

A six-month nutrition therapy improves quality of life and cognitive function in old adults after hospital discharge.

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Background

Malnutrition is common among old adults and relates to poor quality of life (QoL) and low cognitive function. It is not known whether a nutrition intervention can improve QoL or cognitive function.

Objective

A six-month randomized controlled study to investigate the effects of nutrition therapy following the principles of nutrition care process (NCP) in community-dwelling old adults discharged from hospital.

Methods

106 participants (>65 years) were randomized into intervention (n = 53) and control group (n = 53).

Intervention group => individual nutrition therapy (5 visits) and free delivered energy- and protein rich foods. Mini-mental-state-examination (MMSE), QoL, depressive symptoms and self-rated health (SRH) measured at baseline and endpoint.

Results

Control group => increase in depressive symptoms => decrease in SRH during the 6 months period

Intervention group => increases in cognitive function, SRH and QoL

Significant endpoint differences between the groups: MMSE: 1.701; P<0.001, QoL: 1.995; P = 0.001; depressive symptoms: - 3.072; P <0.001; SRH: 15.876; P<0.001, all in favor of the intervention group. Additionally, the intervention group reported less likely to feel down (OR=0.4; P=0.045) as well as having difficulties to get going (OR=0.3; P=0.011).



Conclusion

The time after hospital discharge leads to a deterioration of mental health and cognitive function in old adults receiving the current standard care in Iceland.

A 6-months nutrition therapy, provided by a clinical nutritionist following the principles of NCP in combination with freely delivered supplemental energy- and protein dense foods has positive effects on cognitive function, QoL, depressive symptoms and SRH.

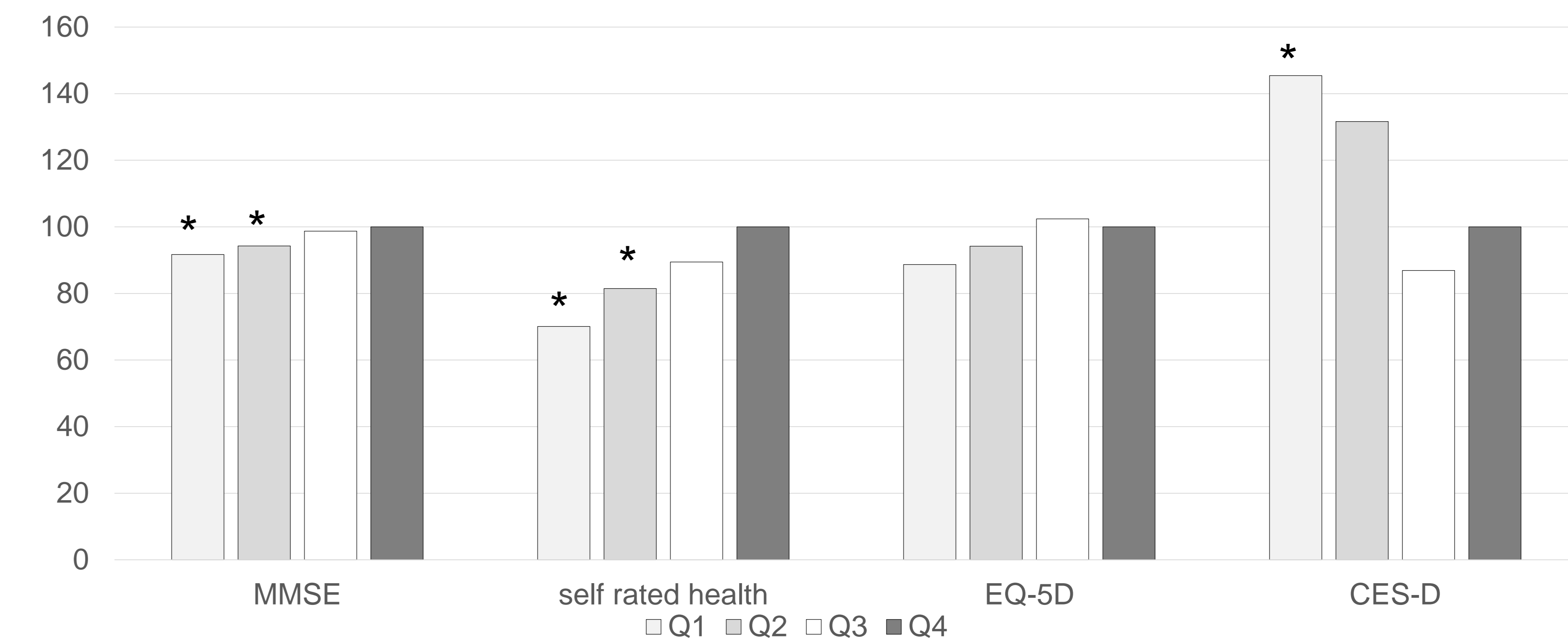


Figure 2 Percentual differences in outcome variables between body weight change quartiles at endpoint. Based on general linear model - univariate. Adjusted for baseline values and sex. MMSE = Mini Mental State examination; CES = Center of Epidemiological Studies depression scale; EQ-5D = EuroQol - 5 Dimension quality of life; Q1: -6.4 ± 2.3 kg; Q2: -1.9 ± 1.2 kg; Q3: 0.4 ± 0.5 kg; Q4: 4.3 ± 2.2 kg (reference). MMSE, self-rated health, EQ5D index: higher is better; CES-D: lower is better. * P < 0.05, compared to Q4

Table 1. Baseline characteristics

Variables	Control (n = 53)			intervention (n = 53)			P-value*
	mean	±	SD	mean	±	SD	
Age (years)	81.8	±	6.0	83.3	±	6.7	0.228
Female (%)	52.8			71.7			0.045
Higher education (in %)	66.0			69.8			0.677
Lives alone (%)	66.0			66.0			0.999
Alcohol (yes in %)	45.3			37.7			0.430
Smoking (yes in %)	9.4			3.8			0.241
Height (m)	1.7	±	0.1	1.7	±	0.1	0.326
Weight (kg)	76.5	±	19.1	78.3	±	18.3	0.615
BMI (kg/m ²)	26.9	±	5.3	28.5	±	6.5	0.188
SPPB (score)	2.4	±	2	2.5	±	1.8	0.839
ICD-10 diagnoses (no.)	10.5	±	3.8	10.3	±	4.9	0.877
Medications (no.)	12.4	±	4.2	12.2	±	5.8	0.893
MMSE (score)	25.9	±	2.9	26.1	±	2.8	0.702
EQ-5D (index)	0.69	±	0.19	0.69	±	0.15	0.852
Self-rated health (scale)	61.3	±	18.1	58.8	±	19.9	0.493
CES - D (score)	5.6	±	4.7	5.4	±	4.2	0.861

*P-value based on chi square test for categorical variables, independent samples t-test for normally distributed continuous variables and Mann Whitney U test for not normally distributed continuous variables. ISNST = Icelandic Nutrition Screening Tool; MMSE = Mini Mental State examination; SPPB = Short Physical Performance Battery; ICD-10 = International Classification of Diseases, version 10; BMI = body mass index. CES-D= Center of Epidemiological Studies depression IOWA scale; EQ-5D = EuroQol- 5 Dimension quality of life.

Appendix 2 Dietary intake of the participants at baseline and endpoint.

Variables		Control (n = 52)			intervention (n = 52)			P-value*
		Mean	±	SD	Mean	±	SD	
Energy intake (kcal)	baseline	1543	±	299	1490	±	363	0.410
	endpoint	712	±	293	2426	±	395	<0.001
Protein (g)	baseline	77.2	±	14.9	74.5	±	18.1	0.411
	endpoint	30.2	±	15.5	118.9	±	34.3	<0.001
Protein (g/kg BW**)	baseline	1.1	±	0.4	1.0	±	0.3	0.228
	endpoint	0.4	±	0.2	1.5	±	0.4	<0.001
Carbohydrates (g)	baseline	135.1	±	26.1	130.4	±	31.7	0.410
	endpoint	75.8	±	33.2	204.6	±	42.7	<0.001
Fat (g)	baseline	77.2	±	14.9	74.5	±	18.1	0.411
	endpoint	30.0	±	16.8	122.7	±	29.7	<0.001
Dietary fibre (g)	baseline	22.7	±	4.4	21.9	±	5.3	0.412
	endpoint	6.0	±	3.4	11.0	±	3.3	<0.001

*P-value for the differences between groups. Based on independent samples t-test for continuous variables and based on chi-square statistics for categorical variables.

**g/kg BW = daily protein intake in g per kg body weight