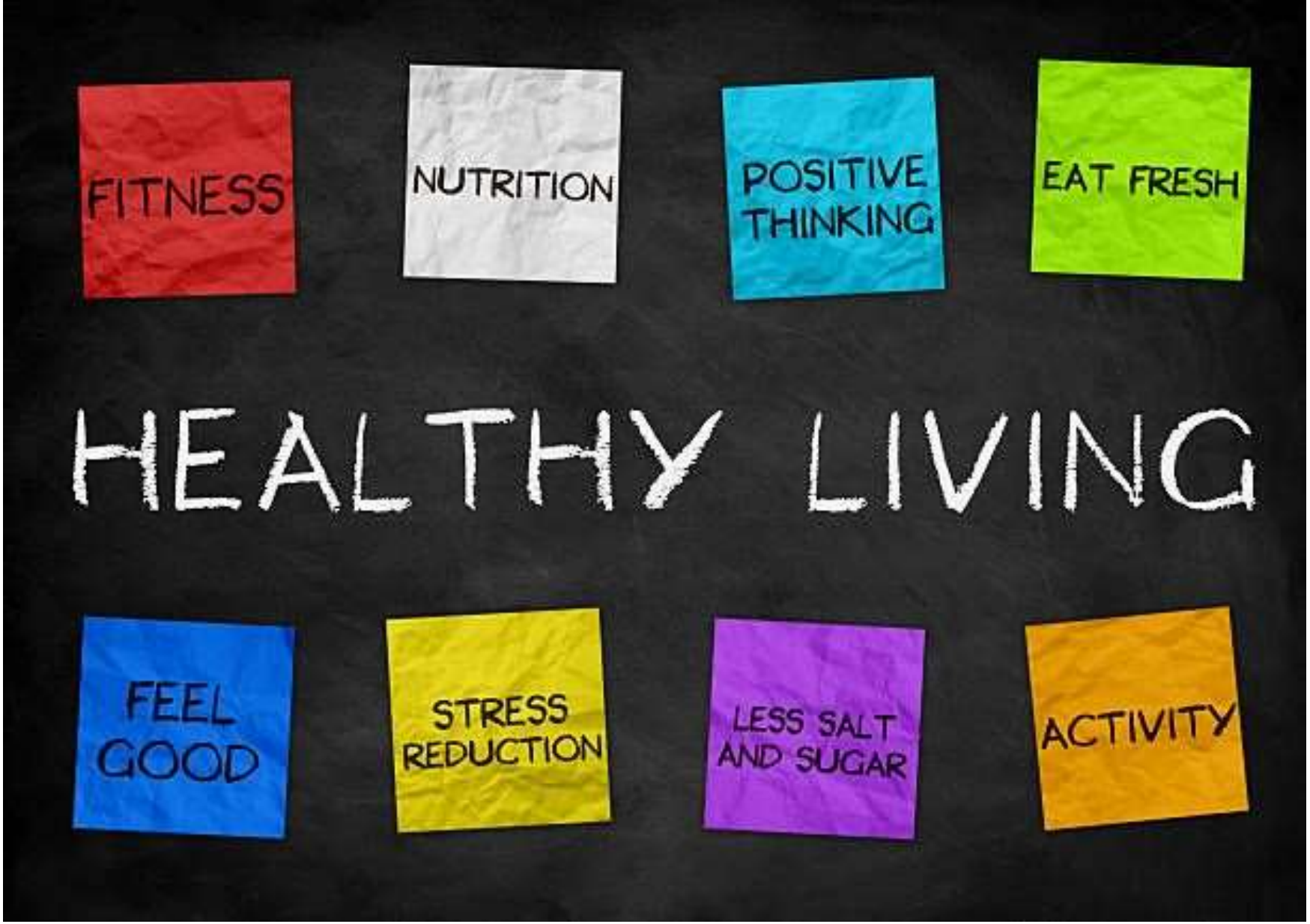
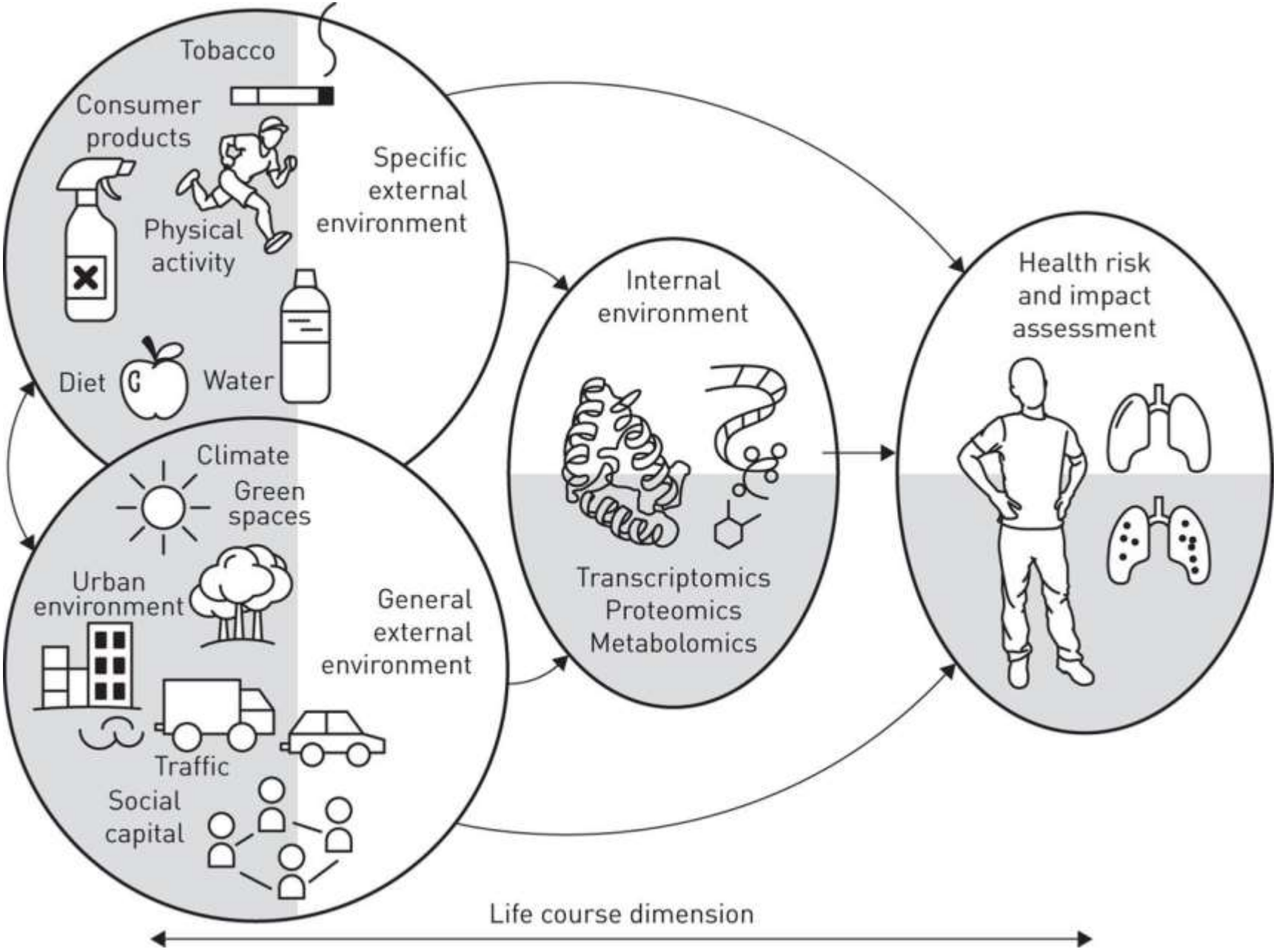
Concordancia entre el BIA multifrecuencia octopolar segmental y la ecuación CUN-BAI en una muestra de usuarios de un gimnasio españoles

Concordancia entre el BIA multifrecuencia octopolar segmental y la ecuación CUN-BAI en una muestra de usuarios de un gimnasio españoles

Rojo Fernández F. (1), de Cangas Morán R. (1), Bahamonde Nava JR (2), Nicieza Forcelledo G. (3), Zamarreño Ortiz D. (4), Pozueco Pérez J. (5)

(1) Dpto. Investigación en Nutrición de Precisión. Centro Salud Nutricional. Gijón (Asturias). España.
(2) Jose Ramón Bahamonde Nava. Facultad Padre Ossó. Universidad de Oviedo. (3) Dpto. De Cirugía General y del Aparato. Digestivo. Hospital Universitario Central de Asturias (HUCA)-Fundación Hospital del Jove. Gijón (Asturias). España.
(4) Dpto. Urgencias. Hospital de Cabueñes. Gijón (Asturias). España.
(5) Dpto. Estadística e investigación operativa. Universidad de Granada. Granada. España.


FITNESS
NUTRITION
POSITIVE THINKING
EAT FRESH
HEALTHY LIVING
FEEL GOOD
STRESS REDUCTION
LESS SALT AND SUGAR
ACTIVITY



Siroux V, Agier L, Slama R. The exposome concept: a challenge and a potential driver for environmental health research. Eur Respir Rev. 2016 Jun;25(140):124–9.

ACTIVIDAD FÍSICA de PRECISIÓN

- Definición operacional: No existe

Published OnlineFirst July 12, 2016; DOI: 10.1158/1078-0432.CCR-16-0067

Review

Clinical Cancer Research

Physical Activity and Cancer Outcomes: A Precision Medicine Approach

Christine M. Friedenreich[1,2,3], Heather K. Neilson[1], Megan S. Farris[1,3], and Kerry S. Courneya[4]

Abstract

There is increasing interest in applying a precision medicine approach to understanding exercise as a potential treatment for cancer. We aimed to inform this new approach by appraising epidemiologic literature relating postdiagnosis physical activity to cancer outcomes overall and by molecular/genetic subgroups. Across 26 studies of breast, colorectal, and prostate cancer patients, a 37% reduction was seen in risk of cancer-specific mortality, comparing the most versus the least active patients (pooled relative risk = 0.63; 95% confidence interval: 0.54–0.73). Risks of recurrence or recurrence/cancer-specific death (combined outcome) were also reduced based on fewer studies. We identified ten studies of associations between physical activity and cancer outcomes by molecular or genetic markers. Two studies showed statistically significant risk reductions in breast cancer mortality/recurrence for the most (versus least) physically active estrogen receptor–positive/progesterone receptor–positive (ER^+/PR^+) patients, while others showed risk reductions among ER^-PR^- and triple-negative patients. In colorectal cancer, four studies showed statistically significant risk reductions in cancer-specific mortality for patients with high (versus low) physical activity and P21 expression, P27 expression, nuclear $CTNNB1^-$, $PTGS2\ (COX\text{-}2)^+$, or IRS1 low/negative status. One prostate cancer study showed effect modification by Gleason score. As a means to enhance this evidence, future observational studies are needed that will measure physical activity objectively before and after diagnosis, use standardized definitions for outcomes, control for competing risks, assess nonlinear dose–response relations, and consider reverse causality. Ultimately, randomized controlled trials with clinical cancer outcomes and a correlative component will provide the best evidence of causality, relating exercise to cancer outcomes, overall and for molecular and genetic subgroups. *Clin Cancer Res; 22(19); 4766–75. ©2016 AACR.*

ACTIVIDAD FÍSICA de PRECISIÓN

Progress in Cardiovascular Diseases 62 (2019) 3–8

Contents lists available at ScienceDirect

Progress in Cardiovascular Diseases

journal homepage: www.onlinepcd.com

Precision in Promoting Physical Activity and Exercise With the Overarching Goal of Moving More

Cemal Ozemek *, Ross Arena

Department of Physical Therapy, College of Applied Health Sciences, University of Illinois at Chicago, Chicago, IL, USA

ARTICLE INFO

Keywords:
Physical activity
Exercise
Cardiorespiratory fitness
Precision medicine

ABSTRACT

Physical inactivity is strongly associated with an unfavorable health profile, increasing an individual's risk for developing cardiovascular disease. Initiating a regular exercise routine contributes to improvements in cardiorespiratory fitness, body composition, resting blood pressure, blood glucose, and circulating lipoproteins. However, the extent to which positive changes occur come with significant inter-individual variability within intervention groups; non-responders and responders have been commonly identified across populations, highlighting that not all exercise regimens are universally effective in all individuals and should therefore not be treated as a "one-size fits all" prescription. Recent studies have therefore emphasized reporting the quantity of participants favorably and meaningfully "responding" to varying amounts and intensities of exercise, thereby presenting the opportunity to view exercise prescription in the context of precision medicine. This review will address the impact of varying amounts and intensities of physical activity and exercise, highlighting their impact on key health metrics.


V02 Max

ACTIVIDAD FÍSICA de PRECISIÓN

Prog Cardiovasc Dis. 2019 Jan - Feb;62(1):76-82. doi: 10.1016/j.pcad.2018.10.003. Epub 2018 Oct 30.

Determining Cardiorespiratory Fitness With Precision: Compendium of Findings From the FRIEND Registry.

Kaminsky LA[1], Myers J[2], Arena R[3].

Author information

1 Fisher Institute of Health and Well-Being, Ball State University, Muncie, IN, United States of America. Electronic address: kaminskyla@bsu.edu.

2 Division of Cardiology, Veterans Affairs Palo Alto Health Care System, Palo Alto, CA, United States of America; Stanford University School of Medicine, United States of America.

3 Department of Physical Therapy, College of Applied Health Sciences, University of Illinois at Chicago, Chicago, IL, United States of America.

Abstract

Healthy living (HL) behaviors and characteristics are central to both preventing and treating a myriad of chronic diseases; a key HL characteristic is cardiorespiratory fitness (CRF). Knowing an individual's CRF provides vital information when assessing health status and formulating a plan of care. Normative reference values as well as thresholds that denote varying degrees of health and future risk exist for measures of CRF. However, improving upon the precision of CRF reference standards according to key factors as well as precision in how CRF assessments can be used to assess health status and prognosis is needed. The current review will: 1) provide an overview of current approaches to CRF assessment and interpretations; 2) describe more recent efforts to improve upon the precision of CRF values; and 3) describe the Fitness Registry and the Importance of Exercise: A National Data Base (FRIEND) for the precision of CRF as a clinical measure.

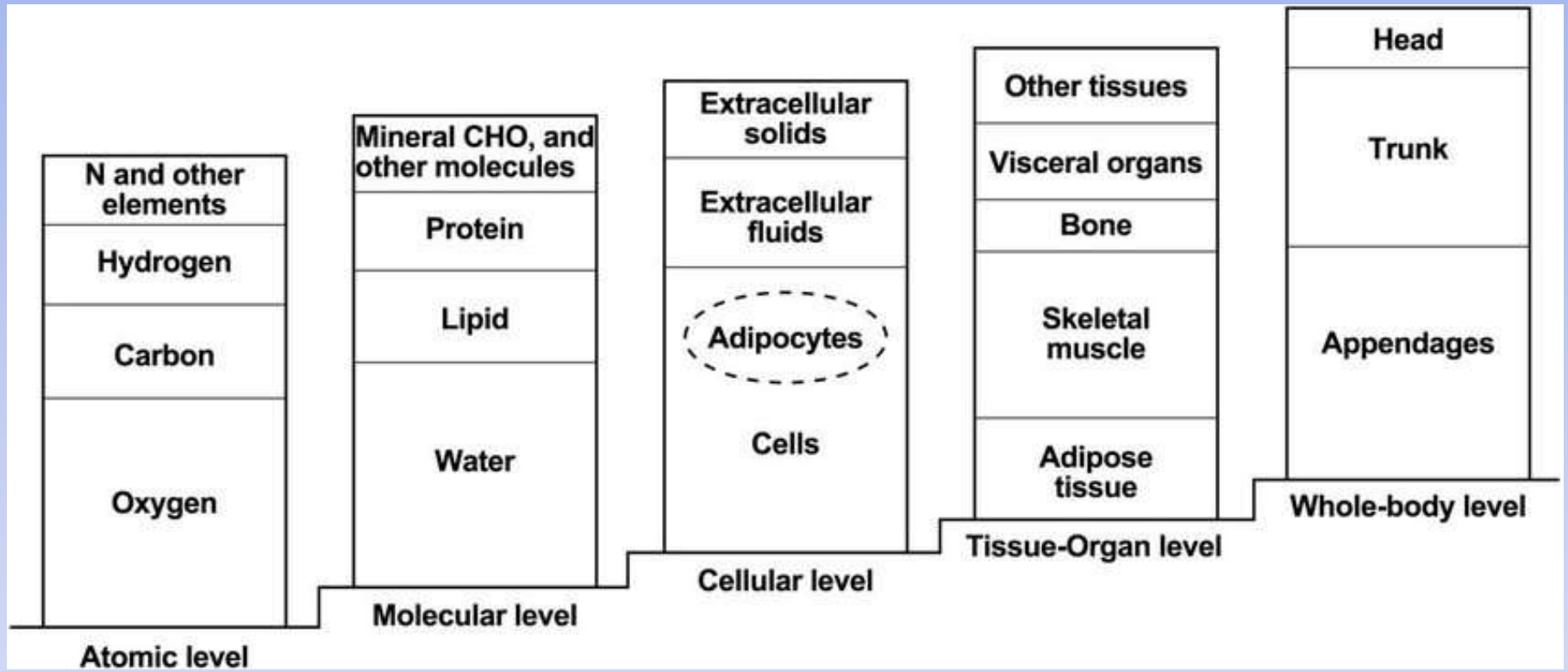
KEYWORDS: Cardiopulmonary exercise testing; Cardiorespiratory fitness; Prognosis; Vital sign

PMID: 30385268 DOI: 10.1016/j.pcad.2018.10.003

[Indexed for MEDLINE]

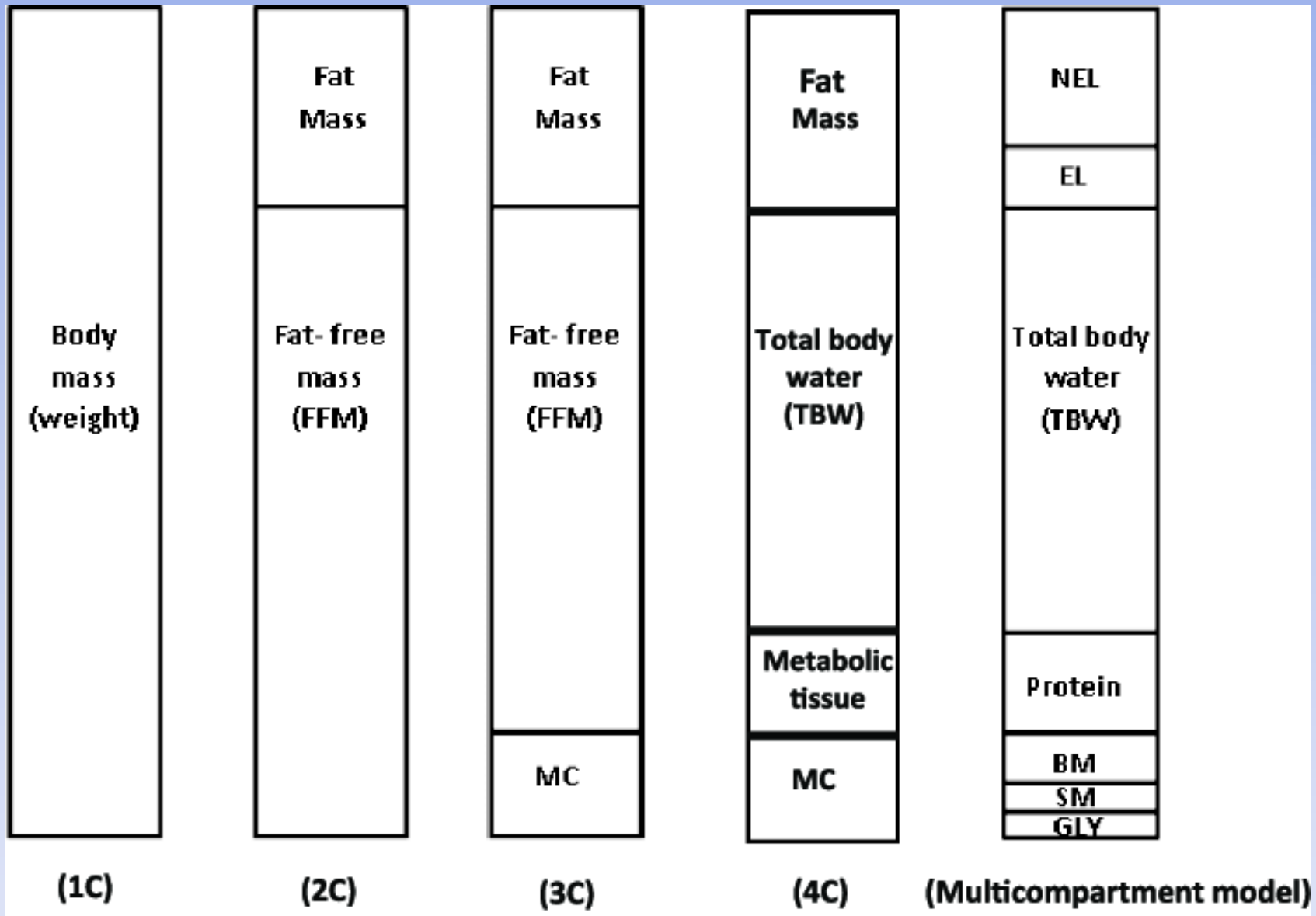
COMPOSICIÓN CORPORAL

MODELOS COMPOSICIÓN CORPORAL

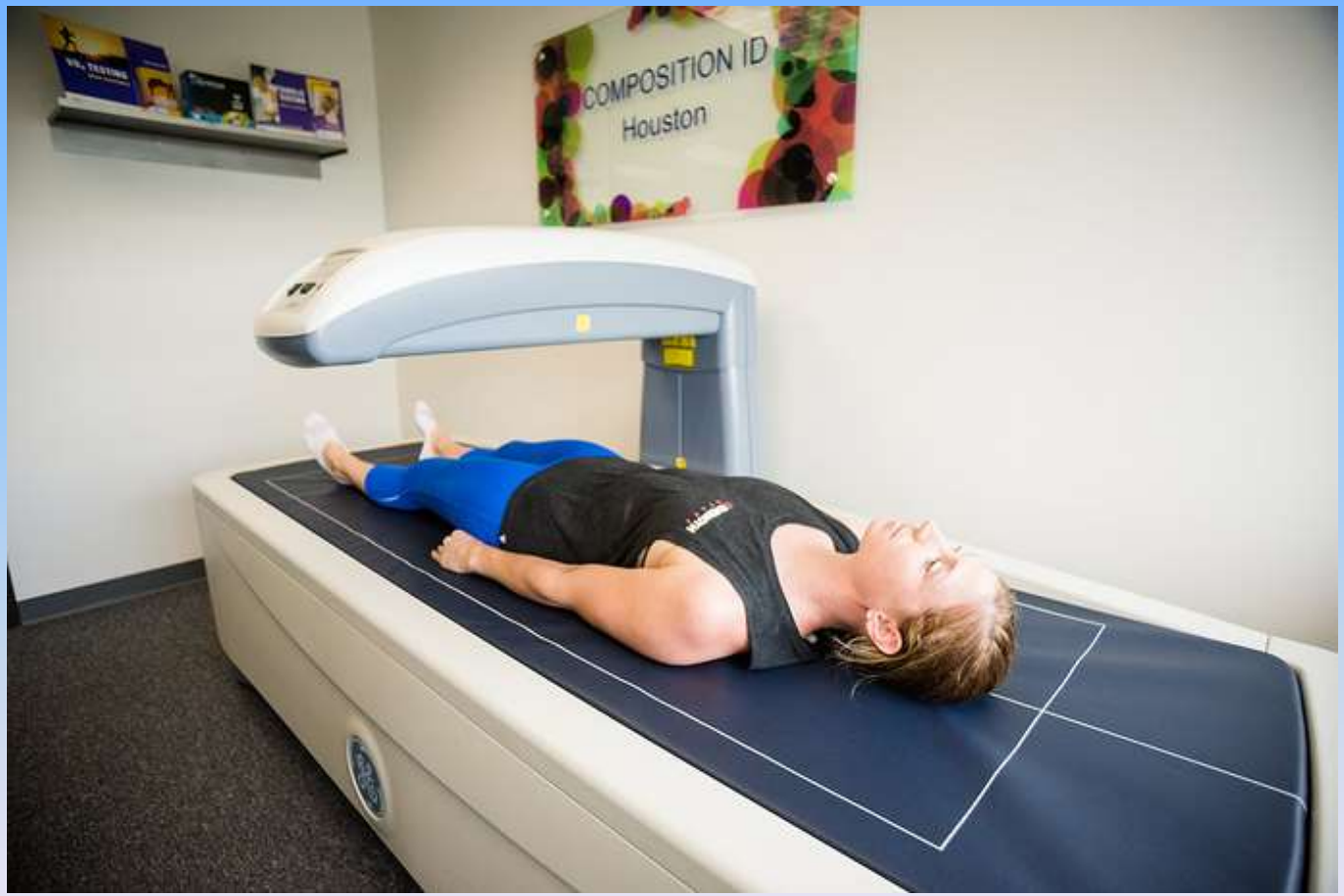


Wang ZM, Heshka S, Pierson RN Jr, Heymsfield SB. Systematic organization of body-composition methodology: an overview with emphasis on component-based methods. Am J Clin Nutr. 1995 Mar;61(3):457-65.

MODELOS COMPOSICIÓN CORPORAL



MÉTODOS COMPOSICIÓN CORPORAL



- DEXA (Absorciometría dual de Rayos X)

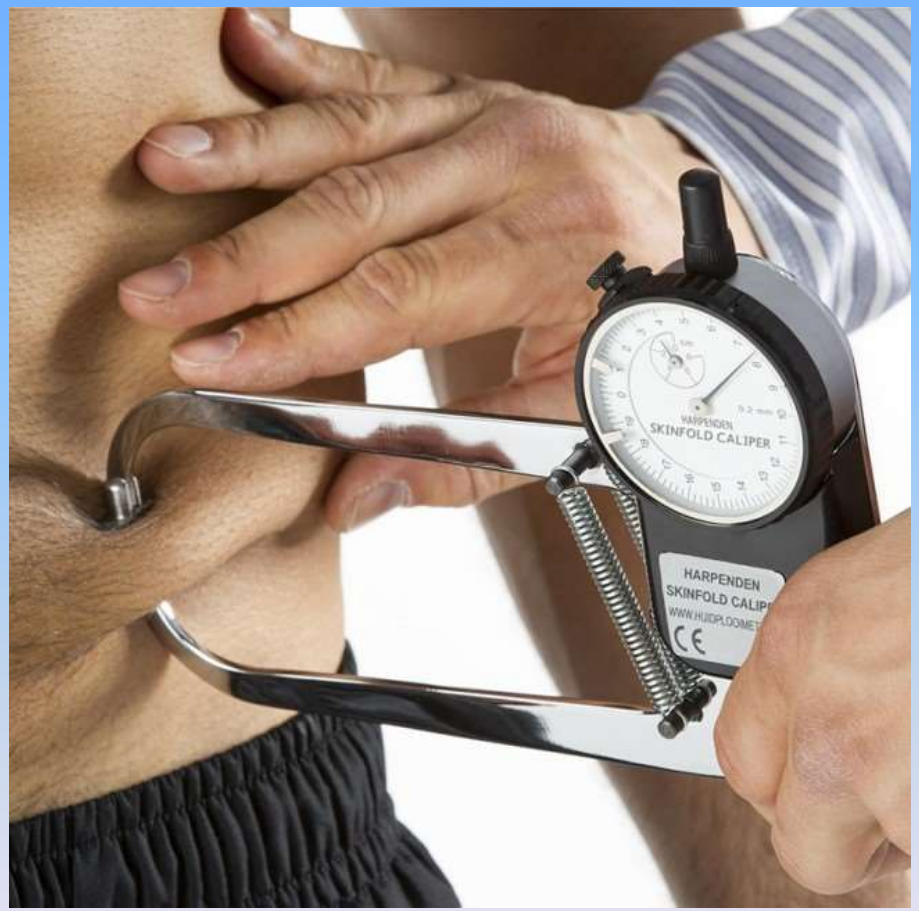
MÉTODOS COMPOSICIÓN CORPORAL

- BOD-POD (Pletismografía por desplazamiento de aire)

MÉTODOS COMPOSICIÓN CORPORAL

- BIA (Análisis de Impedancia Bioléctrica).

MÉTODOS COMPOSICIÓN CORPORAL



- SFM (Método de los Pliegues Cutáneos)

PREMISAS MODELOS 2C

-Densidad (FM)=0,9907g/ml.

FM anhidra

-Densidad (FFM)=1,000 g/ml.

TBW=73,2% FFM

González Jiménez E, Composición corporal: Estudio y utilidad clínica.

BIA: Análisis de Impedancia Bioeléctrica

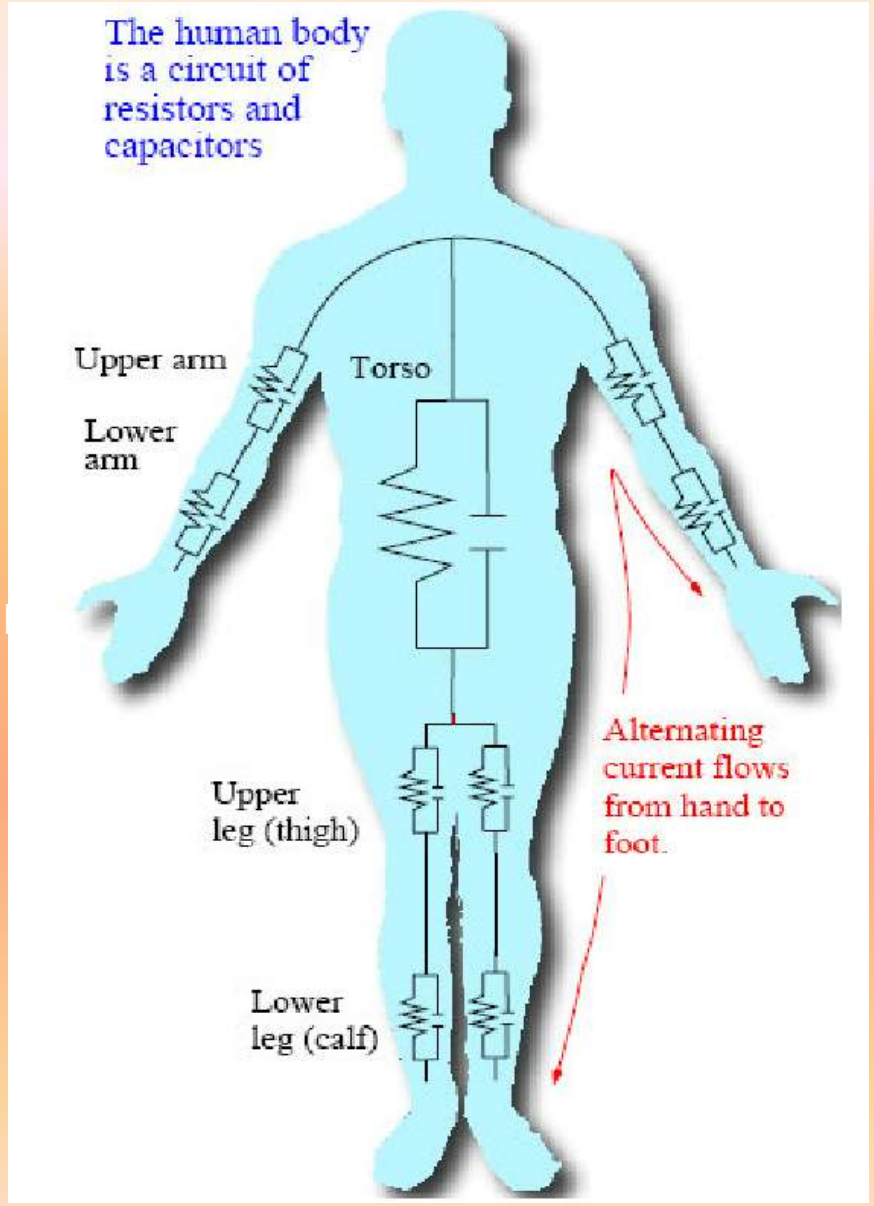
-Modelo 2C.

-Propiedades bioléctricas de los tejidos.

-Mide la Z (Impedancia)

González Jiménez E, Composición corporal: Estudio y utilidad clínica.

BIA: Análisis de Impedancia Bioeléctrica




InBody 770

SFM: Método de los Pliegues Cutáneos

-Modelo 2C.

-La FM de los puntos anatómicos representativa de la FM total.

-% FM

González Jiménez E, Composición corporal: Estudio y utilidad clínica.

Objetivo

- Concordancia:

BIA Slimmanager N40

Ecuación de predicción % FM CUN-BAI

BIA:Análisis Impedancia Bioeléctrica

-Multifrecuencia

-Octopolar

-Segmental

CINEANTROPOMETRIA: Ecuación CUN-BAI

Ecuación validada frente a BOP-POD (n=6510,18-80añ)

% FM=f (Edad, sexo, BMI)

Gómez-Ambrosi J, Silva C, Galofré JC, Escalada J, Santos S, Millán D, et al. Body mass index classification misses subjects with increased cardiometabolic risk factors related to elevated adiposity. Int J Obes (Lond). 2012;36(2):286-94

Clinical Usefulness of a New Equation for Estimating Body Fat

Javier Gómez-Ambrosi, PHD[1,2]
Camilo Silva, MD[2,3]
Victoria Catalán, PHD[1,2]
Amaia Rodríguez, PHD[1,2]
Juan Carlos Galofré, MD, PHD[3]
Javier Escalada, MD, PHD[2,3]
Victor Valentí, MD, PHD[2]
Fernando Rotellar, MD, PHD[2]
Sonia Romero, MSC[2,3]
Beatriz Ramírez, MSC[1,2]
Javier Salvador, MD, PHD[2,3]
Gema Frühbeck, MD, PHD[1,2,3]

OBJECTIVE—To assess the predictive capacity of a recently described equation that we have termed CUN-BAE (Clínica Universidad de Navarra-Body Adiposity Estimator) based on BMI, sex, and age for estimating body fat percentage (BF%) and to study its clinical usefulness.

RESEARCH DESIGN AND METHODS—We conducted a comparison study of the developed equation with many other anthropometric indices regarding its correlation with actual BF% in a large cohort of 6,510 white subjects from both sexes (67% female) representing a wide range of ages (18–80 years) and adiposity. Additionally, a validation study in a separate cohort ($n = 1,149$) and a further analysis of the clinical usefulness of this prediction equation regarding its association with cardiometabolic risk factors ($n = 634$) was carried out.

RESULTS—The mean BF% in the cohort of 6,510 subjects determined by air displacement plethysmography was 39.9 ± 10.1%, and the mean BF% estimated by the CUN-BAE was 39.3 ± 8.9% (SE of the estimate, 4.66%). In this group, BF% calculated with the CUN-BAE showed the highest correlation with actual BF% ($r = 0.89$, $P < 0.000001$) compared with other anthropometric measures or BF% estimators. Similar agreement was found in the validation sample. Moreover, BF% estimated by the CUN-BAE exhibits, in general, better correlations with cardiometabolic risk factors than BMI as well as waist circumference in the subset of 634 subjects.

CONCLUSIONS—CUN-BAE is an easy-to-apply predictive equation that may be used as a first screening tool in clinical practice. Furthermore, our equation may be a good tool for identifying patients at cardiovascular and type 2 diabetes risk.

Diabetes Care 35:383–388, 2012

When BF% determination is not available, BMI is the most frequently used surrogate measure of adiposity. However, BMI, although easy to calculate, exhibits notable inaccuracies not precisely reflecting body fat, changes in body composition that take place in the different periods of life or the sexual dimorphism characteristics of body adiposity (8–11). Several prediction equations that account for sex and/or age in converting weight and height to body fat have been published and are reasonably effective in overcoming the aforementioned problem, but they have been derived from small samples or from imprecise methods of measurement of body composition (10,12–14).

Because it is crucial to have available an accurate estimator of BF%, not only to better analyze the effect of adiposity on obesity-associated cardiometabolic risk but also to perform studies involving body composition in which body fat may not be actually measured, the aim of the current study was to assess the predictive capacity of a recently described equation by our group for estimating body adiposity and to study its clinical usefulness. Therefore, we

Material y métodos

Estudio transversal

Muestra (n=37)

Hombres ≥18 años

Usuarios gimnasio

Circuito de fuerza-resistencia

Material y métodos

Peso (Kg) (SECA 330)

Talla (m) (SECA 222)

% FM (Slimmanager N40)

%FM (CUN-BAI)

SPSS (IBM. V. 19)

Resultados: Estadística descriptiva

Parámetros antropométricos (μ±SD)	**Hombres (n=37)**
Age	32,27±6,53
BW	76,14±11,77
Ht	1,76±0,6
BMI	24,63±2,8
%FM BIA Slim Manager N40	20,86±3,8
%FM CUN-BAI	21,61±4,66

Resultados: Correlación

Distribución %FM BIA y CUN-BAI normales

r (Pearson)=0,708

Correlación lineal
Positiva
Fuerte

Resultados: Normalidad diferencias

Dif CUN-BAI-Slimmanager N40

↓

Verifica pruebas normalidad

↓

La t-Student(36)=-1,382; p=0,175>0,05

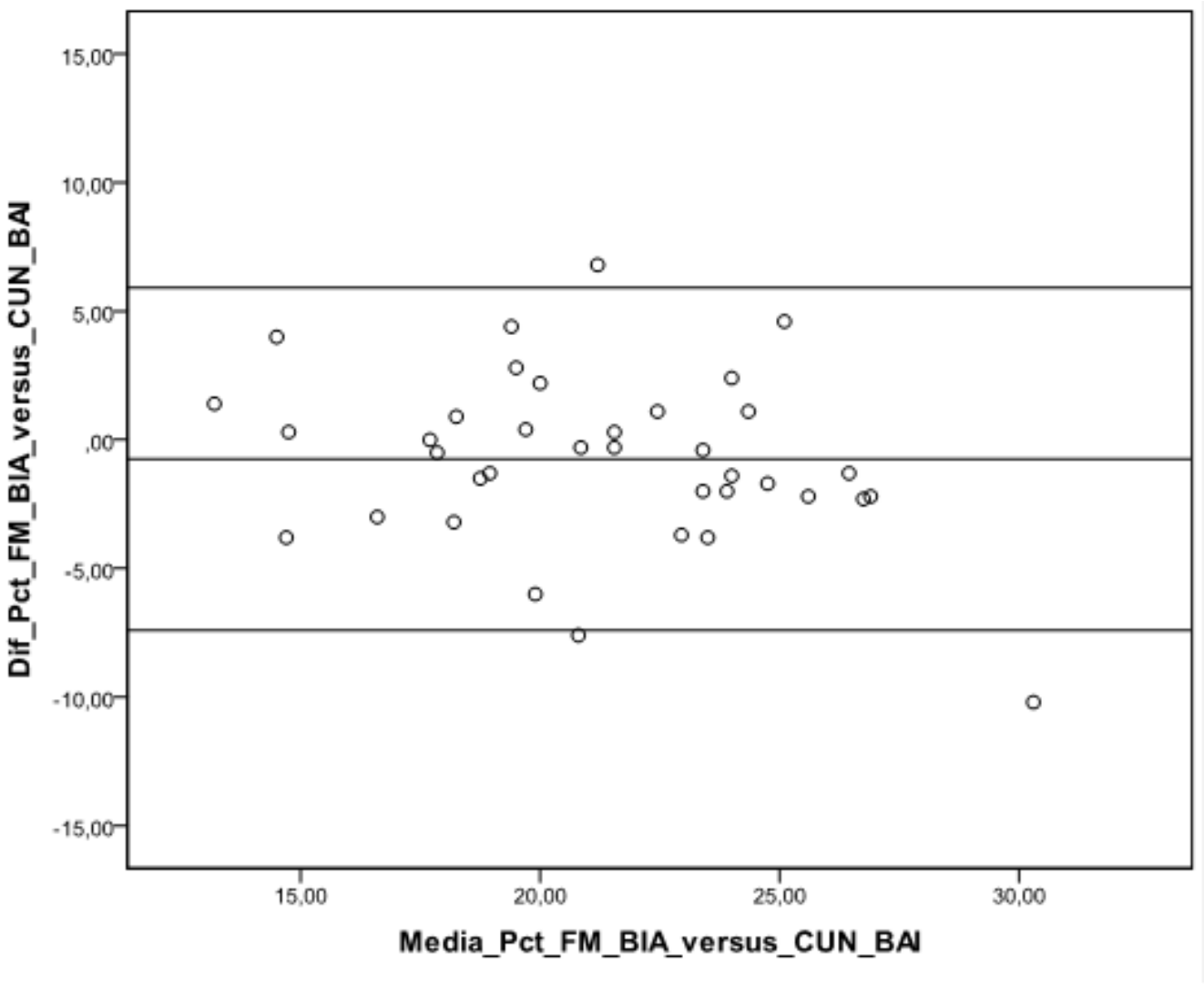
↓

Método Bland-Altman

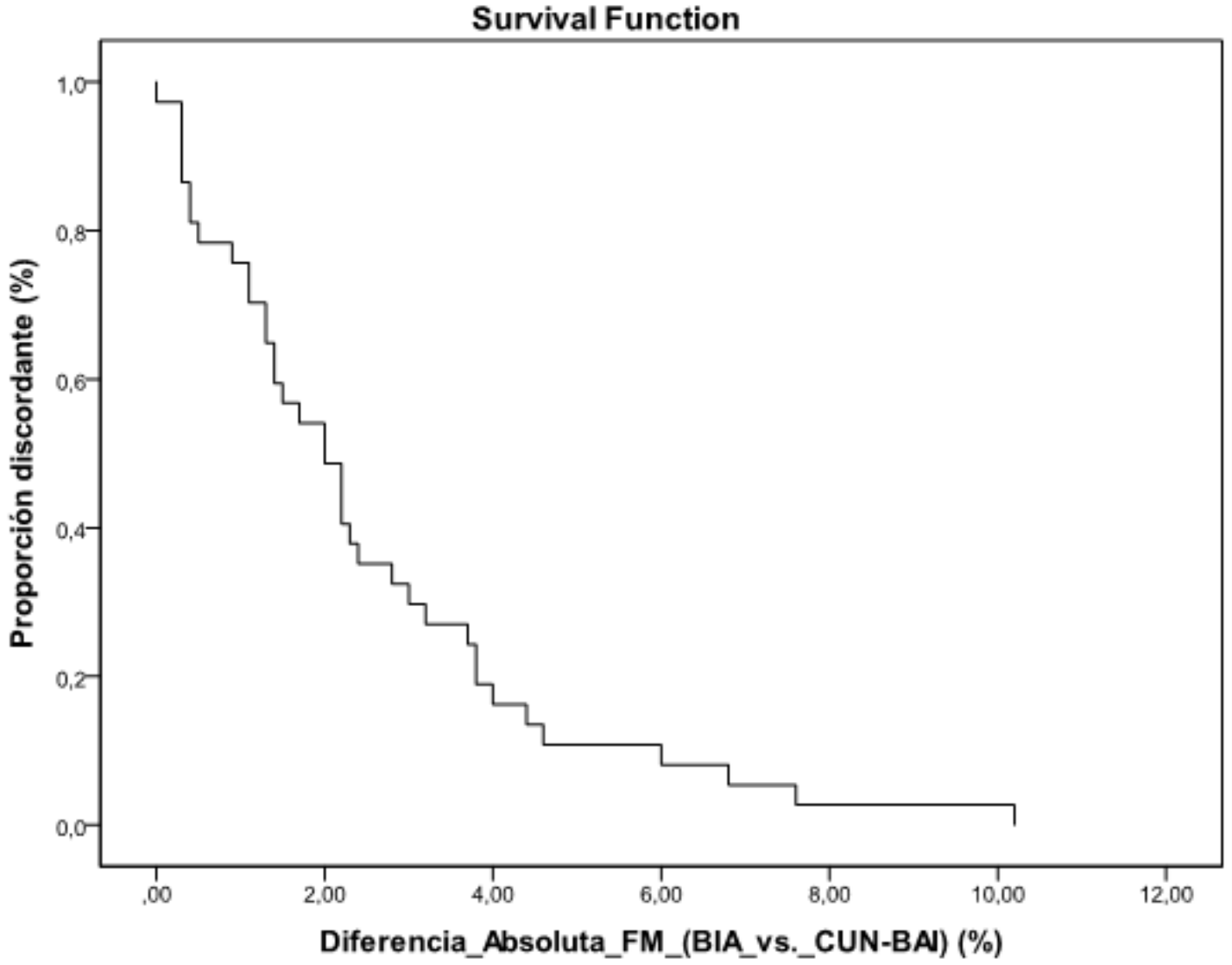
Resultados: Concordancia

	Total muestra (μ±DE)	**CI media 95%**	**Límites concordancia 95%**
Dif BIA - CUN-BAI	-0,76±3,33	-1,87 a 0,35	-7,4 a 5,9

Concordancia: Bland-Altman



Método Acuerdo-Supervivencia



Conclusiones

CUN-BAI sobreestima %FM respecto a Slimmanager N40

Sin embargo magnitud del efecto pequeña (g Hedge=0,17<0,2)

32,4% (n=12) dif CUN-BAI versus BIA≥3

Ambos métodos no intercambiables


¡Gracias!