

Reducing functional decline in the long-stay older patient:

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Under-nutrition & Functional Decline

- Under-nutrition or a declining nutritional status can contribute to functional decline.
- Muscle strength is highly correlated with functional capacity
 - Adequate nutrition is essential for the maintenance of muscle strength & bone strength.
- Due to limited reserves older people be more susceptible to reductions in muscle mass during illness.
- Low BMI is an independent predictor of the development of a new disability in basic Activities of Daily Living

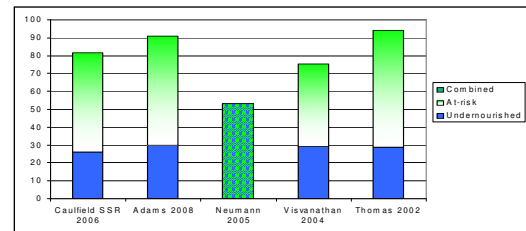
1. Clinical Epidemiology and Health Services Evaluation Unit, M. H. (2004). *Best practice approaches to prevent functional decline in the older person across the acute, sub-acute and residential aged care sectors*. Melbourne, Australia: Victorian government Department of Human Services
2. King, B. D. (2006). Functional decline in hospitalised elders. *MEDSURG Nursing*, 15(9), 265 - 271.
3. Volpato, S., Onder, G., Cavalini, M., Guerra, G., Sivilli, F., Masoldi, C., et al. (2007). Characteristics of nondisabled older patients developing new disability associated with medical illnesses and hospitalization. *Journal of General Internal Medicine*, 22(5), 668-674.

Reasons for muscle loss in the older person

- **Age Related (Sarcopenia):**
 - Irreversible normal changes in body composition
 - > Declines ~15% from between 30 & 70's
- **Illness related (Cachexia):**
 - Physiologic changes following a period of inactivity or low activity
 - > Muscle weakness or decreased endurance
- **Nutrition related (Starvation):**
 - Periods of poor intake especially associated with illness will result in loss of muscle mass.
 - > BMI less than 22 kg/m² is a indicator of low muscle mass

Thomas, D.R., *Loss of skeletal muscle mass in aging: Examining the relationship of starvation, sarcopenia and cachexia*. *Clinical Nutrition*, 2007, 26(4); p. 389-399.

Prevalence of under-nutrition



1. Adams, B., A. Simmance, N. Murray, M. Crowe, T. (2008). *Recognition by medical and nursing professionals of malnutrition and risk of malnutrition in elderly hospitalised patients*. *Nutrition and Dietetics*, 6(2), 144 - 149.
2. Neumann, S. A., et al., *Nutritional status and clinical outcomes of older patients in rehabilitation*. *Journal of Human Nutrition & Dietetics*, 2005, 19(2); p. 129-36.
3. Visvanathan, R., R. Parbhoo, and I. Chapman. *Nutritional screening of older people in a sub-acute care facility in Australia and its relation to discharge outcomes*. *Age & Ageing*, 2004, 33(3); p. 260-5.
4. Thomas, D.R., et al., *Malnutrition in subacute care*. *American Journal of Clinical Nutrition*, 2002, 75(2); p. 308-313.

Being in hospital can contribute to under-nutrition

- Reduction in appetite due to illness or inactivity
- Lack of help or encouragement to eat and drink
- Meal trays being placed out of reach
- Difficulty opening packaged foods
- Inappropriateness of food served
- Interruptions to meal times
- Fasting for tests
- Inappropriate positioning

Research Question

To examine how a comprehensive, interdisciplinary framework focused on nutritional care of older people will affect clinical and functional outcomes compared to standard nutrition care.

Key Components

- Nutrition Risk Screening for all patients
- Nutrition Assistants
- Communal Dining Opportunities
- High Intensity Functional Exercise program
- Protected Meal times
- Education & Cultural Change Strategies

Nutrition Risk Screening

- Nutrition risk screening is recommended for all older people on admission to hospital. (ESPEN 2002, NICE 2006)
- Screening should be completed within 24 hours of admission
- Mini Nutrition Assessment-Short Form (MNA-SF) and Simplified Nutrition Appetite Questionnaire (SNAQ)

Kondrup, J. A., S. P. Elia, M. Velaz, B. Plauth, M., et al. (2003). ESPEN guidelines for nutrition screening 2002. *Clinical Nutrition*, 22(4), 415 - 421.

National Institute for Health and Clinical Excellence. (2006). *Nutrition support in adults - oral nutrition support, enteral tube feeding and parental nutrition. Clinical Guideline 32.*

Nutrition Assistants

- Complete nutrition risk screening on admission
- Checking personal and cultural food preferences of individuals.
- Coordinating meal orders, including assistance with food choice and portion size.
- Provide assistance with set-up and positioning at mealtimes.
- Supervision, encouragement and feeding of patients at mealtimes and between meals.
- Supervising the consumption of nutritional supplements.

Duncan, D. G., Beck, S. J., Hood, K., & Johansen, A. (2006). Using dietetic assistants to improve the outcome of hip fracture: a randomised controlled trial of nutritional support in an acute trauma ward. *Vol. 35*, pp. 148-153.

Bell, L. (2006). *Development of the dietetic support worker, Better State of Hospital*. Melbourne: Department of Human Services.

Communal Dining Opportunities

- More “home like” and familiar than eating a meal at the bed side or from an over bed tray
- Most people enjoy company and socialisation when they dine
- Social interaction during mealtimes, increases food intake especially for older patients

1. Desai, J., Winter, A., Young, K. W. H., & Greenwood, C. E. (2007). Changes in type of foodservice and dining room environment preferentially benefit institutionalized seniors with low body mass indexes. *Journal of the American Dietetic Association*, 107(5), 808-814.

2. Gibbons, M. D. R., & Henry, C. J. K. (2009). Does eating environment have an effect on food intake in the elderly? *Journal of Nutrition, Health & Aging*, 9(1), 25-29.

3. Nijis, K. A. N. D., de Graaf, C., Kok, F. J., & van Staveren, W. A. (2006). Effect of family style mealtimes on quality of life, physical performance, and body weight of nursing home residents: cluster randomised controlled trial. *BMJ*, 332(7561), 1180-1184.

Protected Meal Times

- Based on work from NHS National Patient Safety Agency (UK)
- To protect mealtimes from unnecessary and avoidable interruptions, providing an environment conducive to eating and enabling staff to provide patients with support and assistance with meals.

<http://www.npsa.nhs.uk/patientsafety/alerts-and-directives/cleaning-and-nutrition/nutrition/protected-mealtimes>

Study Design

- The pilot interdisciplinary nutrition program was introduced to 1 aged care ward in December 2007.
- Patients were compared with patients on a comparable ward who received current usual nutrition care.
- Data collection with 48 hours of admission & discharge.
- Patients still admitted at Day 28 were censored.
- Approved by The Alfred Ethics Committee

Subjects

- Ward allocation based on usual admissions procedures.
- All consecutive patients admitted to ward between 7th January – 26th February 2008 were enrolled.
 - Exclusions
 - > < 65 years
 - > Palliative (known at time of admission)
 - > Receiving enteral nutrition
 - > Admission < 5 days

Outcome Measures

- **PRIMARY OUTCOME MEASURES**
 - Length of stay
 - Mortality
 - Weight change
- **SECONDARY OUTCOMES MEASURES**
 - Mid-arm circumference
 - Barthels score
 - Elderly Mobility Scale
 - Discharge Destination
 - 1-month re-admission rate
 - Patient Satisfaction Survey

Results

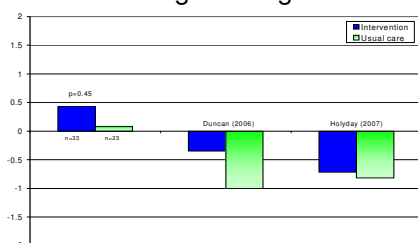
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| <p>Intervention</p> <ul style="list-style-type: none"> • 35 patients • 20 female, 15 male • Average Age: <ul style="list-style-type: none"> – 83.7 years (65 – 98 years) | <p>Usual care</p> <ul style="list-style-type: none"> • 34 patients • 23 female, 11 male • Average Age: <ul style="list-style-type: none"> – 82 years (69 – 97 years) |
|--|---|

Results

	Intervention	Usual Care	p value
BMI kg/m ² Mean (std error)	23.01 (0.82)	21.25 (0.68)	0.18
Nutrition Risk (MNA-SF) Mean (std error)	8.05 (0.45)	7 (0.48)	0.11
Nutrition Risk (SNAQ) Mean (std error)	14.28 (0.41)	13.38 (0.45)	0.15
Barthel's Index Mean (std error)	49.26 (3.48)	38.18 (4.02)	0.041*
Elderly Mobility Scale (EMS) Median (IQ range)	8 (4-12)	4 (0-8)	0.007*

No difference between groups with respect to cognitive state (MMSE), falls risk (FRASS) or pressure ulcer risk (Braden).

Outcomes: Weight change



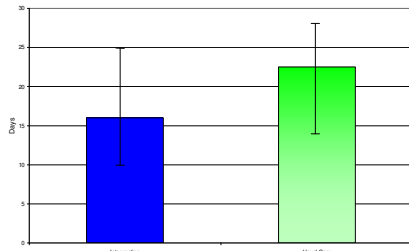
Duncan, D. G., Beek, S. J., Hood, K., & Johansen, A. (2006). Using dietician assistants to improve the outcome of hip fracture: a randomised controlled trial of nutritional support in an acute trauma ward. *BMJ*, 335, pp. 148-153.

Holyday M (2007) A randomised control trial of nutritional intervention on length of stay, weight change and re-admission rates. Presentation for DAA Seminar, Melbourne 30 October 2007

Outcomes : Functional

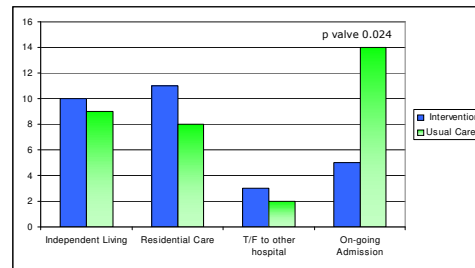
	Intervention	Usual Care	P value
Discharge Barthel's mean (std dev)	65.6 (3.66)	62.8 (5.27)	0.66
Change in Barthel's median (IQ range)	11 (0 – 32)	13 (8 –29)	0.44
Discharge EMS Mean (std dev)	14.51 (0.86)	11.96 (1.35)	0.12
Change in EMS median (IQ range)	5 (3 – 7)	7 (2 –11)	0.52

Outcomes: Length of Stay



Patients receiving the comprehensive interdisciplinary nutrition program had a **reduced length of stay.** (p value 0.06)

Discharge Destination



Conclusion

- Under-nutrition is common in hospitalised older people.
- Simple interdisciplinary strategies are required to address under-nutrition in hospital.
- Results of this study were confounded by the difference in functional ability of the two groups.

Next Steps:

- Communal Dining Room continues daily at lunchtime on intervention ward.
- Introduction of nutrition risk screening
- Opportunities to introduce Protected Meal Times.
- Explore alternative models for allied health assistant
- Funding for more rigorous research.

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Quote

One of the very nicest things about life is the way we must regularly stop whatever it is we are doing and devote our attention to eating.

Luciano Pavarotti