

Nutritional Status Predicts *Speed and Degree* of Functional Improvement and Discharge Outcomes in Frail Rehabilitation Patients

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Background

- The functional independence measure (FIM) is routinely collected on admission and discharge for all patients attending inpt rehab in Australia
- FIM score: min 18- max 125. Higher score = greater independence
- In the absence of formal frailty assessments in our dataset, two previous Aust studies have established that:

Frail	Severely frail	Source
FIM 70-84	FIM < 70	Edmonton Frailty Score, Kawryshanker et al, 2013
FIM 79-85 =frail FIM 68-78 = mod frail	FIM < 68	Rockwood Frailty Score, AROC 2018

Aims

1. Describe relationship between nutritional status (MNA) and functional status (FIM) as a proxy for frailty in a large cohort of Australian rehabilitation patients.
2. Explore the strength of any relationship between malnutrition and functional impairment, length of stay, impairment type and discharge destination after adjustment for key covariates.



Method

- All consecutive patients admitted to 3 public hospital inpatient rehabilitation units in ISLHD (n=1547)
- Those with both MNA on admission and FIM (admission and discharge) were analysed (n=1430)
- LOS, discharge location, FIM gain and FIM efficiency examined



Results

	Well nourished n=372	At risk n=763	Malnourished n=294
Age	78 (16.9)	79.3 (7.1)	78.9 (7.3)
Gender (F, %)	61.0	57.3	52.2
LOS	18 (11-28)	21.5 (14-35)	26 (15-39)*
FIM (adm)	86 (73-97)	76 (62-89)	65 (48-80)*
FIM gain	18.5 (14.7)	15.9 (17)	13.6 (19.7)*
FIM change (%, 95%CI)	14.1 (11.3-17)	9.9 (8.2-11.5)	8.4 (6-10.8)*
FIM efficiency	1.15	0.66	0.44 *
D/c outcome (w,%)	27.1	36.8	48.8*



Results

- 20.6 % patients were malnourished on admission to rehab
- A 1 unit increase in MNA = 2.1 unit increase in FIM
- In addition to speed and efficiency of functional improvement, malnutrition on admission to rehabilitation ...
 - 1.84 x more likely to have LOS > 21 days
 - 2.9 x more likely to be discharged at higher level of care on discharge
 - 3.95 x more likely to have worse FIM on discharge
 - 3.27 x more likely to have worse motor FIM on discharge
 - 1.51 x more likely to have worse cognitive FIM on discharge
 - 3.21 x more likely to have worse feeding FIM on discharge



Conclusions

- **1. RECOGNITION:**
 - Malnutrition on admission to inpatient rehabilitation predicts the speed and degree of rehabilitation gains and discharge outcomes.
- **2. TREATMENT:**
 - Rapid identification and treatment of frailty and malnutrition in the acute setting may improve rehabilitation outcomes in this high-risk group
- **3. AWARENESS:**
 - Small changes in nutritional status score can result in large improvements in function.
 - Nutrition screening, close monitoring of nutritional intake and targeted nutritional interventions prior to and during rehabilitation are needed.

Lambert K, Taylor E, Bowden S & Charlton K (2020) Nutritional Status According to the Mini Nutritional Assessment Predicts Speed and Degree of Functional Improvement and Discharge Outcomes in Rehabilitation Patients, Journal of Nutrition in Gerontology and Geriatrics, 39:1, 16-29,

