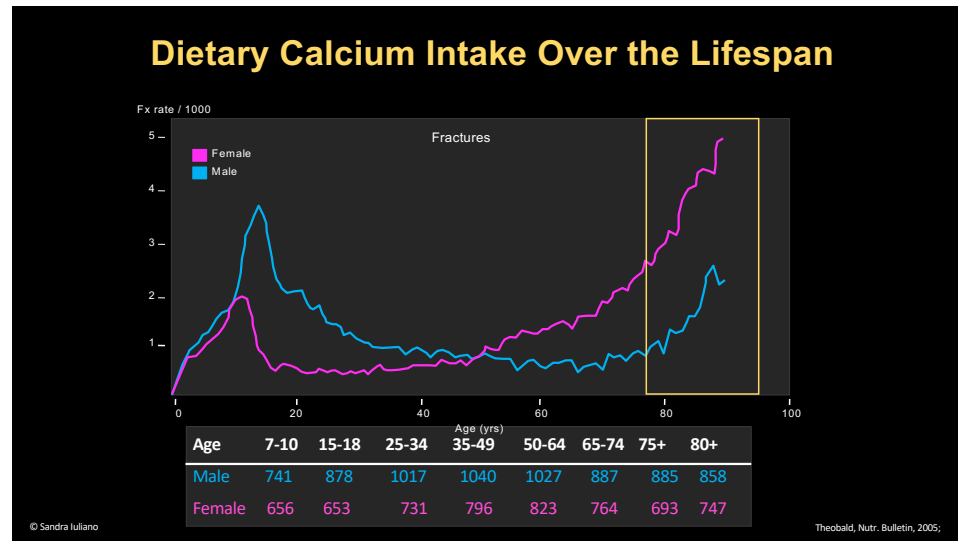
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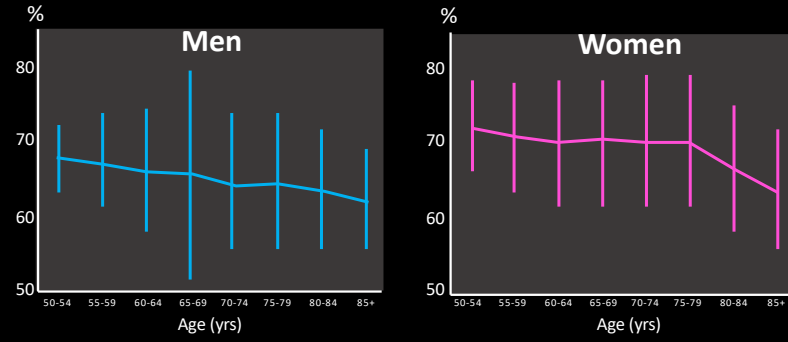


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Proportion of Older Adults Consuming Dairy Daily in Europe

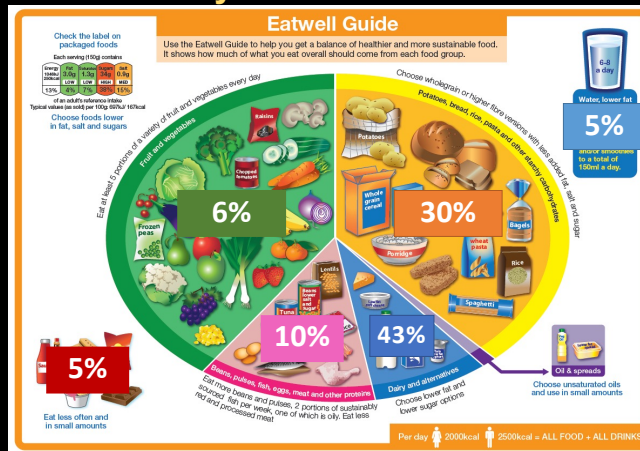


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Riberio et al. J Nutr Gerontol Geriatric 2019

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Dietary Sources of Calcium



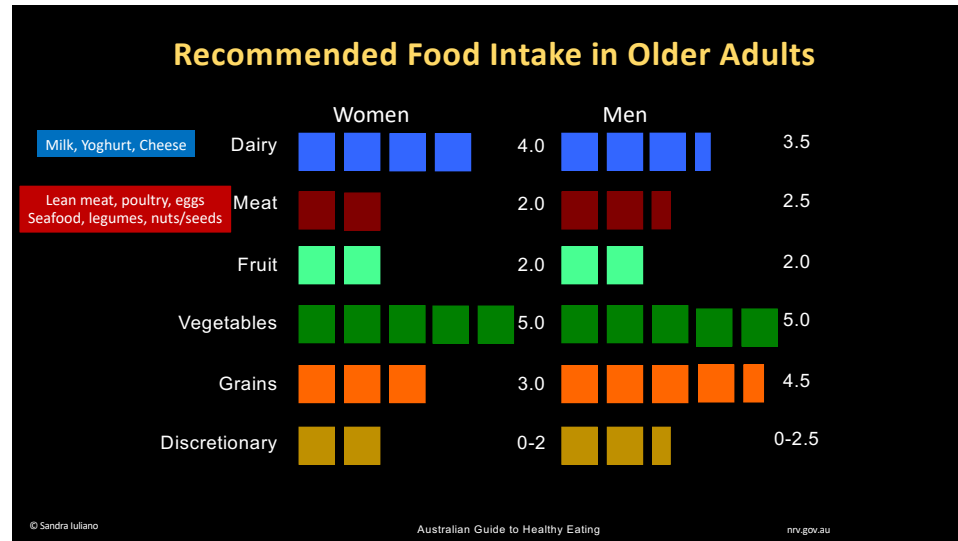
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Source: NHS Health England in association with the Health Departments, Food Standards Scotland and the Food Standards Agency in Northern Ireland

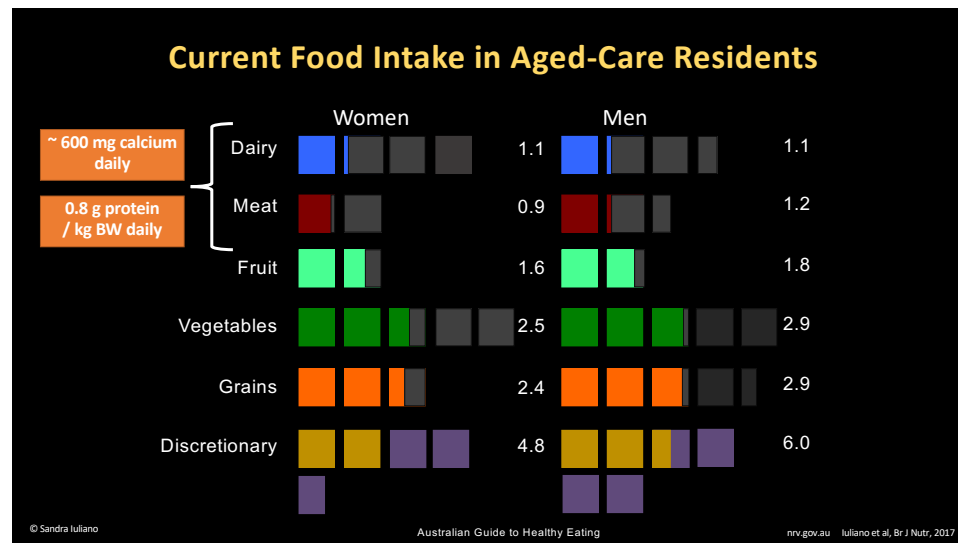
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www.nhs.uk British Diet Assoc

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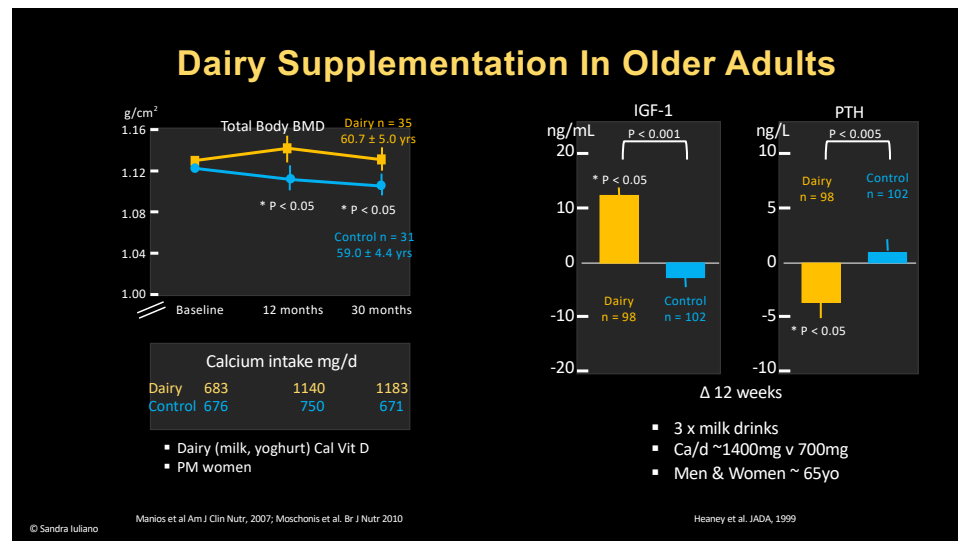
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Protein Requirements in Older Adults

Condition	Daily Needs	
	g/kg BW	
Healthy Adult	0.8	Actual intake
Older Adult	1.2 – 1.5 *	Suggested intake
Stress (trauma / infection / surgery)	1.5 - 2.0	
Presence of wound	1.5	
Restore weight lost	1.5	
Correct protein-energy malnutrition	1.5	

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Dairy Food and Older Adults in Residential Aged-Care

- Source of 30% of hip fractures in the community.
- Falls rates are 5 times higher than community peers.
- High rates of malnutrition.
- Calcium intake 635 mg/day
- Protein intake 0.8g / kg body weight
- Dairy intake 1.5 serving daily*

*250 ml milk, 200 g yoghurt, 40 g cheese

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Bischoff-Ferrari et al. Bone, 2008, Aust Inst Health Welfare, 2012, Iuliano et al. J Nutr Health Aging, 2013

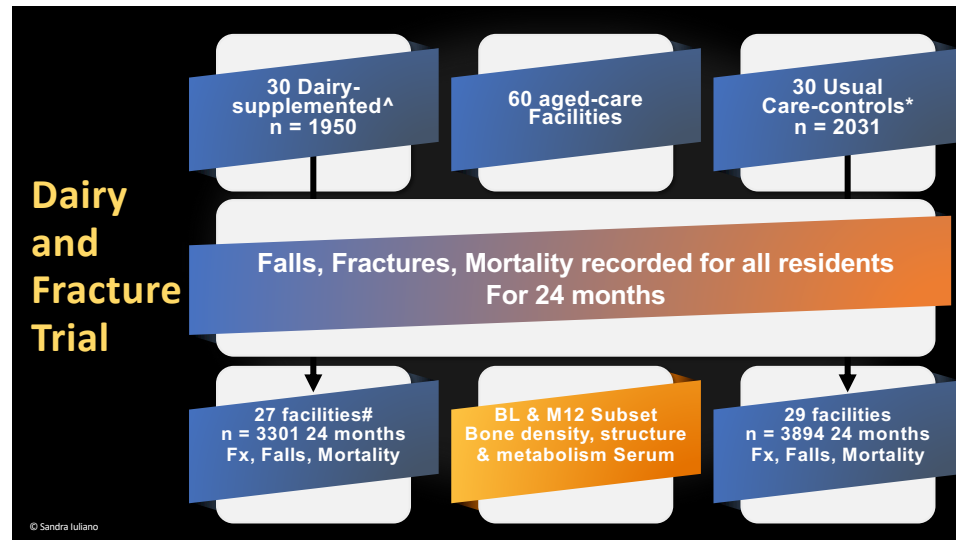
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Can Improved Nutrition Using High-Calcium, High-Protein Dairy Foods Reduce Falls & Fractures Risk in Older Adults in Aged-Care?



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Study Design

Food service supported to increase dairy options on the menu

- Addition:** A tray of snacks including crackers, fruit, and a 'Rickey Barred' product.
- Fortification:** A smoothie being prepared with a pink liquid and various supplements.
- Substitution:** A plate of food where a dairy-based dessert is substituted for another item.
- Modification:** A slice of kiwi on a piece of cheese, showing a modification to a food item.

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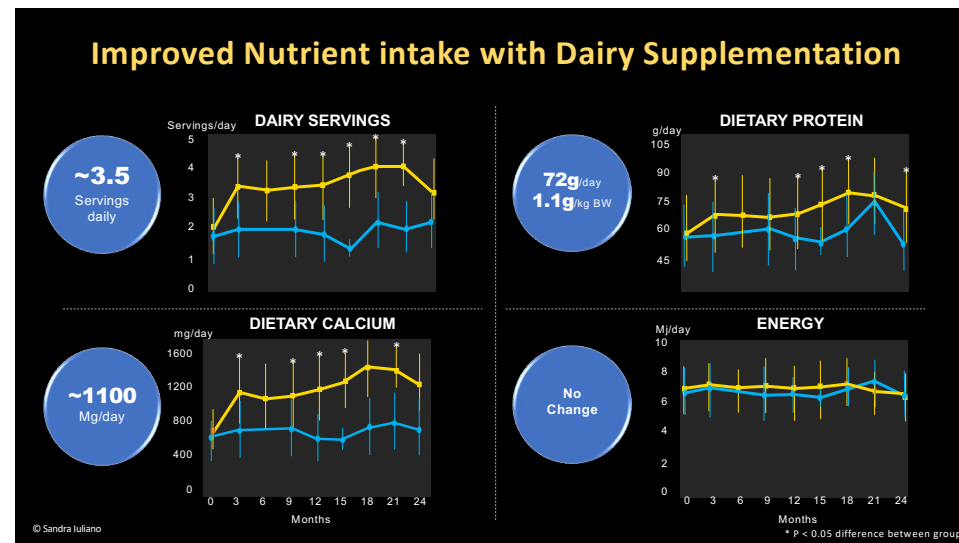
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Baseline Characteristics

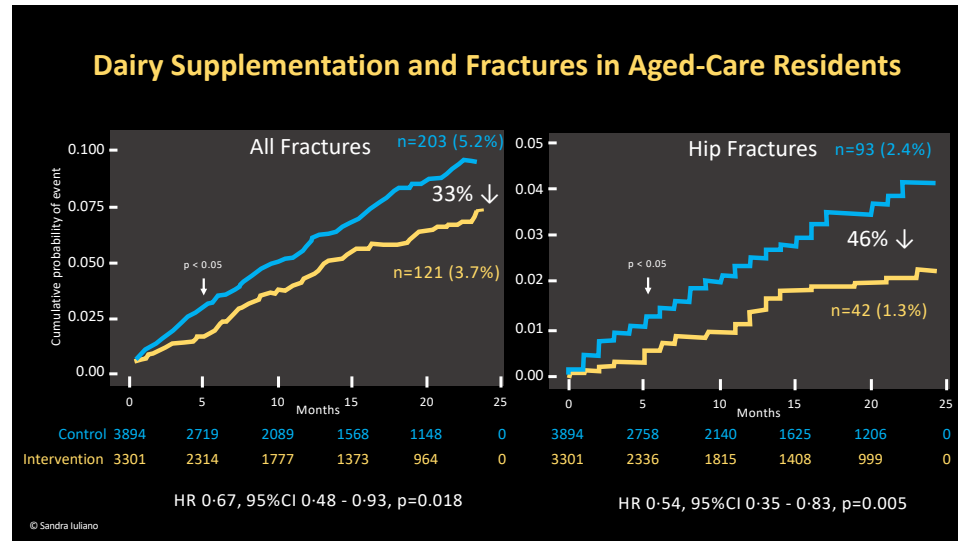
	Intervention	Controls		
Demographics	n=3301	n=3894		
	Women (n, %)	2194 (66%)	2680 (69%)	
	Age (yrs)	87 (8)	86 (8)	
	Height (m)	1.60 (0.1)	1.60 (0.1)	
	Weight (kg)	66.5 (15.6)	66.2 (15.8)	
	Medications (n)*	12 (6)	12 (7)	
Biochemistry	n=170	n=130	← Vitamin D replete	
	25(OH)D (nmol/L)	72 (29)		73 (26)
	CTX (ng/ml)	445 (312)		416 (227)
	P1NP (µg/L)	59.7 (61.5)		53.3 (32.8)
	PTH (pg/ml)	6.8 (4.9)		6.9 (3.8)
	IGF-1 (nmol/L)	15.2 (5.7)		16.0 (6.6)
Bone morphology	n=77	n=79		
	FN BMD (g/cm ³)	0.74 (0.13)	0.76 (0.15)	
	LS BMD (g/cm ²)	1.08 (0.27)	1.14 (0.28)	
	Distal Tibia			
	Total vBMD (mgHA/cm ³)	214 (61)	230 (76)	
	Cortical porosity (%)	76 (7)	75 (7)	
	Trabecular vBMD (mgHA/cm ³)	149 (48)	161 (58)	
	Distal Radius			
Total vBMD (mgHA/cm ³)	270 (76)	276 (86)		
Cortical porosity (%)	69 (7)	68 (8)		
Trabecular vBMD (mgHA/cm ³)	145 (51)	146 (58)	*median	

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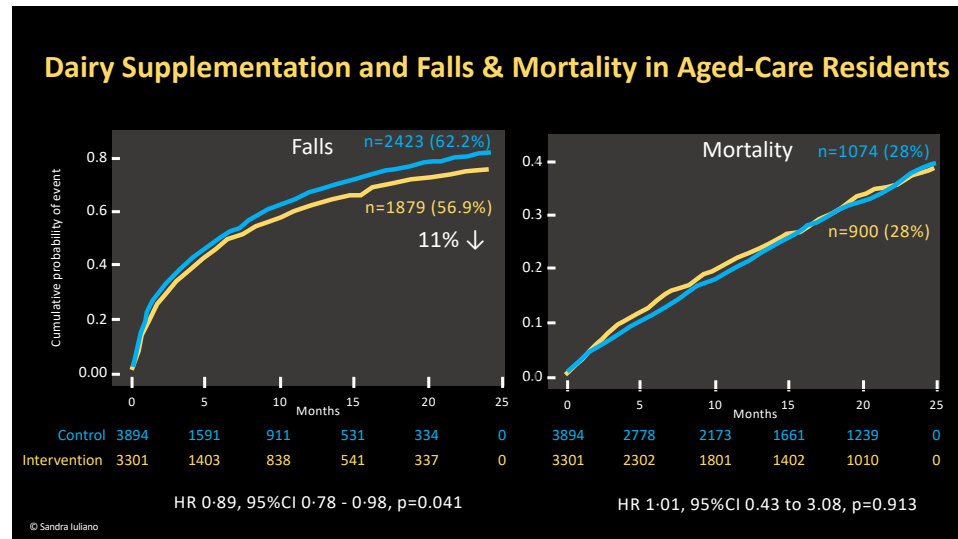
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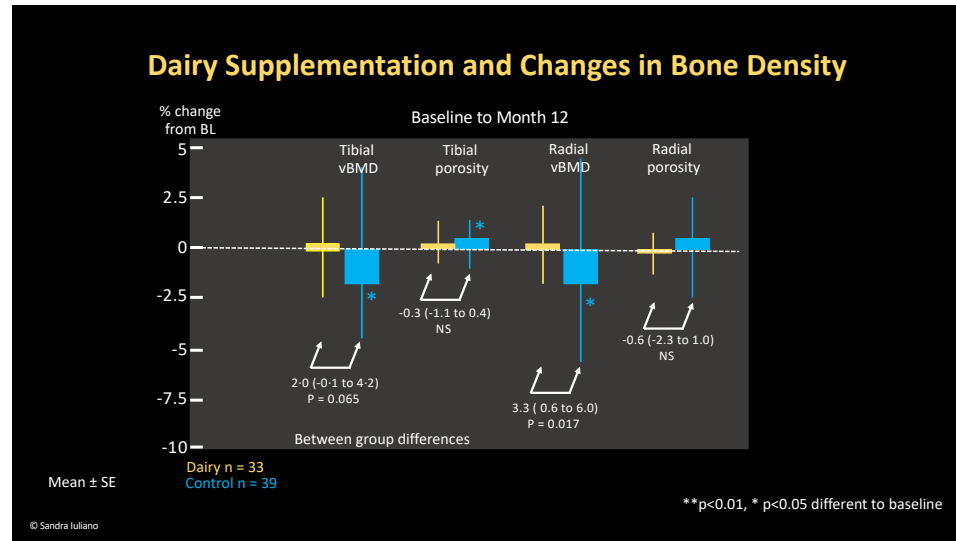
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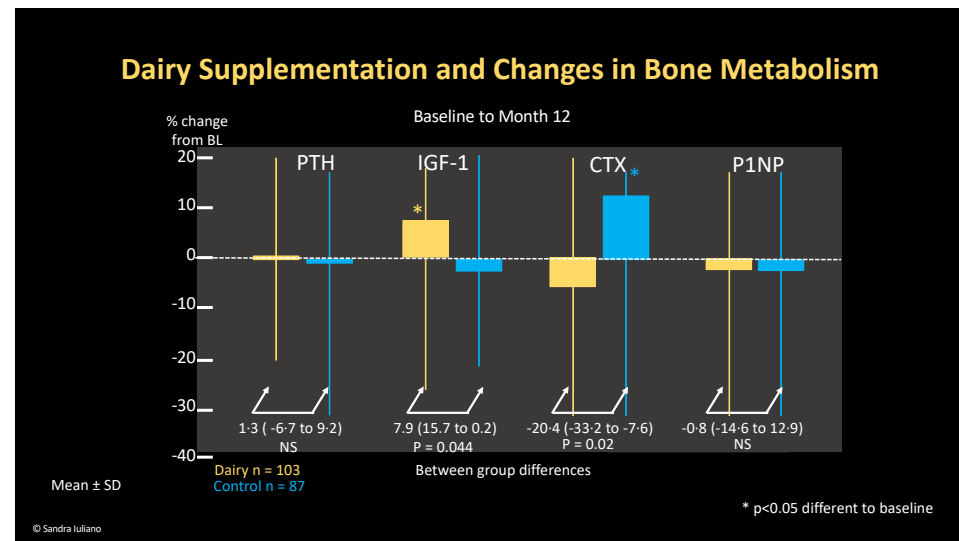
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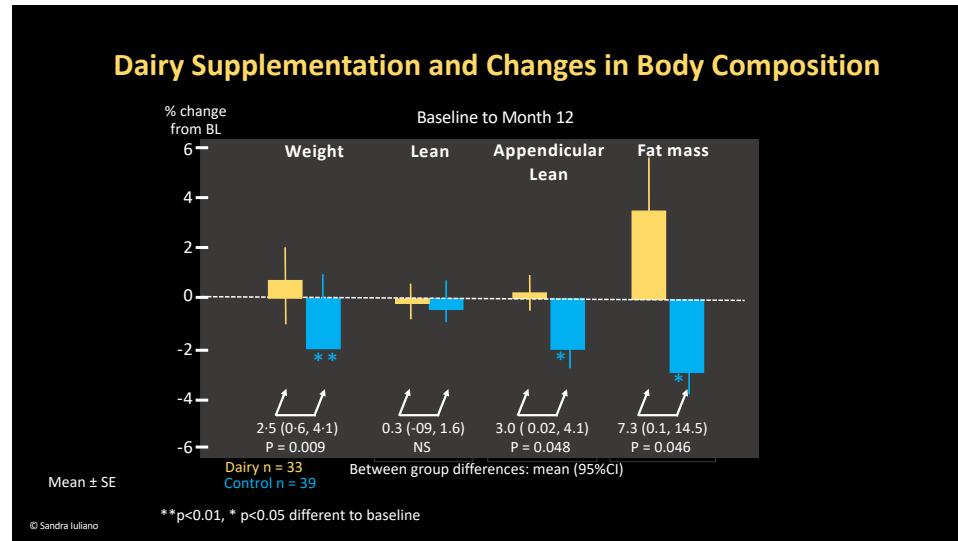
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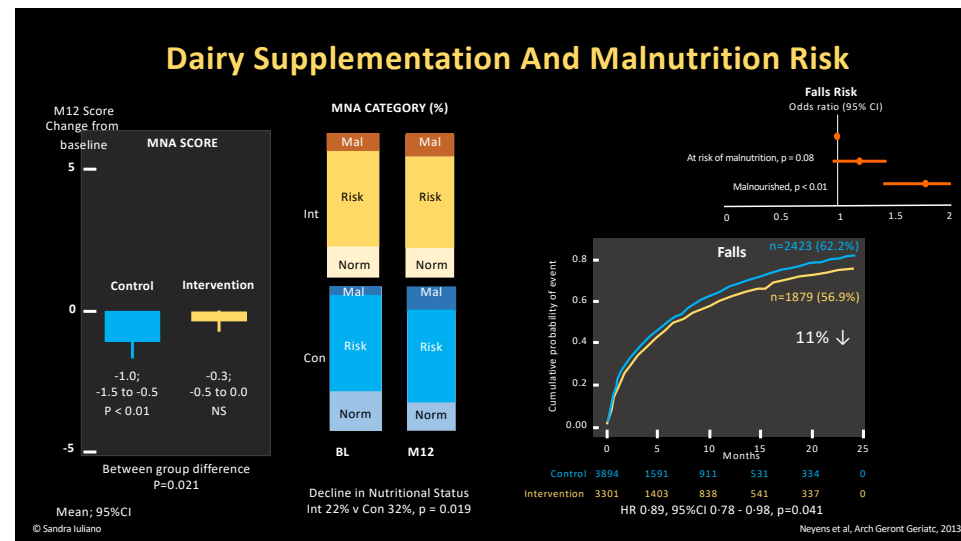
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Summary

Dairy supplementation achieving 3.5 servings daily in older adults with inadequate calcium and protein intakes was associated with;

- Relative risk reduction of 33% for all fractures
46% for hip fractures
11% for falls
- Slow bone loss
- Increase in IGF-1
- Maintained nutritional status
- Maintained weight

Slowed the age-related increase in risk

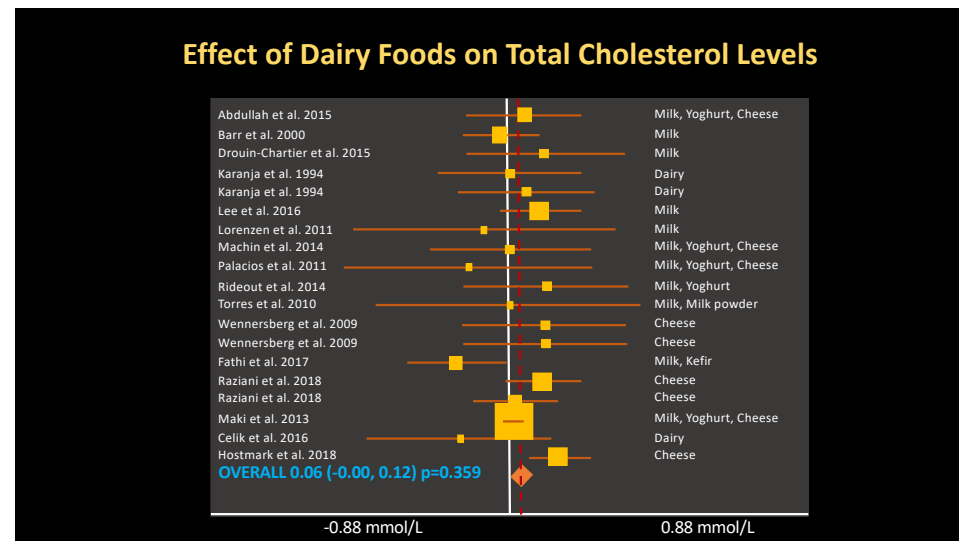
Fracture risk

Low Moderate High

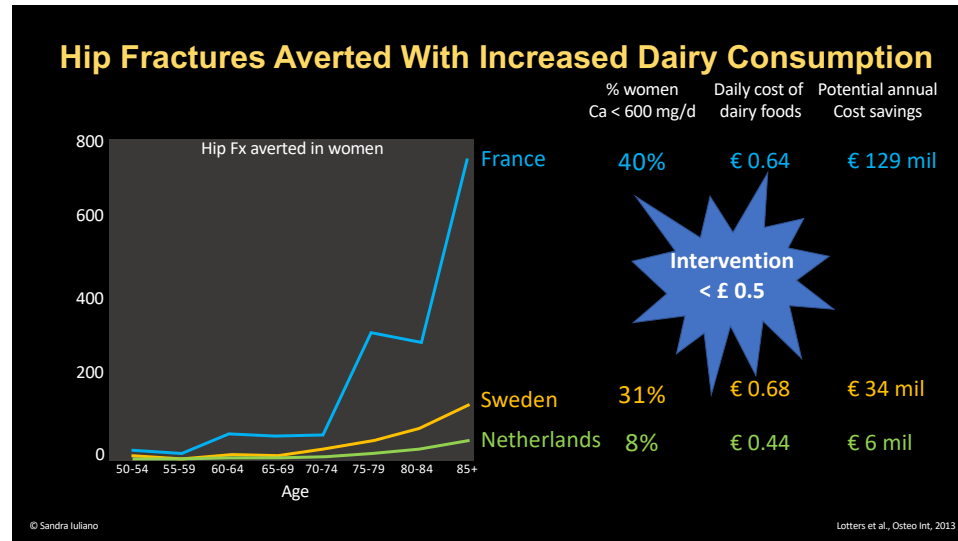
Intervention Controls

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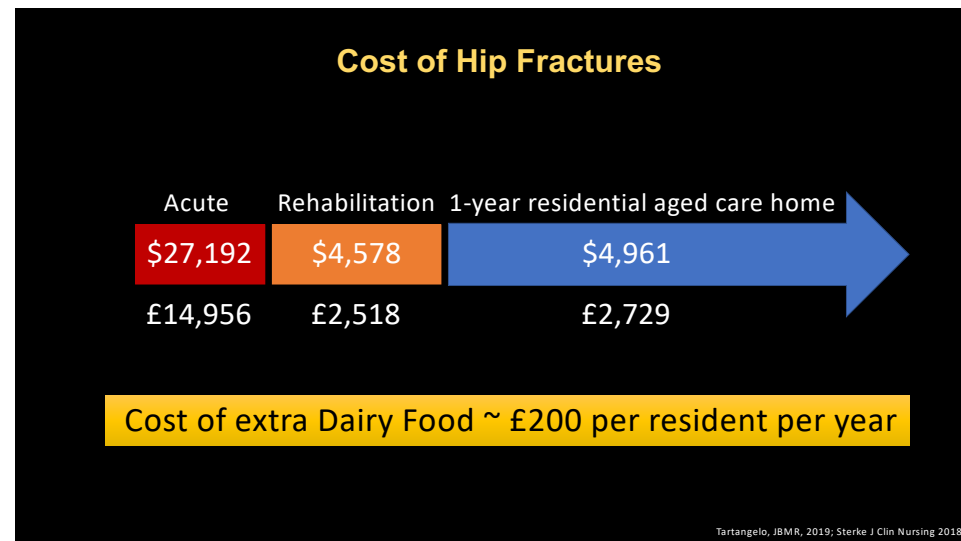
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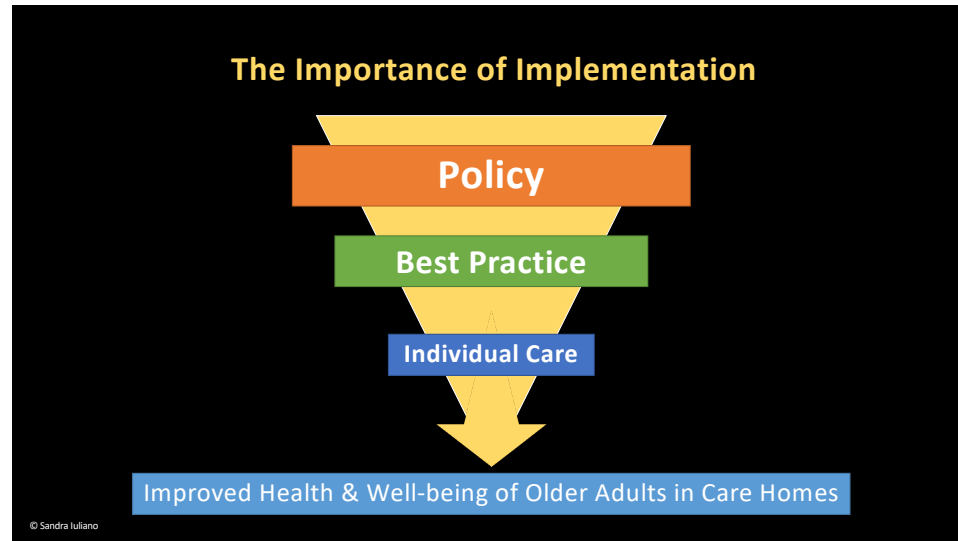
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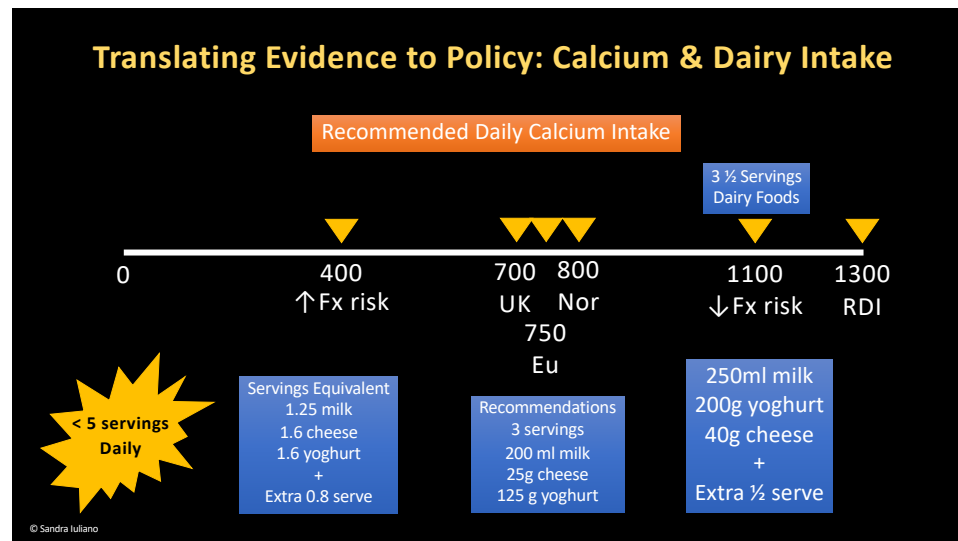
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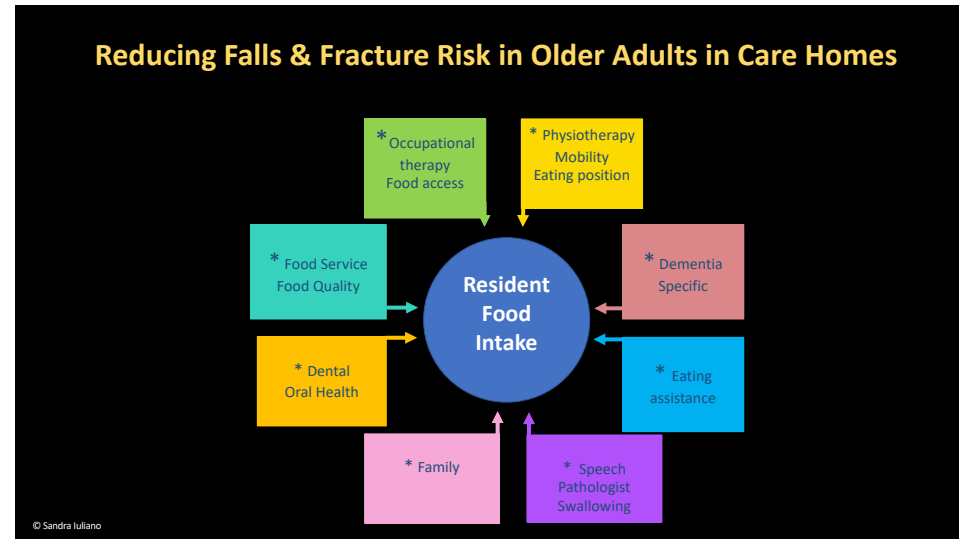
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Fracture Risk Reduction in Older Adults in Care Home Evidence & Practicalities

- ✗ ▪ Calcium alone No evidence
- ✓ ▪ Calcium + vitamin D Vit D def older adults in care homes
Daily medications = 12
- ? ▪ Calcium supplementation + non-dairy sources of protein
Not tested
- ? ▪ Non-dairy / animal sources of calcium & protein Not tested
Capacity to consume sufficient food

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Conclusion

Dairy foods are an important source of calcium and protein
For older adults in care homes, that reduces
fractures, falls, weight loss and malnutrition risk.

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Preventing Fractures & Falls in Older Adults in Aged Care by Improving Dairy Consumption



Thank you

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