

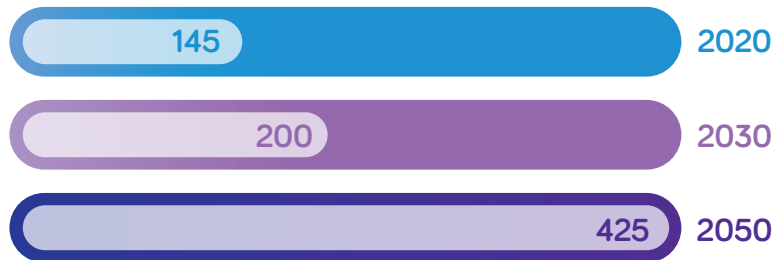
# NUTRITION AND EXERCISE INTERVENTION IN NURSING HOMES: THE OPEN STUDY

A combined **nutrition and exercise** intervention concept for nursing homes (NH)



The global population is aging rapidly<sup>1</sup>. As the number of older adults grows, the need for long-term care will subsequently increase.

Individuals aged 80 or more worldwide (in millions)



## Nutritional concerns in the care home setting

Older adults are at increased risk of malnutrition, sarcopenia and physical frailty compared to the general population<sup>2</sup>. If not diagnosed and left unmanaged, this can result in adverse consequences such as decline in physical function, reduced independence, increased risk of falls and fractures and reduced quality of life<sup>3-5</sup>, all of which impact on health care costs (Figure 1)<sup>6</sup>.

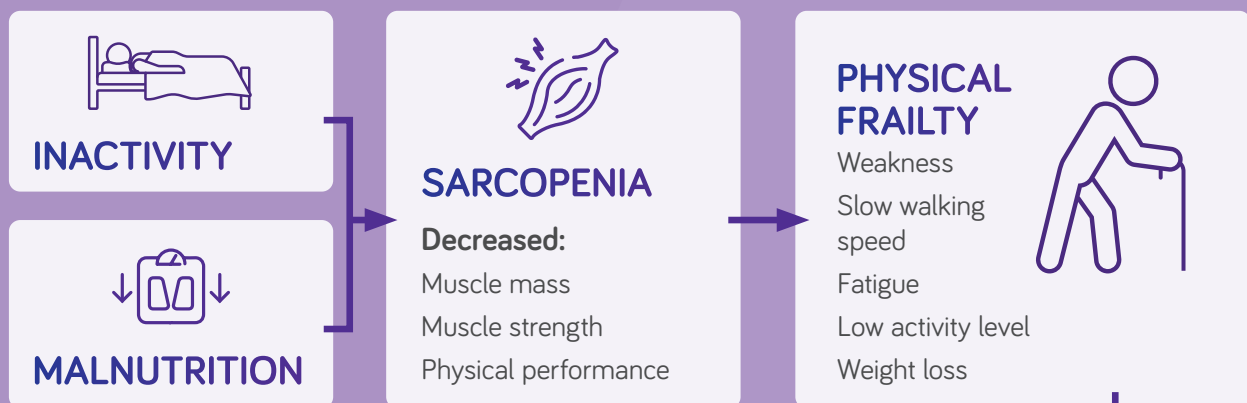
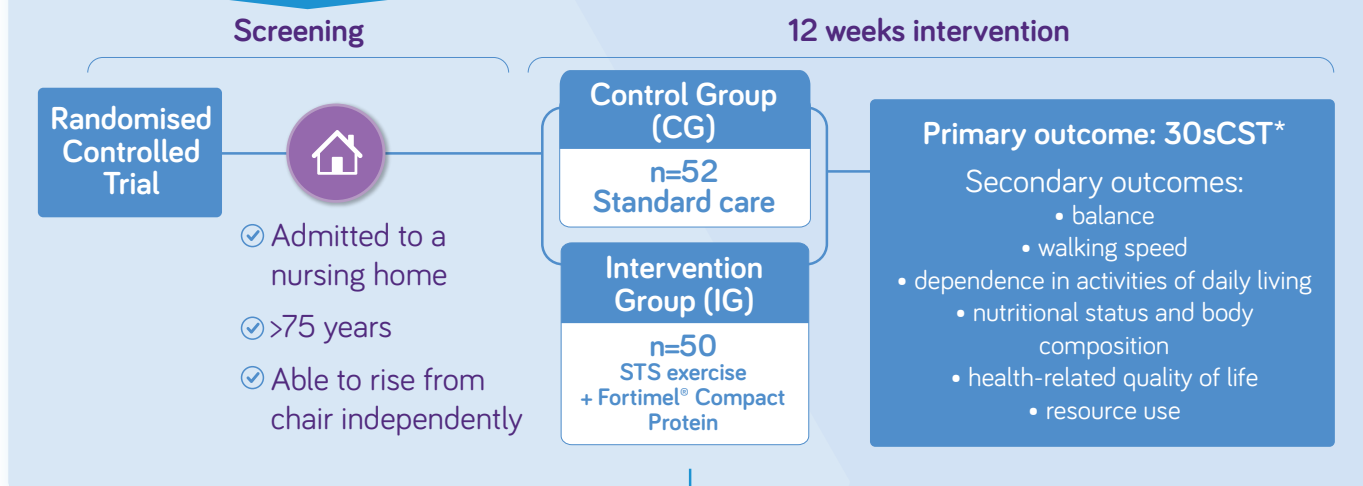


Figure 1. The connection between malnutrition, sarcopenia and frailty<sup>7,8</sup>.

Nutrition and exercise interventions have each demonstrated efficacy in improving nutritional status and physical function in older adults<sup>9-10</sup>, however clinical trials evaluating a combined nutrition and exercise intervention in the care home setting are lacking. The Older Person's Exercise and Nutrition (OPEN) study investigated the effects of combining Sit-To-Stand (STS) exercise with high protein low volume oral nutritional supplements (ONS) on physical function, nutritional status and body composition in nursing homes residents.

## STUDY DESIGN

Eight nursing homes (dementia or somatic care units) in 2 municipalities of the Stockholm County, Sweden.



\*30-second Chair Stand Test (30sCST): the participant is asked to stand up and sit down as many times as possible in 30 seconds

## INTERVENTION

### Fortimel® Compact Protein

Fortimel® Compact Protein is a Food for Special Medical Purposes (FSMP) for the dietary management of Disease-Related Malnutrition (DRM). Fortimel® Compact Protein must be used under medical supervision.



**2 bottles of Fortimel® Compact Protein per day**

#### Key features

- LOW VOLUME**  
125ml bottle
- HIGH ENERGY**  
300 kcal per bottle
- HIGH PROTEIN**  
18g per bottle, 24% of energy
- VARIETY OF FLAVOURS**  
Available in 9 flavours

### Sit-To-Stand (STS)

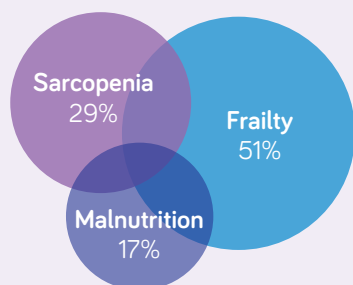
The older person gets up from a chair to stand and sit down again for as many times at each occasion as the participant could, with or without support.



**4 times a day**

## STUDY RESULTS

### Prevalence of malnutrition, sarcopenia and frailty in the OPEN study cohort (n=102)<sup>11</sup>



**78%**  
presented at least one of the three conditions

### Intervention group vs control group<sup>12</sup>

Number of 30sCST (primary outcome):

- No difference within or between groups

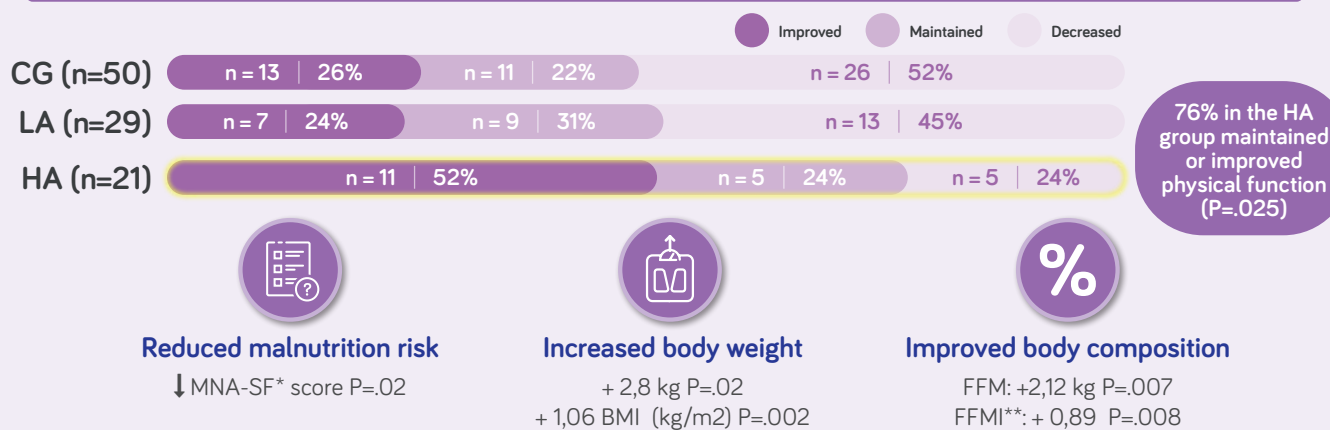
Body weight: +2kg increase (P=.013), BMI: +0,8 kg/m<sup>2</sup>



Patients in the IG were assessed based on adherence to the combined intervention. High adherence was defined as at least 40% compliance to the combined intervention (≥ 5 bottles of ONS per week, ≥ 10 STS occasions per week). Twenty-one patients were considered highly adherent (HA), whereas the remaining 29 had low adherence (LA).

### Sub-group with high adherence vs control group<sup>12</sup>

Those with high adherence (42% of total) to the combined intervention were more likely to maintain or improve physical function.



**Reduced malnutrition risk**

↓ MNA-SF\* score P=.02

**Increased body weight**

+ 2,8 kg P=.02  
+ 1,06 BMI (kg/m<sup>2</sup>) P=.002

**Improved body composition**

FFM: +2,12 kg P=.007  
FFMI\*\*: + 0,89 P=.008

\*MNA-SF = Mini Nutritional Assessment – Short Form

\*\*FFMI = Fat Free Mass Index

**Sarcopenia at baseline**  
(P=.049)



**Higher adherence to ONS**  
(P = .005)



**FACTORS INCREASING ODDS OF POSITIVE RESPONSE TO THE INTERVENTION (post-hoc analysis<sup>15</sup>)**

**Higher perceived overall health**

(EQ5D-5L\*, P=.01)  
\*EQ5D-5L= EuroQoL Group 5 Dimensions

**Greater independence**

(FIM\* motor items, p=.011)  
\*FIM = Functional Independence Measure

# THE IMPORTANCE OF ADHERENCE RESIDENTS AND STAFF PERSPECTIVE

The results of the OPEN study highlight the importance of adherence in order to achieve positive clinical outcomes. Residents and staff interviews taken as part of the OPEN study offer insights on opportunities and barriers which need to be addressed to ensure better adherence and long-term success<sup>14, 15</sup>.



## CONTEXTUAL FACTORS

- ✔ Consistent support and encouragement from NH leaders
- ✘ Not enough time dedicated to training staff
- ✘ Lack of commitment behind short-term intervention

STAFF MEMBER

“ She gave us **clear instructions** right from the start and made sure we understood. She even sat down with us individually. Then it was done without any friction

STAFF MEMBER

“ The **mind-set** needs to be planted in each staff member right from the start... Sadly, it is easy to divert from what we know is good



## INDIVIDUAL FACTORS

- ✔ Residents' internal motivation to get better
- ✔ Residents' understanding of the benefits
- ✔ Peer support among participants
- ✔ Recognition of participants' efforts from staff and family

RESIDENT

“ **Reminders and encouragements** are what I need. I am even unsure of the extent to which I adhered to the intervention

RESIDENT

“ I **independently** performed the STS and taken the ONS perfectly. With an immaculately filled flowchart, staff could confirm



## INTERVENTION

- ✔ Intervention is flexible and easy to integrate into care routine

STAFF MEMBER

“ Because the STS is anyway **easy to incorporate** during dressing, or at meal times. Just move the chair out a bit and do some

RESIDENT

“ I either use a chair at my dinner table, or get up from my armchair with my roller locked securely in front of me

RESIDENT

“ I joined the project with few expectations, but of course I had to continue. The drinks ... wow, they were perfect! **Good size, pleasant taste and nice texture mm**

## CONCLUSION

- The OPEN study intervention represents an easy-to-implement combined nutritional and exercise concept that was accepted by residents and staff members
- Patients who adhere (at least 40%) to a combined intervention in nursing homes (Fortimel® Compact Protein and exercise) seems to be more likely to maintain or improve physical function and gain fat-free mass
- Those with sarcopenia at baseline were also more likely to see positive results from the combined intervention
- In order to optimize outcomes, adherence barriers should be monitored and addressed early
  - Ensure staff engagement and appropriate training from the start
  - Implement a patient-centric approach that promotes residents' empowerment to achieve personalized health goals

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