Good and poor cognitive performers differ at nutrient intake level

Belina Ferreira-Rodrigues [1,2,3], Carlos Portugal-Nunes [1,2,3], Teresa Castanho [1,2,3], Nuno Sousa [1,2,3], Nadine Santos [1,2,3].

1 - Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho, Braga, Portugal

2-ICVS/3B's, PT Government Associate Laboratory, Braga/Guimarães, Portugal

3- Clinical Academic Center – Braga, Braga, Portugal

PANINI

Physical Activity and Nutrition INfluences In ageing

Introduction

- Ageing is a critical issue worldwide. In Portugal, estimates of 2016 indicated that 2.1 million people were aged 65 years old or older, accounting for 20% of the population.
- Normal ageing is associated not only with global cognitive function decline but also with impaired cognitive flexibility, processing speed and short-term memory.
- Nutritional status, food patterns, food groups and intake of certain nutrients influence the global cognitive function. Thus, overall the literature suggests that adherence to a healthy dietary pattern is associated with less cognitive decline and/or a lower risk of dementia. However, findings are inconsistent and more research is warranted to determine the mechanisms.
- Hence, we explored the cross-sectional relationship between good and poor cognitive performance and dietary intake in older community dwellers.
- The following date are preliminary results obtained from a cross-sectional analysis.

Methods

- A representative sample of the Portuguese older population (n=1051) with respect to age, gender and education, from Guimarães and Vizela, underwent a battery of neurocognitive tests. After a principal component analysis of a subsample have identified four significant dimensions of the cognitive function, four clusters have arisen: “very good”, “good”, “poor” and “very poor” cognitive performers. Of those, 60 participants of the “very good” and 60 particpants of the “very poor” clusters are being followed-up since 2012. In the present poster “very good” and “very poor” performers will be referred as good and poor performers, respectively.
- In the first wave of assessment (2012), data on dietary intake was collected via 24-hour dietary recall (n=105) by an experienced dietitian.
- Nutrients intakes were determined by Nutrilog SAS software (version 2.3).
- After testing the assumptions independent t-tests and Mann-Whitney test were run between poor and good performance groups to determine whether there were statistical differences.

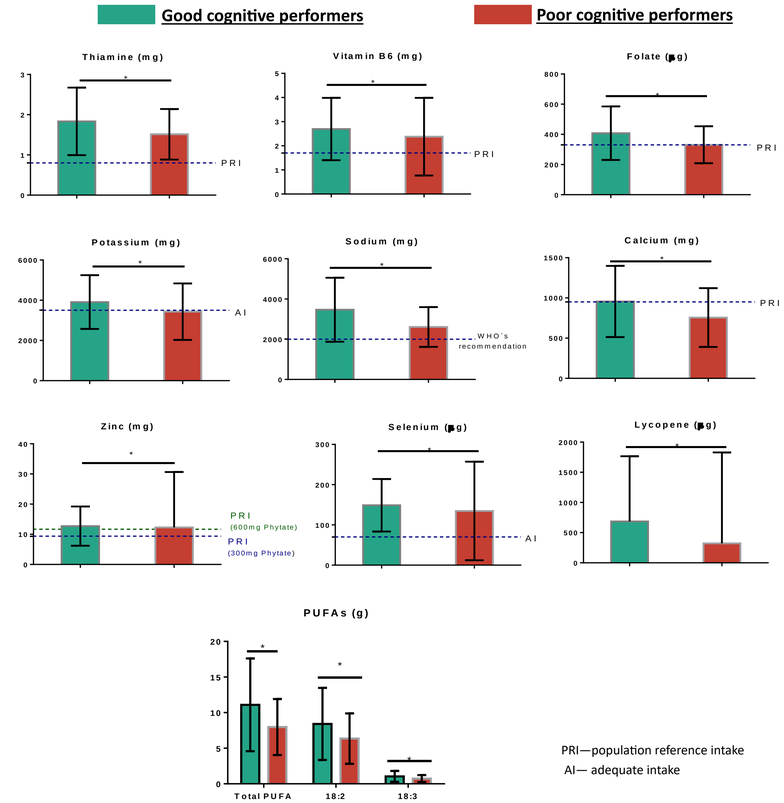
Results

A- Baseline characteristics

Variables		Poor cognitive performers	Good cognitive performers	P-value
FEMALES (n, %)		26 (57.4%)	26 (44.8%)	.24[1]
AGE (Mean, SD)		65.9 (7.3)	64.6 (8.7)	.39[2]
OCCUPATION (n, %)	employed	10 (21.3%)	15 (25.9%)	.81[3]
	retired	33 (70.2%)	39 (67.2%)	
	unemployed	4 (8.5%)	4 (6.9%)	
SCHOOL ATTAINMENT (n, %)	0-3 years	14 (29.8%)	7 (12.1%)	p<.001[1]
	4 years	29 (61.7%)	27 (46.6%)	
	>4 years	4 (8.5%)	24 (41.4%)	
SMOKING HABITS (n, %)	Non-smoker	36 (76.6%)	32 (55.2%)	.088[3]
	Former smoker	8 (17.0%)	19 (32.8%)	
	Smoker	3 (6.4%)	7 (12.1%)	
ALCOHOL CONSUMPTION (n, %)	<25g	23 (48.9%)	27 (47.4%)	.95[3]
	25-30g	12 (25.5%)	12 (21.1%)	
	50-75g	3 (6.4%)	6 (10.5%)	
	75-100g	7 (14.9%)	9 (15.8%)	
	>100g	2 (4.3%)	3 (5.3%)	
PHYSICAL ACTIVITY (n, %)	Never	31 (66.0%)	41 (70.7%)	.69[3]
	<3 times/week	5 (10.6%)	8 (13.8%)	
	≥ 3 times/week	6 (12.8%)	6 (10.3%)	
	Daily	5 (10.6%)	3 (5.2%)	
BMI CATEGORIES (n, %)	Normal	8 (17.4%)	14 (25.0%)	.58[3]
	Overweight	24 (52.2%)	31 (55.4%)	
	Obesity Class I	11 (23.9%)	9 (16.1%)	
	Obesity Class II	3 (6.5%)	2 (3.6%)	

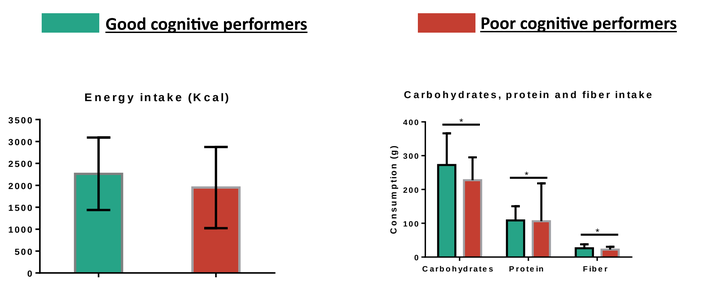
1 – Pearson chi-square p-value | 2 - Independent T-test p-value | 3- Fisher’s Exact test p-value

B- Good and poor cognitive performers’ intake



PRI—population reference intake
AI— adequate intake

B- Good and poor cognitive performers’ intake



Conclusions

- Good cognitive performers displayed a statistically significant higher intake of protein, thiamine, folate, potassium, vitamin B6, dietary fiber, lycopene, calcium, zinc and selenium. As for polyunsaturated fatty acids (PUFA), not only PUFA intake was significantly higher in the good performers but also the α-linolenic acid and linoleic acid consumptions.
- Further analysis are required to analyse the relationships of causality between each cognitive function domain and nutrients intakes and dietary patterns.

References

- INE. Portal do Instituto Nacional de Estatística [cited 2017 Apr 18]. Available from: URL: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=277695619&DESTAQUESmodo=2.
- Costa PS, Santos NC, Cunha P, Palha JA, Sousa N. The use of bayesian latent class cluster models to classify patterns of cognitive performance in healthy ageing. PLoS One 2013; 8(8):e71940.
- Aging IoMCotPHDoC. Cognitive aging: Progress in understanding and opportunities for action; 2015.
- van de Rest O, Am Berendsen A, Haveman-Nies A, Groot LC de. Dietary patterns, cognitive decline, and dementia: a systematic review. Adv Nutr 2015; 6(2):154–68.
- Marques PCG, Soares JMM, Magalhaes RJdS, Santos NC, Sousa NJC. Macro- and micro-structural white matter differences correlate with cognitive performance in healthy aging. Brain Imaging Behav 2016; 10(1):168–81.
- Santos NC, Moreira PS, Castanho TC, Sousa N, Costa PS. Discriminant power of socio-demographic characteristics and mood in distinguishing cognitive performance clusters in older individuals: a cross-sectional analysis. Aging Ment Health 2016:1–6.

Beneficiaries

Partners Organisations

Funded by

Physical Activity and Nutrition INfluences in ageing (PANINI) Project no. 675003