

El papel de la alimentación en el envejecimiento saludable: la cohorte ENRICA-seniors y otros estudios en adultos mayores.

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¡Muchas gracias!

1. A los organizadores de la XII Convención NAOS

- Por la oportunidad de contar lo que hacemos**

2. Al grupo de epidemiología cardiovascular y nutricional

- Porque ellos lo hacen**



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Contenidos

1. El escenario
2. ¿Qué es la fragilidad?
3. ¿Por qué merece la pena ocuparse de la fragilidad? **Porque conduce a discapacidad y otros eventos indeseables**

Editorial

The frailty syndrome in the public health agenda

Fernando Rodríguez-Artalejo,^{1,2} Leocadio Rodríguez-Mañas³

Study (CHS), and identified a frailty phenotype which was defined with five variables: unintentional weight loss, self-reported exhaustion, self-reported low-energy expenditure (physical activity), and measured slow walking speed and

Rodríguez-Artalejo F, et al. *J Epidemiol Community Health* August 2014 Vol 68 No 8

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4. La dieta en la historia natural de la fragilidad y discapacidad y tratamiento
5. Nuestras fuentes de datos
6. **Dieta mediterránea, fragilidad y discapacidad**

La prevención en la edad avanzada

- **Envejecimiento saludable (OMS, 2105)**

- Envejecimiento Saludable es el proceso de fomentar y mantener la **capacidad funcional** que permite el bienestar en la vejez (durante tanto tiempo como sea posible)
 - La **capacidad funcional** es la capacidad para hacer las cosas que a uno le interesa

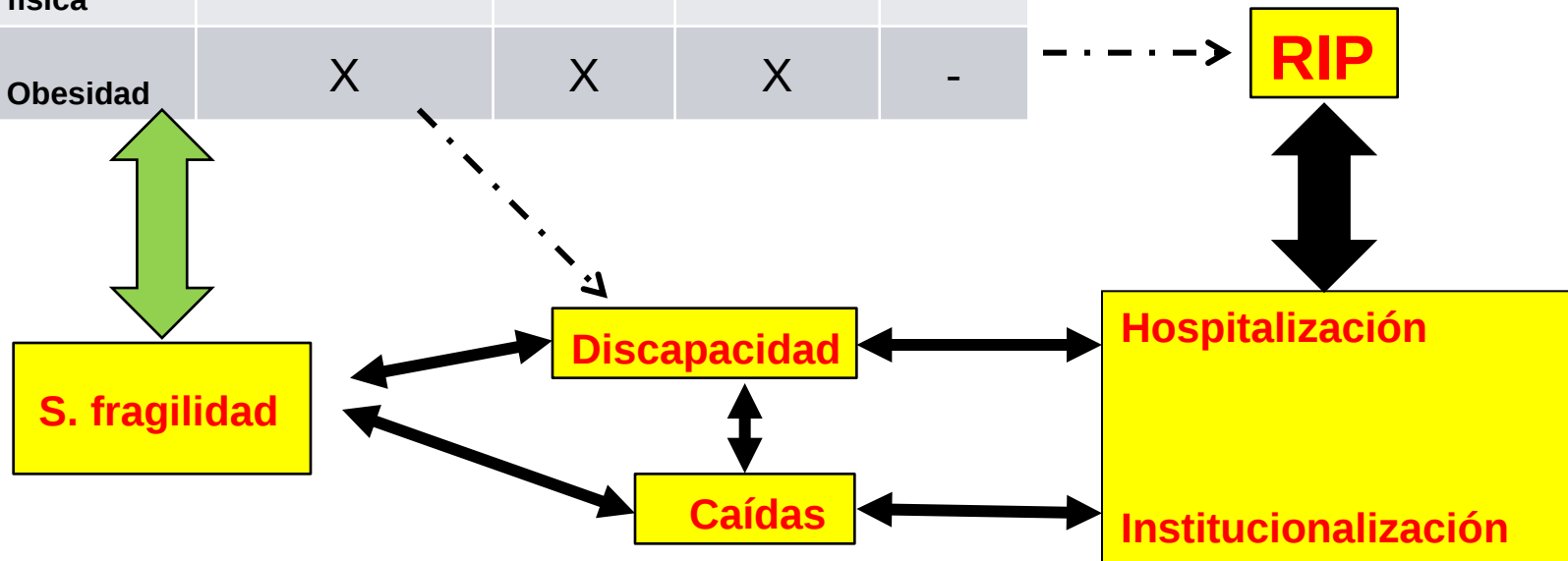
- **Objetivos generales del tratamiento de los factores de riesgo cardiovascular en el anciano**

- El objetivo prioritario es mantener las expectativas de vida libre de discapacidad, con la **máxima capacidad funcional** y cognitiva, y asegurar la mejor calidad de vida posible.

Gómez-Huelgas R, Martínez-Sellés M, Formiga F, Alemán Sánchez JJ, Camafort M, Galve E, Gil P, Lobos JM. Conferencia de consenso. Tratamiento de los factores de riesgo vascular en el paciente mayor de 80 años. Med Clin (Barc). 2014;143:134.e1-11

El objetivo de la prevención (cardiovascular) en las edades avanzadas

	Enf. cardiovascular	Cáncer	Diabetes	EPOC
Tabaco	X	X	-	X
Abuso alcohol	X	X	-	-
Dieta pobre	X	X	X	X
Inactividad física	X	X	X	X
Obesidad	X	X	X	-



2. ¿Qué es la fragilidad?

- Es un síndrome médico asociado a la edad
- Mayor vulnerabilidad a pequeños estresores (infecciones, tratamientos, hospitalización.....)

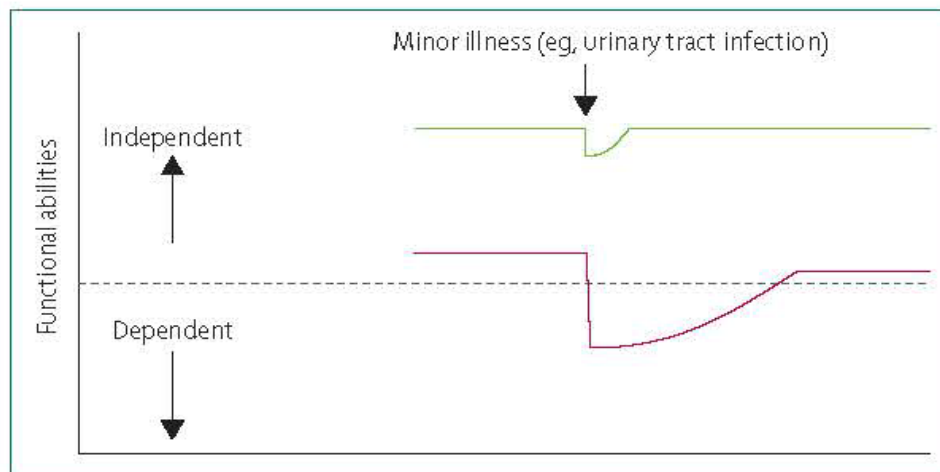


Figure 1: Vulnerability of frail elderly people to a sudden change in health status after a minor illness

The green line represents a fit elderly individual who, after a minor stressor event such as an infection, has a small deterioration in function and then returns to homeostasis. The red line represents a frail elderly individual who, after a similar stressor event, undergoes a larger deterioration, which may manifest as functional dependency, and who does not return to baseline homeostasis. The horizontal dashed line represents the cutoff between dependent and independent.

Clegg et al. Lancet. 2013;381752-62.

3. ¿Por qué es importante la fragilidad?

1. Se asocia a mayor riesgo de eventos adversos
 - Pero no predice bien el riesgo de los mismos
2. Es muy frecuente
3. Es potencialmente reversible
 - Espontáneamente (poco frecuente)
 - Mediante intervenciones sanitarias (empezamos a saber cómo)

¿Cómo se llega y como se mantiene la fragilidad?

El ciclo de la fragilidad

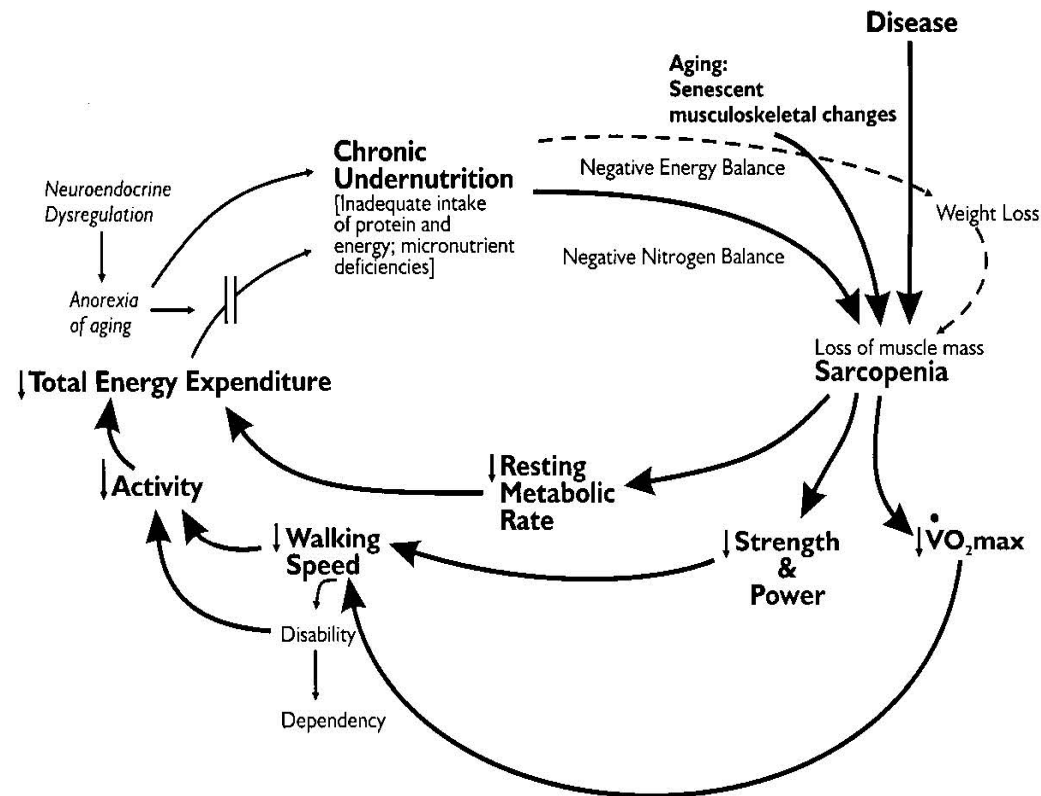
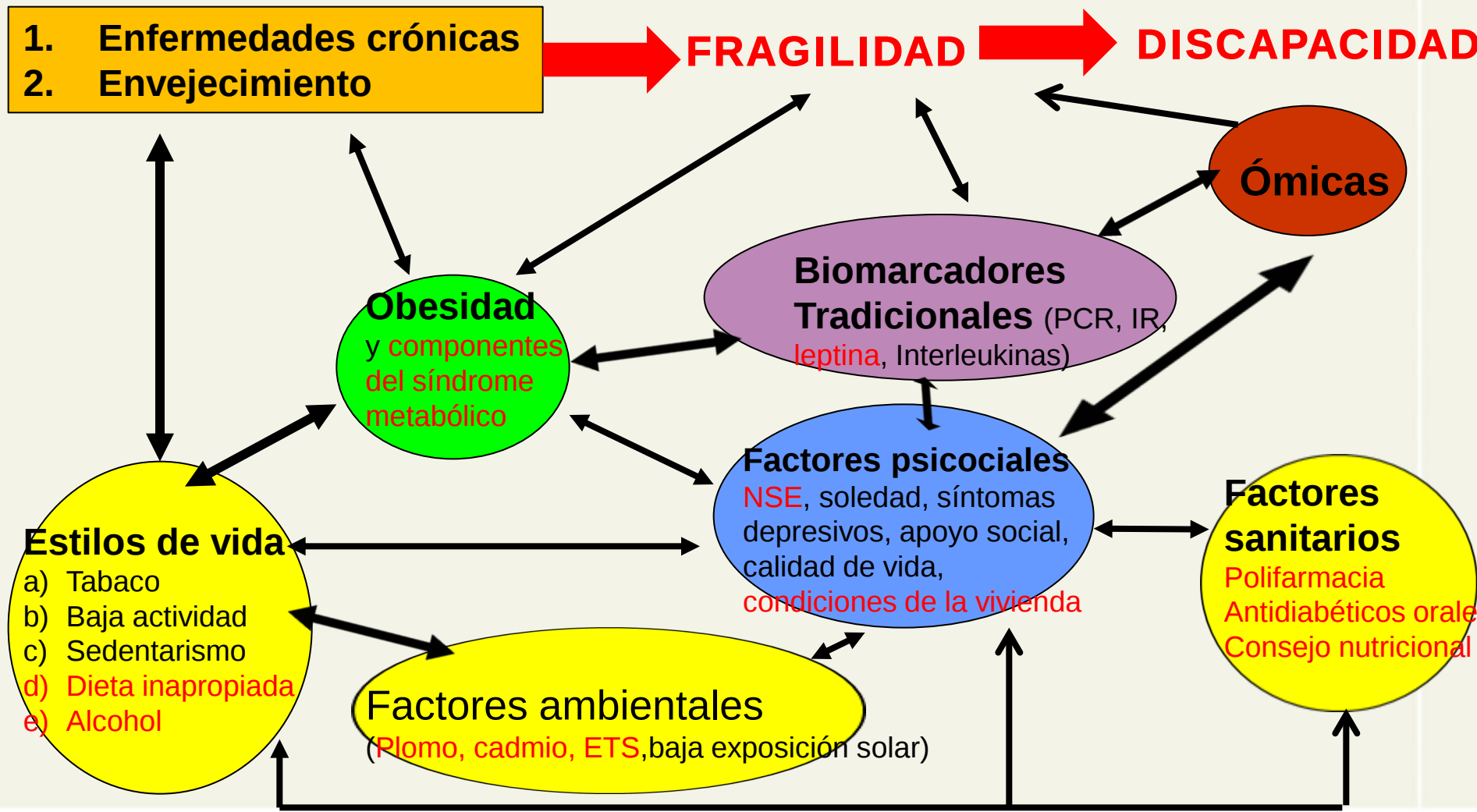


Figure 1. Cycle of frailty hypothesized as consistent with demonstrated pairwise associations and clinical signs and symptoms of frailty. Reproduced with permission from (14).

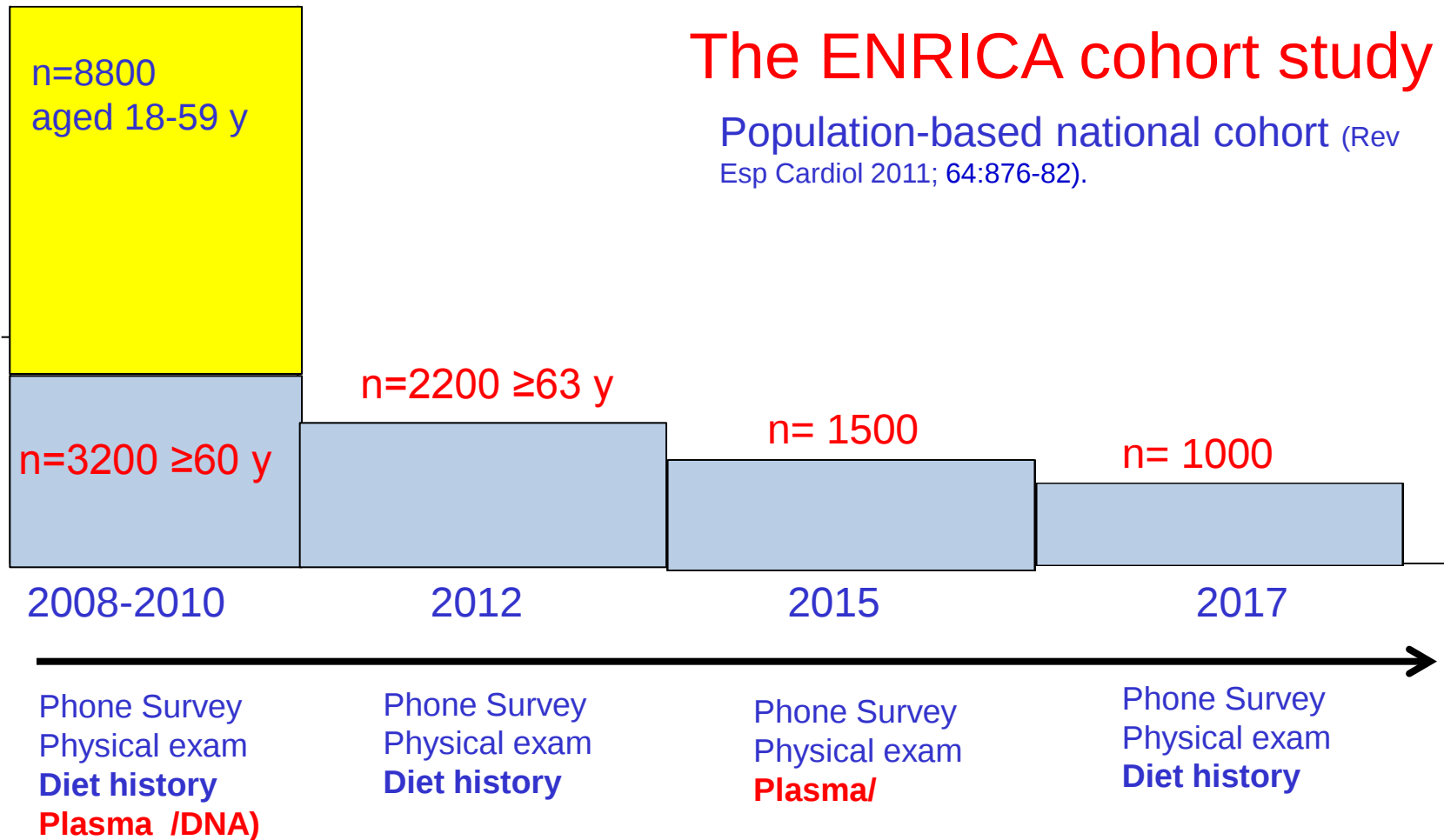
4. Determinantes de la fragilidad



Más efectos directos de cada uno de estos grupos de variables

The ENRICA cohort study

Population-based national cohort (Rev
Esp Cardiol 2011; 64:876-82).



Colaboración con otras cohortes

Consumption of fruit and vegetables and risk of frailty: a dose-response analysis of **3 prospective cohorts** of community-dwelling older adults^{1,2}

Esther García-Esquinas,^{3-5} Berna Rahi,^{6,7} Karine Peres,^{6,7} Marco Colpo,⁸ Jean-François Dartigues,^{6,7} Stefania Bandinelli,⁹ Catherine Fearf,^{6,7} and Fernando Rodríguez-Artalejo³⁻⁵*

García-Esquinas et al. *International Journal of Behavioral Nutrition and Physical Activity* (2017) 14:54
DOI 10.1186/s12966-017-0511-1

International Journal of Behavioral
Nutrition and Physical Activity

RESEARCH

Open Access

Television viewing time as a risk factor for frailty and functional limitations in older adults: results from **2 European prospective cohorts**



Esther García-Esquinas^{1*}, Elena Andrade¹, David Martínez-Gómez², Francisco Félix Caballero³, Esther López-García^{1,4} and Fernando Rodríguez-Artalejo^{1,4}

Original Article
EPIDEMIOLOGY/GENETICS

Obesity

Obesity, Fat Distribution, and Risk of Frailty in **Two Population-Based Cohorts of Older Adults** in Spain

Esther García-Esquinas¹, Francisco José García-García², Luz M. León-Muñoz¹, José Antonio Carnicero², Pilar Guallar-Castillón¹, Magali Gonzalez-Colaço Harmand³, Esther López-García¹, Cristina Alonso-Bouzon³, Leocadio Rodríguez-Mañas², and Fernando Rodríguez-Artalejo¹

PLOS ONE

RESEARCH ARTICLE

Mediterranean Diet and Health-Related Quality of Life in **Two Cohorts of Community-Dwelling Older Adults**

Raúl F Pérez-Tasigchana, Luz M. León-Muñoz, Esther López-García, José R. Banegas, Fernando Rodríguez-Artalejo, Pilar Guallar-Castillón*

Mediterranean diet and risk of frailty syndrome among women with type 2 diabetes

Esther López-García,^{1,2,3} Kaitlin A Hagan,^{4,5} Teresa T Fung,^{6,7} Frank B Hu,^{4,6} and Fernando Rodríguez-Artalejo^{1,2,3}

La **dieta mediterránea** tiene una asociación dosis respuesta inversa con el riesgo de fragilidad

Table 1
Association Between Adherence to the MD and Risk of Frailty During a 3.5-Year Follow-Up of Older Adults (N = 1815)

	MEDAS				MDS			
	Tertile 1	Tertile 2	Tertile 3	P Trend	Tertile 1	Tertile 2	Tertile 3	P Trend
		OR (95% CI)	OR (95% CI)			OR (95% CI)	OR (95% CI)	
Main analyses								
Number of frailty events	61	41	35		67	36	34	
Model 1	Ref.	0.76 (0.49–1.18)	0.55 (0.35–0.86) [†]	.009	Ref.	0.58 (0.37–0.91) [*]	0.43 (0.27–0.67) [‡]	<.001
Model 2	Ref.	0.85 (0.54–1.36)	0.65 (0.40–1.04)	.07	Ref.	0.59 (0.37–0.95) [*]	0.48 (0.30–0.77) [‡]	.002

Model 1: Adjusted for sex, age, and educational level (<primary, secondary, university).

Model 2: Adjusted additionally for tobacco (never smoker, former smoker, current smoker), BMI (kg/m²), energy intake (kcal/d), cardiovascular disease, diabetes mellitus, cancer, asthma or chronic bronchitis, osteo-muscular disease, depression requiring treatment, and number of drug treatments.

^{*}P < .05.

[†]P < .01.

[‡]P < .001.

[§]As in model 2 but without adjustment for cardiovascular disease, diabetes mellitus, cancer, asthma or chronic bronchitis, and depression requiring treatment.

La dieta mediterránea se asocia a menor riesgo de fragilidad **también en diabéticas**

MEDITERRANEAN DIET AND FRAILTY

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TABLE 2

Association between aMED score (in quartiles) and frailty among women aged ≥ 60 y with incident type 2 diabetes in the NHS (1992–2012)¹

	Quartile				<i>P</i> -trend	RR (95%CI) for a 2-point increase in aMED score
	1	2	3	4		
All nonfrail (0, 1, or 2 frailty criteria at baseline)						
Participants (total <i>n</i> = 8970), <i>n</i>	2213	2520	1945	2292		
Person-years	8819	10,086	7825	9193		
No. of frailty events (total <i>n</i> = 569)	167	171	118	113		
HR (95% CI)						
Age-adjusted	1.0	0.91 (0.73, 1.13)	0.74 (0.58, 0.94)	0.60 (0.47, 0.77)	<0.001	0.76 (0.68, 0.85)
Multivariable model ²	1.0	0.90 (0.72, 1.12)	0.71 (0.55, 0.90)	0.57 (0.44, 0.73)	<0.001	0.73 (0.65, 0.82)
Multivariable model ³	1.0	0.88 (0.71, 1.10)	0.69 (0.53, 0.88)	0.54 (0.42, 0.71)	<0.001	0.72 (0.64, 0.81)
Multivariable model ⁴	1.0	1.00 (0.80, 1.25)	0.83 (0.65, 1.07)	0.76 (0.58, 0.99)	0.02	0.85 (0.75, 0.96)

Patrón dietético **prudente** y fragilidad

	Prudent pattern			
	Tertile 1	Tertile 2	Tertile 3	
		Odds ratio (95% CI)	Odds ratio (95% CI)	<i>P</i> -trend
Main analysis				
Number of frailty events	48	27	21	
Model 1	Ref.	0.69 (0.41–1.17)	0.59 (0.33–1.04)	0.05
Model 2	Ref.	0.64 (0.37–1.12)	0.40 (0.20–0.81)*	0.009

No todas las carnes son iguales

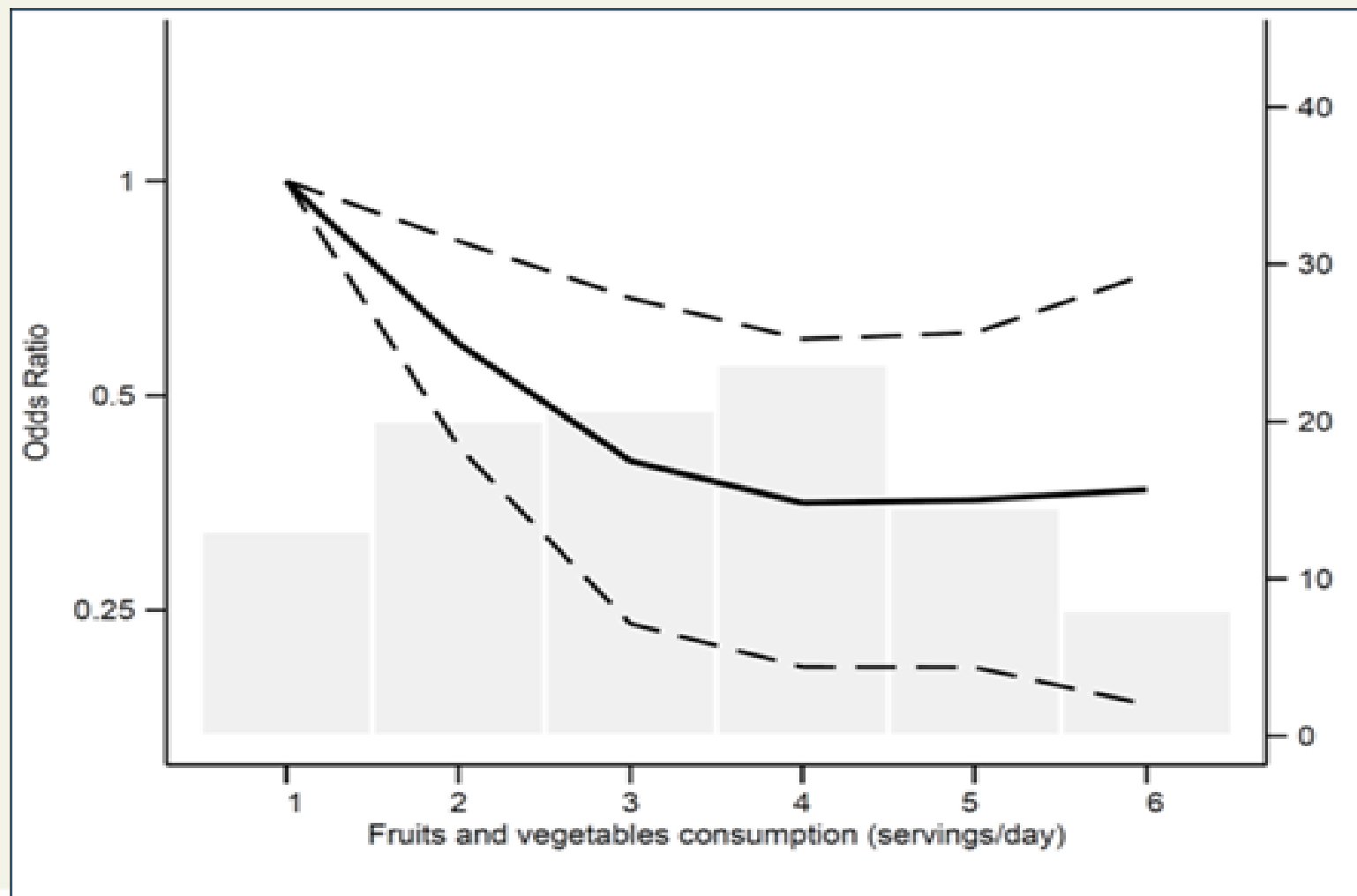
Table 4. Hazard ratios and 95% confidence intervals for replacing of 1 serving of processed meat by a serving of other sources of protein and impairment in physical functioning during up to 7.2 years of follow-up.

Substitution*	Impairment in agility	Impairment in lower extremity function
Red meat for processed meat	0.96 (0.86; 1.07)	0.63 (0.56; 0.72)
Poultry for processed meat	0.70 (0.64; 0.77)	1.03 (0.95; 1.10)
Fish for processed meat	0.82 (0.75; 0.90)	0.68 (0.63; 0.73)
Legumes for processed meat	0.86 (0.76; 0.99)	0.97 (0.79; 1.20)
Dairy for processed meat	0.75 (0.65; 0.88)	0.85 (0.68; 1.06)
Nuts for processed meat	0.59 (0.57; 0.61)	0.60 (0.55; 0.65)

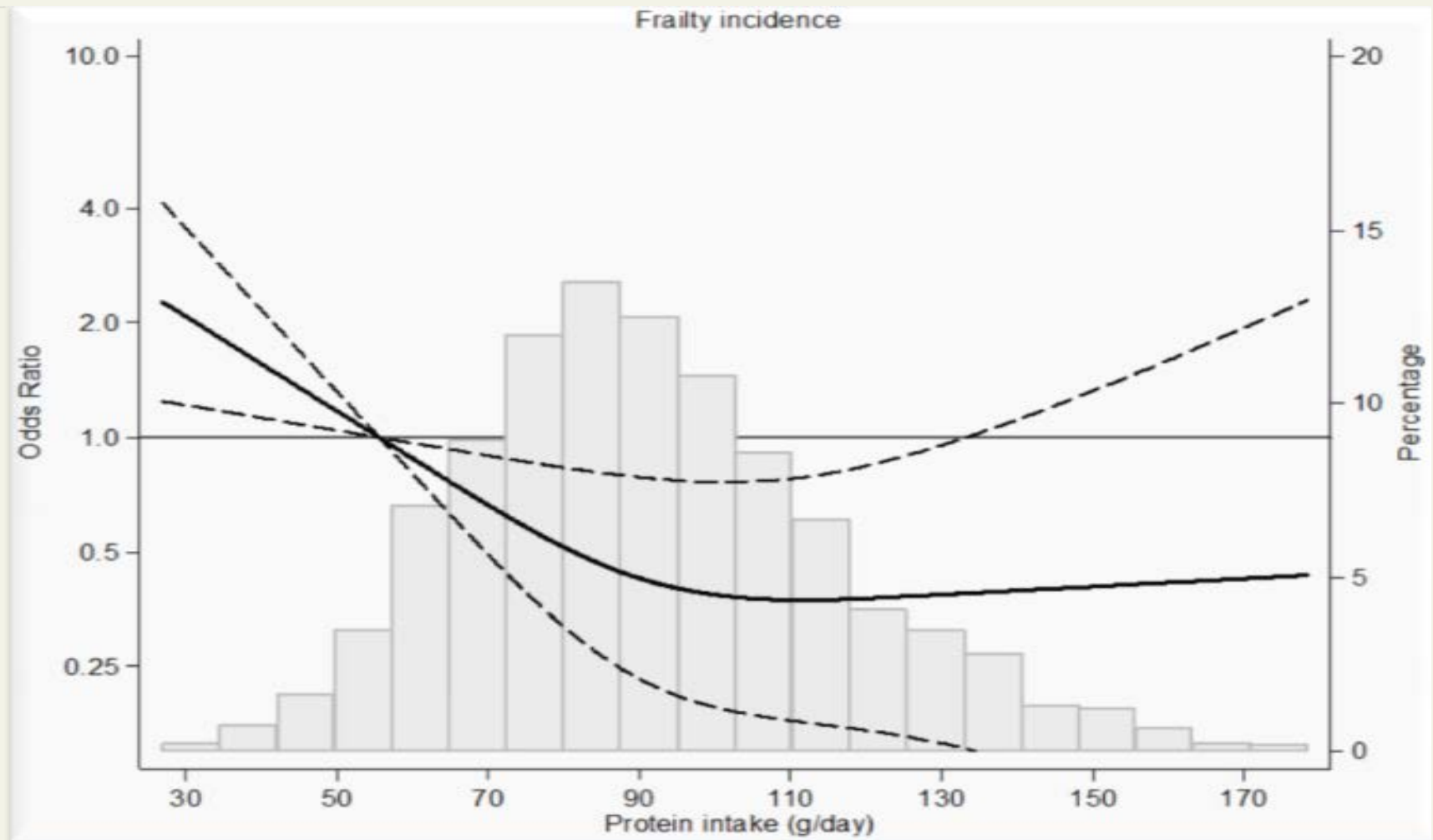
Model is adjusted for adjusted for age, sex, educational level ($\leq$ primary, secondary, university), smoking status (never smoker, former smoker, current smoker), alcohol intake (quintiles of g/d), energy intake (quintiles of kcal/d), BMI (<25 , $25-30$, ≥ 30 kg/m²), sedentary behaviour (quintiles of h/wk watching TV) and morbidity (cognitive impairment, osteomuscular disease, cardiovascular disease, cancer, chronic lung disease, and depression).

*1 serving of red meat, processed meat, poultry, and fish = 100g; 1 serving of legumes= 75g; 1 serving of dairy=150g; 1 serving of nuts= 30g.

Frutas y verduras y fragilidad



Ingesta de **proteínas** y fragilidad



Sandoval-Insausti et al. J Gerontol A Biol Sci Med Sci. 2016;71:1329-34.

Derivados lácteos y fragilidad

		<1 serving /wk	1-6 servings/w k	≥7 servings/w k	P-trend
Whole milk/yogurt					
	Frailty, n	62	32	40	
	OR	1.00	1.26	1.53	.10
Low-fat milk/yogurt					
	Frailty, n	34	45	55	
	OR	1.00	0.55	0.52	.03
Cheese					
	Frailty, n	48	53	33	
	OR	1.00	0.66	0.91	.61

Una dieta palatable para prevenir la fragilidad

- Dieta de tipo mediterráneo,
- aunque no necesariamente con alcohol,
- que puede contener generosas cantidades de carne,
 - Deseablemente no procesada
- con frutas y verduras (400 g/d),
- con suficiente proteína (1,5 g/ kg peso),
- y lácteos preferentemente desnatados