

Prevención de  
enfermedades crónicas  
a partir de la nutrición



# Factores asociados con la dieta que se pueden modificar:

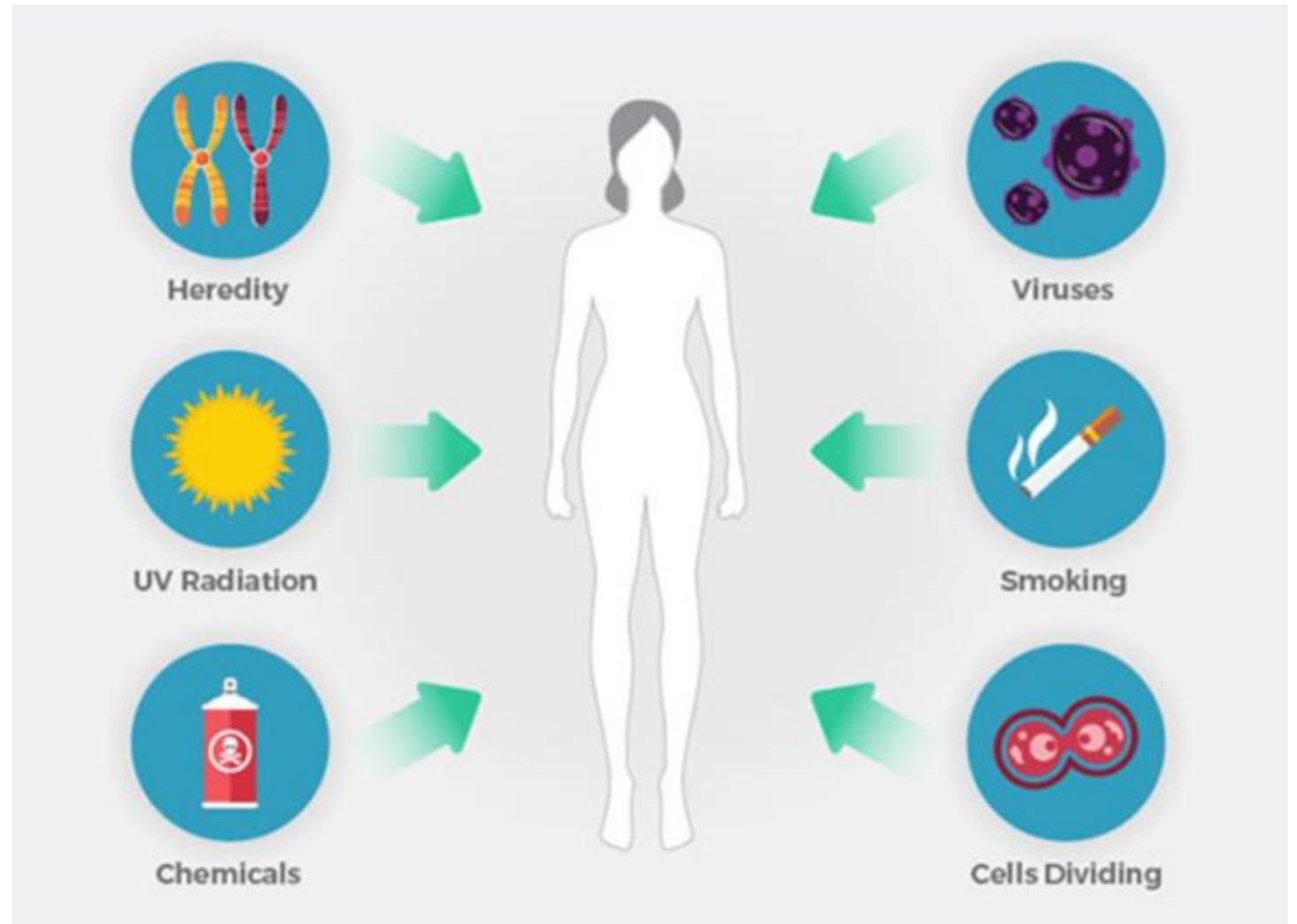
***“Su dieta puede apoyar su sistema inmune por medio de iniciar o apagar el sistema inmune en diferentes periodos del dia.” “Dietas que no tienen una nutrición apropiada pueden alterar su sistema immune...cuando el sistema inmune se altera esto contribuye a un nivel leve de inflamación.”***

Dr. Fred Tabung,  
Department of Nutrition T.H. Chan School of Public Health  
Harvard University

# La predisposición genética



¿Qué causa los cambios genéticos ?



ORIGINAL ARTICLE

Genetic Risk, Adherence to a Healthy Lifestyle, and Coronary Disease

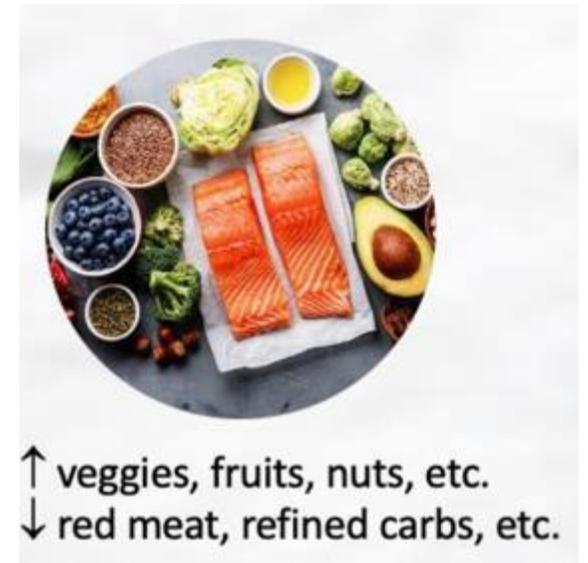
**Si se puede combatir los dificultades presentadas por nuestro genes.**

55,685 participantes y los riesgos genéticos asociados con enfermedades cardiovasculares.

- Evaluando el impacto del estilo de vida saludable.

Genetic Risk, Adherence to a Healthy Lifestyle, and Coronary Disease

Estilo de vida saludable se define como  $\geq 3$  de los siguientes:



El estilo de vida saludable esta asociado con 50% menos eventos coronarios.

# Telómero

- DNA Cap - la región al final del cromosoma.
- Protége los cromosomas para que no se dañen.
- Con cada división celular las terminaciones se gastan.
  - Eventualmente las terminaciones se reducen tanto que la célula no se divide y se muere.

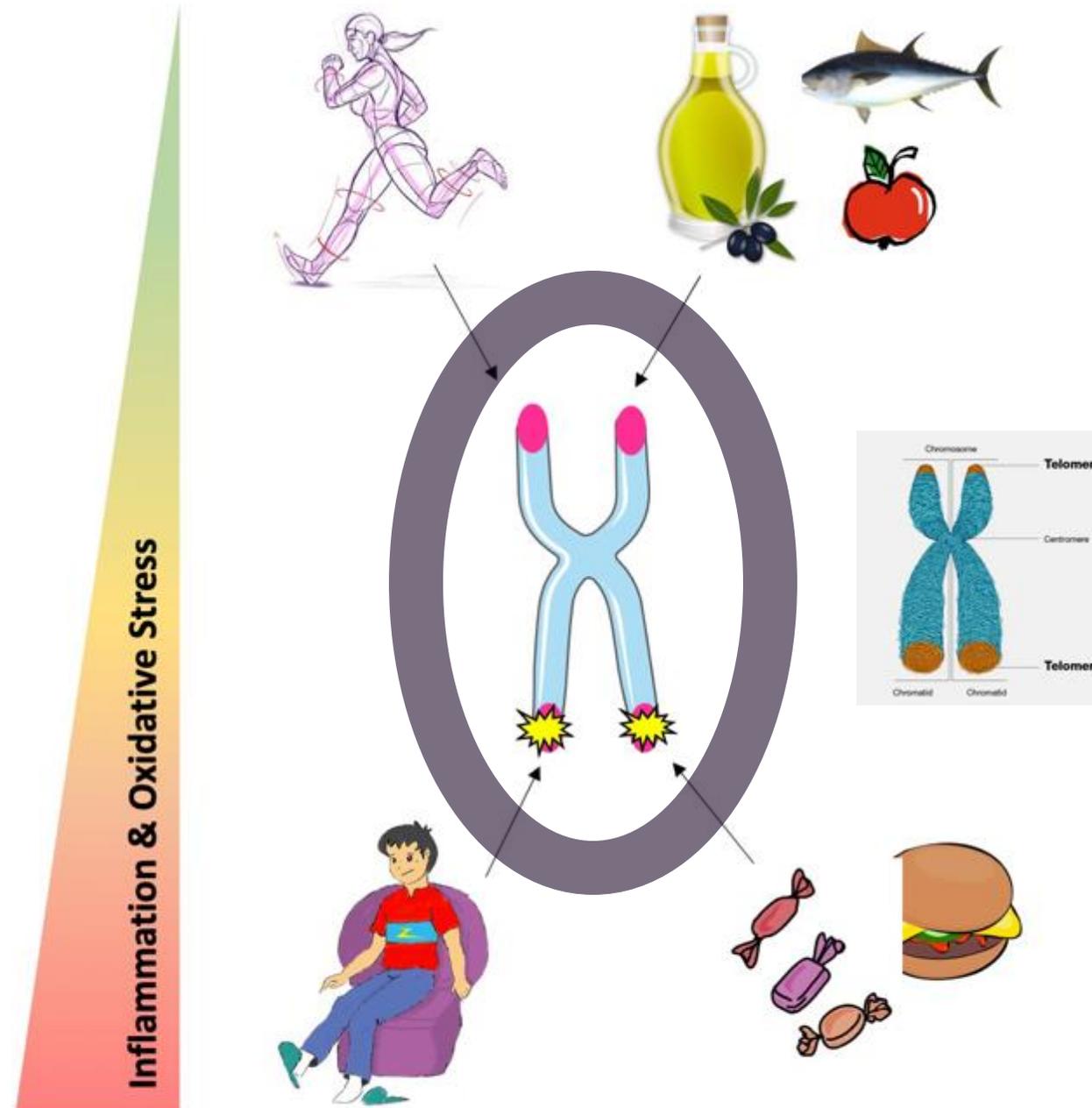


Figure 2. Potential influence of physical activity and nutrition on telomere health.

# THE LANCET Oncology

Volume 14, Issue 11, October 2013, Pages 1112-1120

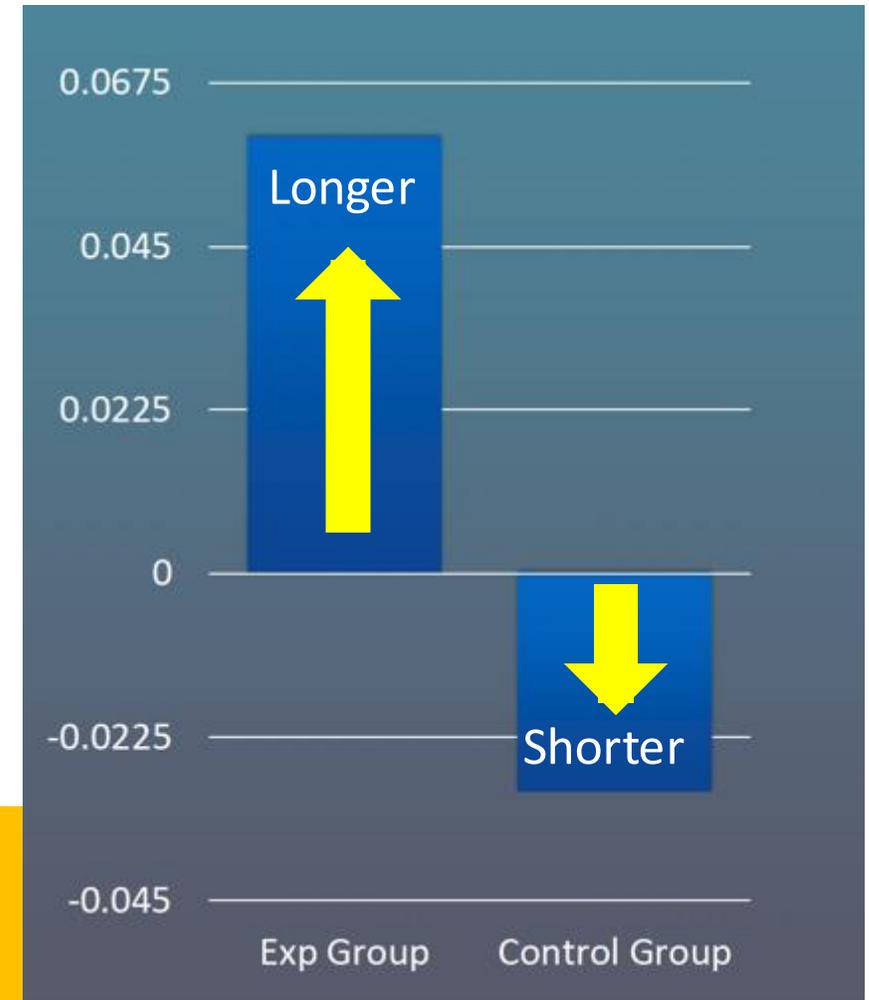


Articles

## Effect of comprehensive lifestyle changes on telomerase activity and telomere length in men with biopsy-proven low-risk prostate cancer: 5-year follow-up of a descriptive pilot study

Prof Dean Ornish MD<sup>a,h</sup>, Jue Lin PhD<sup>b</sup>, Prof June M Chan PhD<sup>e,f</sup>,  
Elissa Epel PhD<sup>c</sup>, Colleen Kemp RN<sup>h</sup>, Prof Gerdi Weidner PhD<sup>g</sup>, Ruth Marlin MD<sup>h</sup>,  
Steven J Frenda MA<sup>h</sup>, Mark Jesus M Magbanua PhD<sup>e</sup>, Jennifer Daubenmier PhD<sup>a</sup>,  
Ivette Estay PhD<sup>h</sup>, Nancy K Hills PhD<sup>f</sup>, Nita Chainani-Wu DMD<sup>d</sup>,  
Prof Peter R Carroll MD<sup>e</sup>, Prof Elizabeth H Blackburn PhD<sup>b</sup>

Un estilo de vida saludable  
aumenta las terminaciones de los  
cromosomas.



P<0.004

# How to Lengthen Your Telomeres with Exercise — And Why You'll Want To

The key to keeping your body healthy starts down at the chromosome level. Here, science shows the optimal mix of exercise to strengthen your DNA.

By [Kylie Gilbert](#) | Updated on August 18, 2022



FITNESS

## How Exercise May Slow Your Biological Aging [verywell fit](#)

By [Mark Stübich, PhD](#) | Updated on March 31, 2021

- ✓ Medically reviewed by [Tyra Tennyson Francis, MD](#)
- ✓ Fact checked by [Emily Swaim](#)



Getty Images / Thomas Bar

## Running As You Age Is Beneficial to Your DNA— Here's Why That's Important

Sure, you can't see these chromosome components, but exercising will keep them healthy.

BY [ELIZABETH MILLARD](#) | PUBLISHED: FEB 6, 2021

SAVE ARTICLE



MINI REVIEW article

Front. Physiol., 18 December 2018  
Sec. Exercise Physiology  
Volume 9 - 2018 | <https://doi.org/10.3389/fphys.2018.01798>



### Exercise, Telomeres, and Cancer: "The Exercise-Telomere Hypothesis"

- [Nikitas N. Nomikos<sup>1</sup>](#), [Pantelis T. Nikolaidis<sup>2</sup>](#), [Calo V. Sousa<sup>1</sup>](#), [Apostolos E. Papaioannis<sup>4</sup>](#), [Thomas Rosemann<sup>5</sup>](#) and [Beat Knechtle<sup>1,4\\*</sup>](#)

## Telomeres: The Key to Staying Young and Disease-Free?

[Telomere shortening](#) | [Significance](#) | [Cancer link](#) | [Telomere lengthening](#)

Takeaway

### What are telomeres?

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# The Guardian

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**The Observer**  
Ageing

## Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'

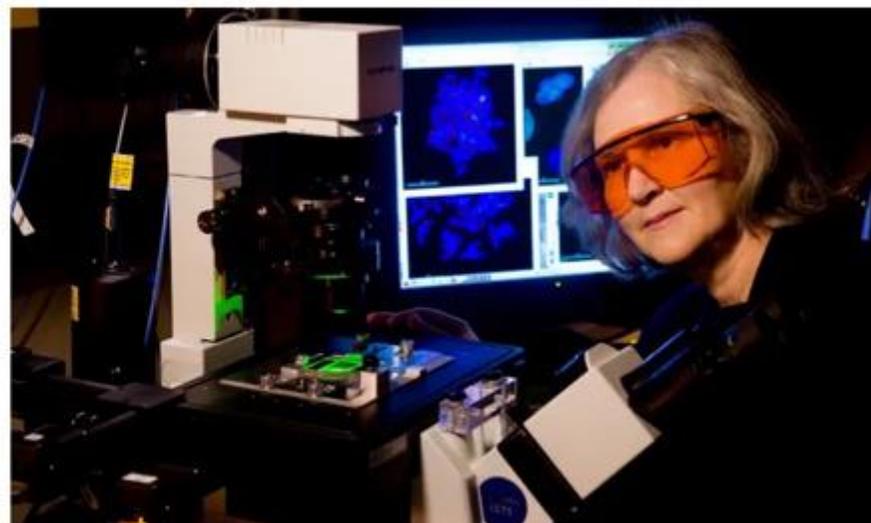
The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing

Interview by Zoë Corbyn

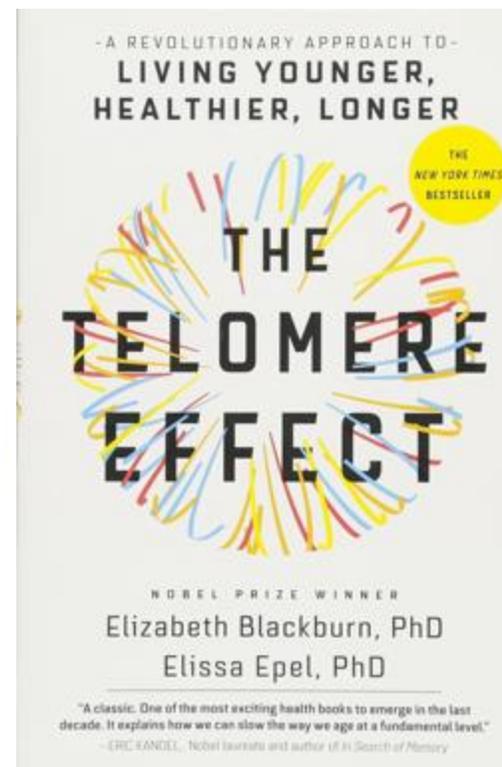
Sun 29 Jan 2017 03.00 EST



21



Professor Elizabeth Blackburn in her lab before her Nobel prize award in 2009 Photograph: Micheline Pelletier Decaux/Corbis via Getty Images

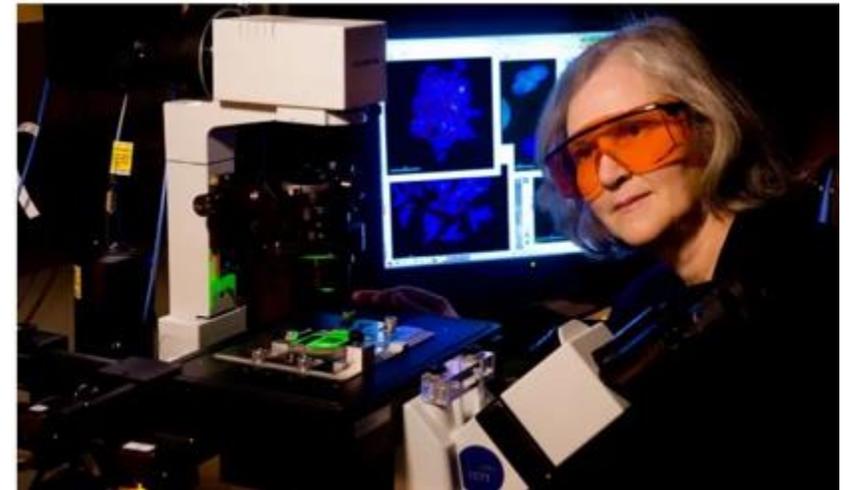


# La salud y nuestros telómeros

- Telómeros gastados no pueden proteger el cromosoma.
  - Las células no se pueden dividir y se mueren
  - ↑ Se sube el riesgo de:
    - Enfermedades cardiovasculares
    - Diabetes
    - Cancer
    - El sistema inmune se debilita
    - Y mas ...
- La reducción del telómero → envejecimiento

## **Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'**

The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing



# La salud y los telómeros

## Estres:

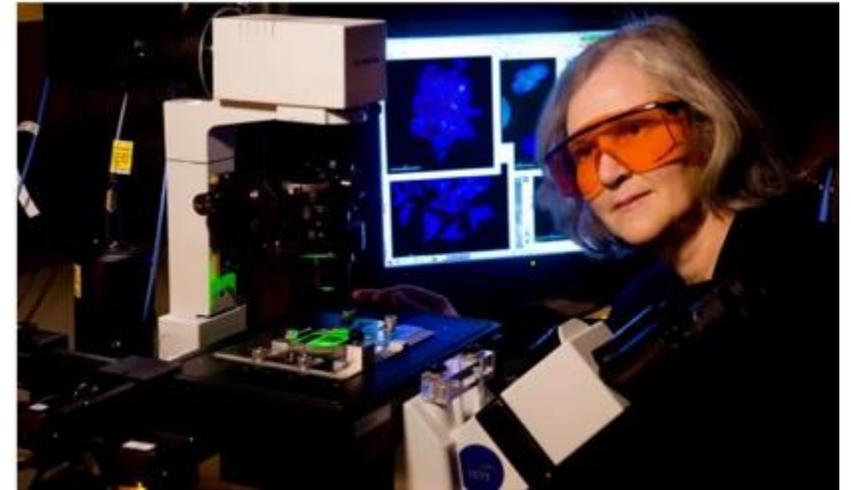
- Estudios demuestran que lo largo del telómero es inversamente proporcional a la intensidad de la experiencia del estres.
- Si el paciente es sedentario
  - Estudio: 10-15 minutos de ejercicios - ejercicios de bajo impacto disminuye el efecto.

## Ejercicio:

- Ejercicio aeróbico tiene resultados positivos
  - ~3x/semana X 45 minutos
    - Telómeros tan largos como un corredor de maratón.
  - Estudios demuestran que los telómeros mas largos están asociados con una variedad de ejercicios.

## **Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'**

The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing

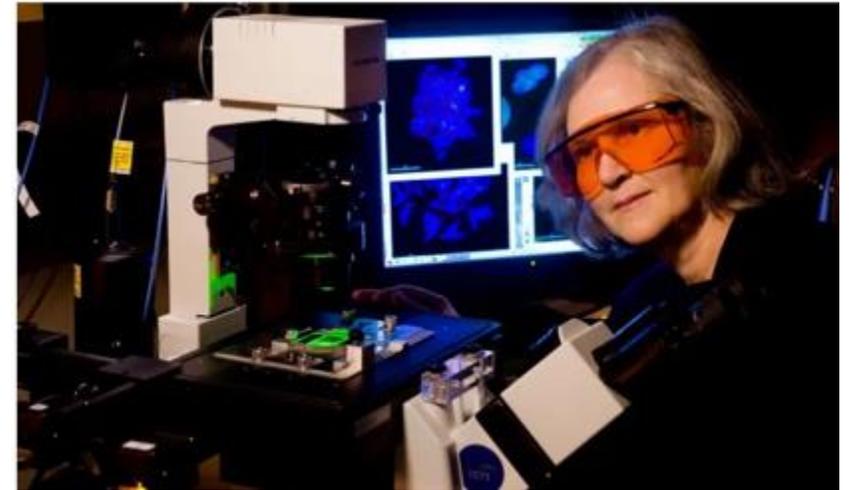


# La salud y los telómeros

- Dieta de alimentos integrales
  - Tiene efectos que si se notan
  - No se puede comer comida procesada
    - Carne roja, bebidas con azúcar, pan refinado.
    - Suplementos
    - Ácidos grasos omega

## **Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'**

The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing

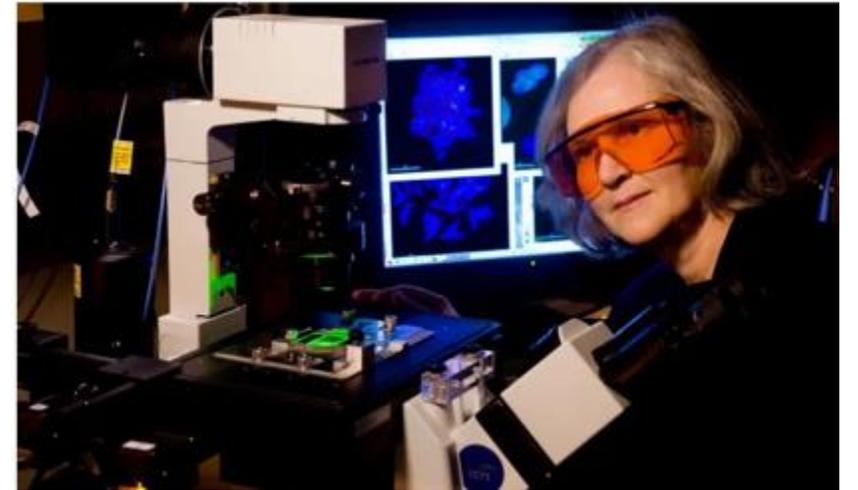


# La salud y los telómeros

- **Con el tiempo se nota un efecto -**
  - Los efectos se notan en unos cuantos meses.
  - Los cambios a largo plazo predicen un aumento en el número de años de vida (1- 10 años).
- **Diversificación**
  - Los resultados se mejoran combinando
    - Dieta + Ejercicio + resiliencia mental

## **Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'**

The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing

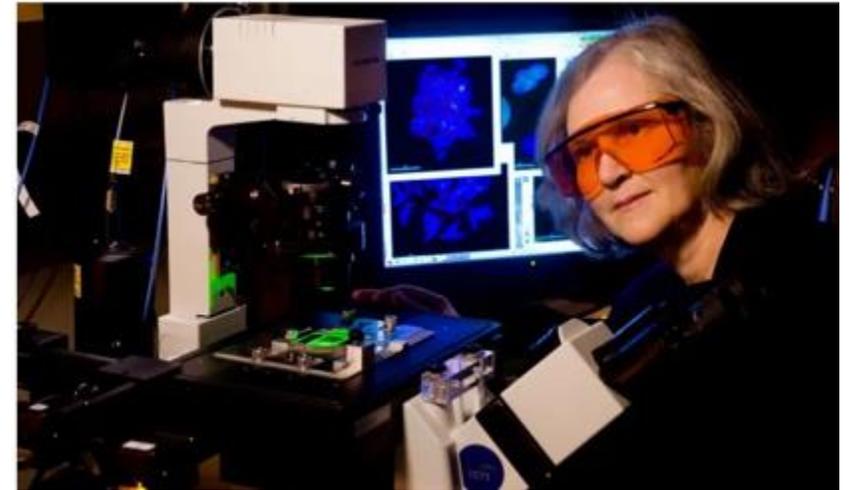


# La salud de nuestros telómeros = RESILIENCIA

- Lapso de salud y esperanza de vida
  - Viviendo mas años saludable (*HealthSpan*)
- *Sugiere que **tenemos** un nivel de control*
- Manejando elementos necesarios
  - Estres crónico
  - Ejercicio
  - Comer de una forma prudente y saludable
  - Dormir adecuadamente

## Elizabeth Blackburn on the telomere effect: 'It's about keeping healthier for longer'

The Nobel winner says keeping telomeres - the ends of our chromosomes - in prime condition can stave off diseases associated with ageing



# Bienestar



Muchos estan de acuerdo con el concepto.  
Pocos están de acuerdo con como se define.

# Bienestar

- Muchos estan de acuerdo con el concepto.
  - Pero pocos le dan seguimiento.

# Información sobre el bienestar



# Información sobre el bienestar

Coronavirus



Sirin Kale

Thu 11 Nov 2021 01:00 EST



The Guardian

**Chakras, crystals and conspiracy theories: how the wellness industry turned its back on Covid science**



Illustration: Posing by model, Guardian Design, We Are, Nora Carol Photography, David Arky/Tetra Images, Rosemary Calvert, Sonnik Krobbum/Getty Images, Emmanuel Lattès/Alamy  
Its gurus increasingly promote vaccine scepticism, conspiracy theories and the myth that ill people have themselves to blame. How did self-care turn so nasty?

Most viewed

“Health misinformation is a serious threat to public health. It can cause confusion, sow mistrust, harm people’s health, and undermine public health efforts.”

— Dr. Vivek H. Murthy  
Surgeon General of the United States



# Información sobre el bienestar

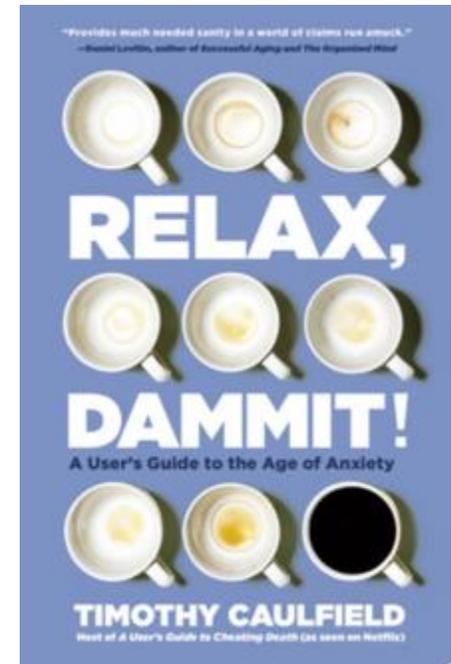
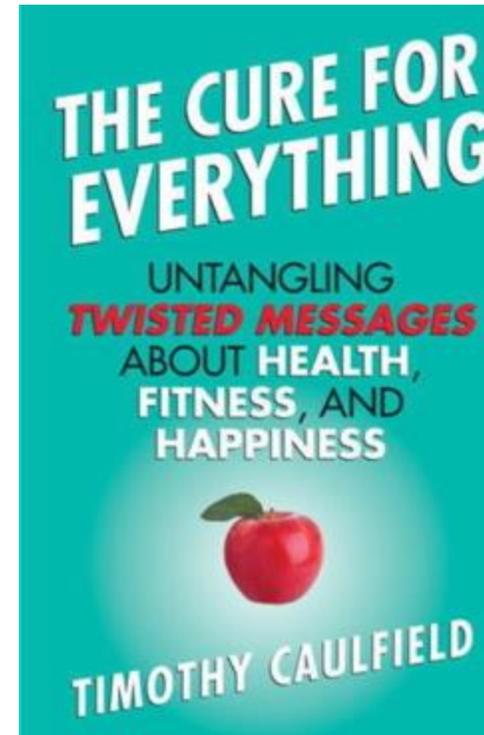
## Tim Caulfield

Professor: Law and the School of Public Health  
University of Alberta

HEALTH LAW PROFESSOR ADVISES

### Scientists Must Speak Up Against Misinformation

BY ERIC BOCK



Información para el bienestar

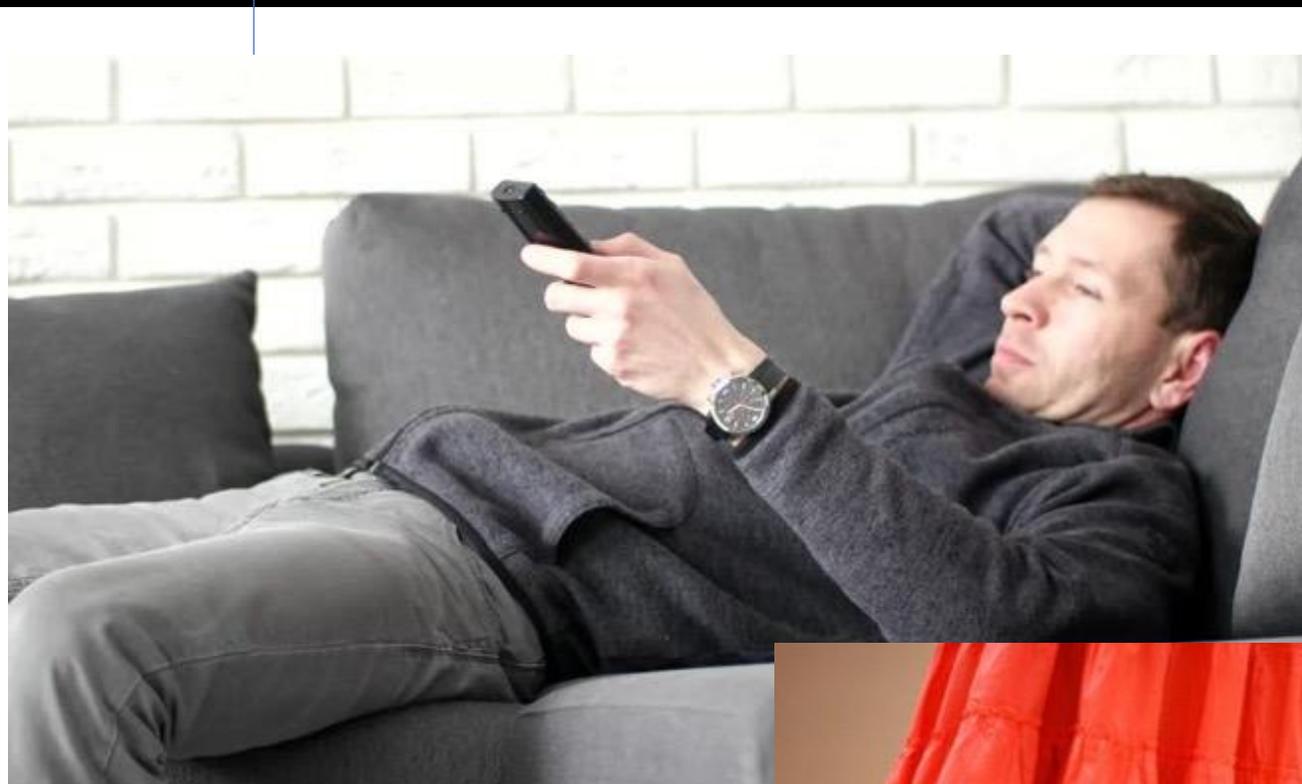


# Decisiones y estilo de vida

1. Actividades/Movimiento
2. Comida
3. Pensamientos/Emociones



# Pensando si debo de hacer ejercicios



# Ejercicio

## Los riesgos del comportamiento sedentario:

### **Aumenta todas las causas de mortalidad**

- Aumenta mortalidad cardiovascular.
- Aumenta morbilidad y mortalidad de diabetes tipo II.
- Aumenta cáncer del colon, útero, y pulmón.

# Ejercicio

## Beneficios

- Reduce los riesgos de mortalidad
  - Disminuye el riesgo cardiovascular.
  - Disminuye el riesgo de enfermedades cardiovasculares(enfermedades del corazón y derrame cerebral)
  - Disminuye el riesgo de la presión alta
  - Disminuye el riesgo de diabetes tipo dos.
  - Disminuye el riesgo
- Cognición mejorada
- Reduce el riesgo de demencia (incluyendo la enfermedad de Alzheimer)
- Riesgo disminuido de cánceres comunes
  - Vejiga, Pecho, Colon, Endometrio, Esophagus, Riñon, Pulmón, y Estomago

# Ejercicio

## Beneficios

- Mejora la calidad de vida
- Reduce la ansiedad
- Reduce el riesgo de depresión
- Mejora el sueño
- Pérdida de peso
- Fortalece los huesos y músculos
- Mejora la función física
- Menos riesgo de caídas y daños relacionadas con las caídas en adultos mayores
- Mejora la probabilidad de vivir mas tiempo

# Ejercicio: Irisin



## Exercise and Alzheimer's Disease

Hormone found to confer benefits of exercise on cognitive function

By RANDY YOUNG | MGH News and Public Affairs | August 25, 2021 | [Research, Care Delivery](#)  
4 min read



Image: lisafx/iStock/Getty Images Plus

## nature metabolism

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Article | [Published: 20 August 2021](#)

## Exercise hormone irisin is a critical regulator of cognitive function

[Mohammad R. Islam](#), [Sophia Valaris](#), [Michael F. Young](#), [Erin B. Haley](#), [Renhao Luo](#), [Sabrina F. Bond](#), [Sofia Mazuera](#), [Robert R. Kitchen](#), [Barbara J. Caldarone](#), [Luis E. B. Bettio](#), [Brian R. Christie](#), [Angela B. Schmitter](#), [Roy J. Soberman](#), [Antoine Besnard](#), [Mark P. Jedrychowski](#), [Hyeonwoo Kim](#), [Hua Tu](#), [Eunhee Kim](#), [Se Hoon Choi](#), [Rudolph E. Tanzi](#), [Bruce M. Spiegelman](#) & [Christiane D. Wrann](#) [✉](#)

[Nature Metabolism](#) **3**, 1058–1070 (2021) | [Cite this article](#)

**8593** Accesses | **65** Citations | **437** Altmetric | [Metrics](#)

[Eunhee Kim](#), [Se Hoon Choi](#), [Rudolph E. Tanzi](#), [Bruce M. Spiegelman](#) & [Christiane D. Wrann](#) [✉](#)

IRSIN: Protein hormone derived & secreted from muscles in response to exercise - may mediate some beneficial effects of exercise, such as weight loss and thermoregulation

# Bailar

## Dementia patients should be offered music and dance therapy

By **Laura Donnelly**, HEALTH EDITOR

6 April 2019 • 12:01am

Related Topics

Dementia, Dance, Social Care, Health



Despite guidelines recommending music or dancing for people with dementia, such therapies had not been widely adopted | CREDIT: Getty

# Ejercicio Físico [HHS]

**MOVE YOUR WAY**

**Adults need a mix of physical activity to stay healthy.**

**Moderate-intensity aerobic activity\***  
Anything that gets your heart beating faster counts.

at least **150 minutes a week**

**AND**

**Muscle-strengthening activity**  
Do activities that make your muscles work harder than usual.

at least **2 days a week**

\* If you prefer vigorous-intensity aerobic activity (like running), aim for at least 75 minutes a week.

If that's more than you can do right now, **do what you can.** Even 5 minutes of physical activity has real health benefits.

Walk. Run. Dance. Play. **What's your move?**

2.5 hrs./semana

Aproximadamente 20 min./day

30 min. 5 dias/semana

# ¿Qué debería comer ?



# ¿Qué debería comer ?

JAMA Internal Medicine | [Original Investigation](#)

JAMA | JAMA Network™

## Healthy Eating Patterns and Risk of Total and Cause-Specific Mortality

Zhilei Shan, MD, PhD; Fenglei Wang, PhD; Yanping Li, MD, PhD; Megu Y. Baden, MD, PhD;  
Shilpa N. Bhupathiraju, PhD; Dong D. Wang, MD, ScD; Qi Sun, MD, ScD; Kathryn M. Rexrode, MD, MPH;  
Eric B. Rimm, ScD; Lu Qi, MD, PhD; Fred K. Tabung, PhD; Edward L. Giovannucci, PhD; Walter C. Willett, MD, DrPH;  
JoAnn E. Manson, MD, DrPH; Qibin Qi, PhD; Frank B. Hu, MD, PhD

**IMPORTANCE** The current Dietary Guidelines for Americans recommend multiple healthy eating patterns. However, few studies have examined the associations of adherence to different dietary patterns with long-term risk of total and cause-specific mortality.

[+ Supplemental content](#)

Shan Z, Wang F, Li Y, et al. Healthy Eating Patterns and Risk of Total and Cause-Specific Mortality. *JAMA Intern Med*. Published online January 09, 2023

# ¿Qué no debería comer?

BMJ 2024;384:e077310

thebmj

RESEARCH



## Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses

Melissa M Lane,<sup>1</sup> Elizabeth Gamage,<sup>1</sup> Shutong Du,<sup>2,3</sup> Deborah N Ashtree,<sup>1</sup>

*“Greater exposure to ultra-processed food was associated with a higher risk of adverse health outcomes, especially cardiometabolic, common mental disorder, and mortality outcomes. These findings provide a rationale to develop and evaluate the effectiveness of using population based and public health measures to target and reduce dietary exposure to ultra-processed foods for improved human health. They also inform and provide support for urgent mechanistic research.”*

# ¿Qué debería comer?

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March 08, 2023 RESEARCH ARTICLE

## Association of Mediterranean-DASH Intervention for Neurodegenerative Delay and Mediterranean Diets With Alzheimer Disease Pathology

Puja Agarwal, Sue E. Leurgans, Sonal Agrawal, Neelum Aggarwal, laurel J Cherian, Bryan D James, Klodian Dhana, Lisa L. Barnes, David A. Bennett, Julie A. Schneider

First published March 8, 2023, DOI: <https://doi.org/10.1212/WNL.0000000000207176>

# ¿Qué debería comer?

The New York Times

give

SCAM OR NOT

## Can Certain Foods Really Stave Off Dementia?

Here's what the science says about whether your diet can counteract cognitive decline.

[Give this article](#) [Share](#) [Bookmark](#) [Comments 841](#)



Tyler Comrie



By Amelia Nierenberg

Published April 21, 2022 Updated Nov. 22, 2022

CNN health

Life, But Better Fitness Food Sleep More

Audio

life but better  
Food

## Mediterranean and MIND diets reduced signs of Alzheimer's in brain tissue, study finds

By Sandee LaMotte, CNN

Updated 8:12 AM ET, Sat March 11, 2023



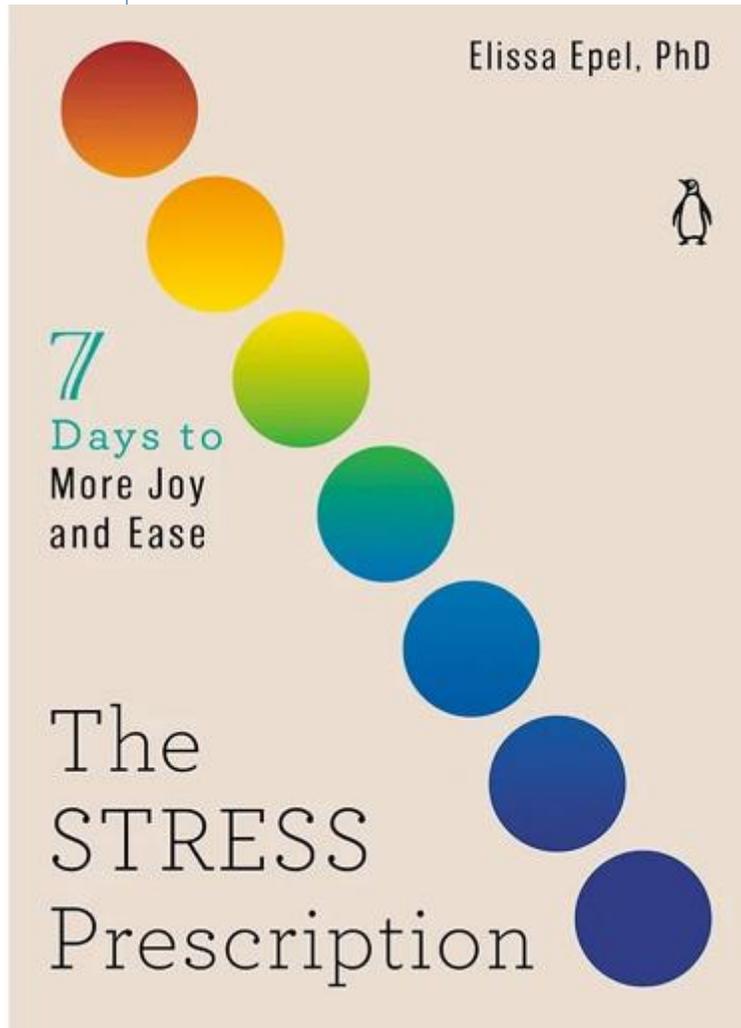


# ¿Qué debo comer?

EAT FOOD. NOT  
TOO MUCH.  
MOSTLY PLANTS.

-michael pollan

# ¿Qué debo pensar?



# El Cirujano General analiza crisis de aislamiento



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**FOR IMMEDIATE RELEASE**  
May 3, 2023

Contact: ASH Media  
202-205-0143  
[ashmedia@hhs.gov](mailto:ashmedia@hhs.gov)

Feedback

## New Surgeon General Advisory Raises Alarm about the Devastating Impact of the Epidemic of Loneliness and Isolation in the United States

Surgeon General Dr. Vivek Murthy Calls for Action to Address Public Health Crisis, Lays Out Framework for a National Strategy to Advance Social Connection

*Mas de 50% de americanos dicen que están aislados. Este fenómeno se manifiesta con efectos profundos con respecto a la salud mental y física.*

The New York Times

## How to Feel Less Lonely, According to the Surgeon General

America's top physician, Dr. Vivek Murthy, offers advice on how to build meaningful social connections in an increasingly lonely world.

Give this article



556





## WHAT THE LONGEST STUDY ON HUMAN HAPPINESS FOUND IS THE KEY TO A GOOD LIFE

The Harvard Study of Adult Development has established a strong correlation between deep relationships and well-being. The question is, how does a person nurture those deep relationships?

By Robert Waldinger and Marc Schulz

# Juntando las piezas



# Zonas Azules



# THE ORIGINAL BLUE ZONES

**Loma Linda, California**

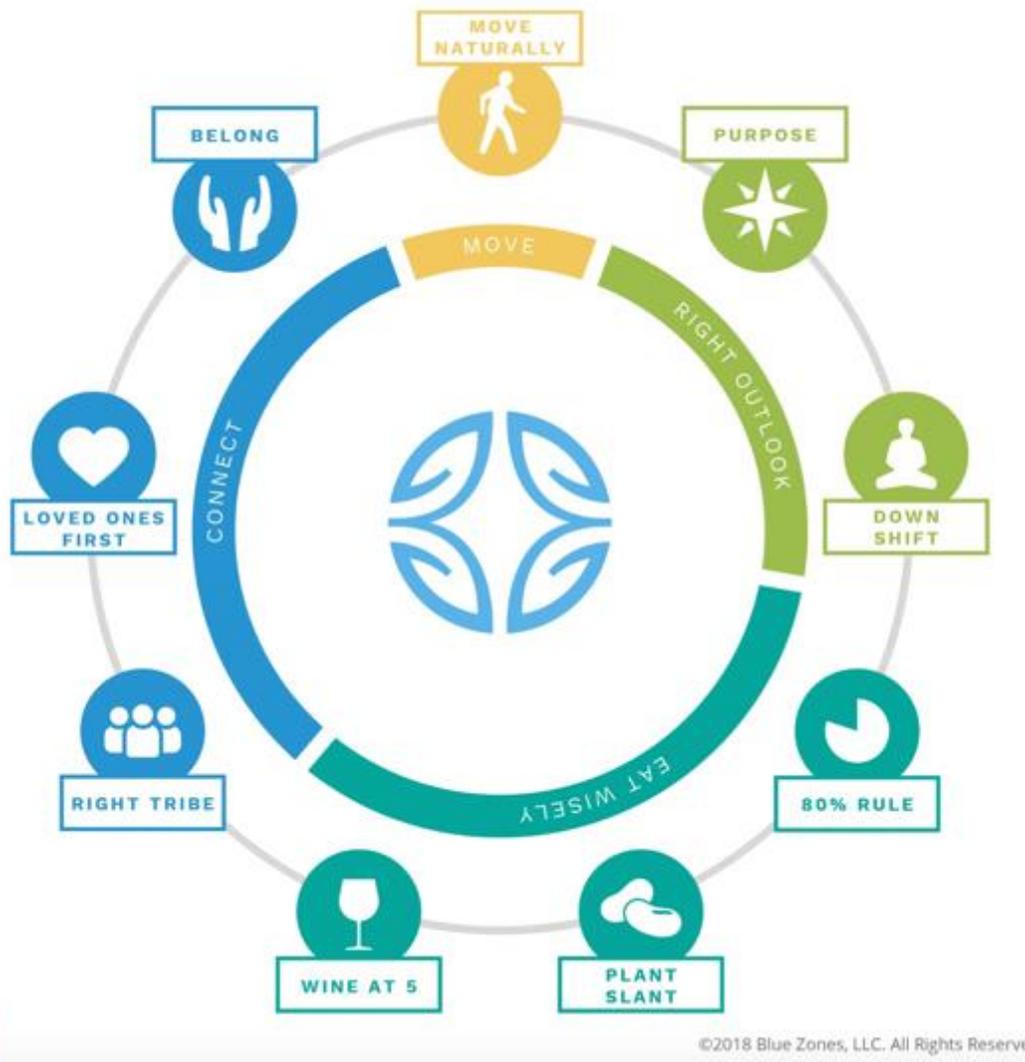
**Nicoya Peninsula, Costa Rica**

**Sardinia, Italy**

**Ikaria, Greece**

**Okinawa, Japan**

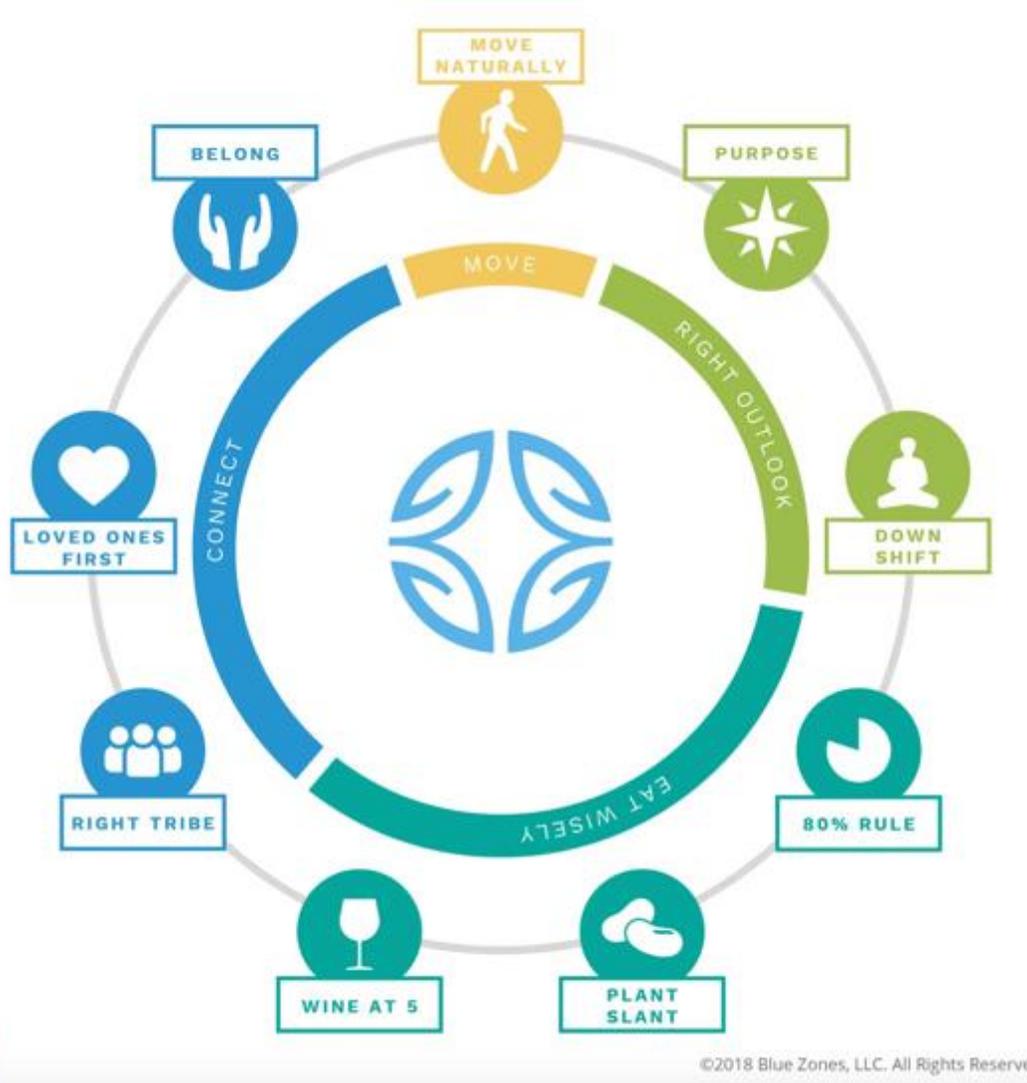
# Zonas Azules



- Barbagia, región de Sardinia, Italia tiene la concentración mas alta de centenarios.
- Ikaria (Aegean Island), Grecia
- Nicoya Peninsula, Costa Rica
  - Las tasa más bajas de mortalidad en los 50s
  - El 2do. lugar más alto de concentración de centenarios
- Okinawa, Japón
  - Mujeres de más de 70 años = la población que más años vive en el mundo
- Loma Linda (Adventistas del Séptimo Día)
  - Mayor concentración ~ Loma Linda, CA
  - Viven 10 años más que otras personas en los EEUU

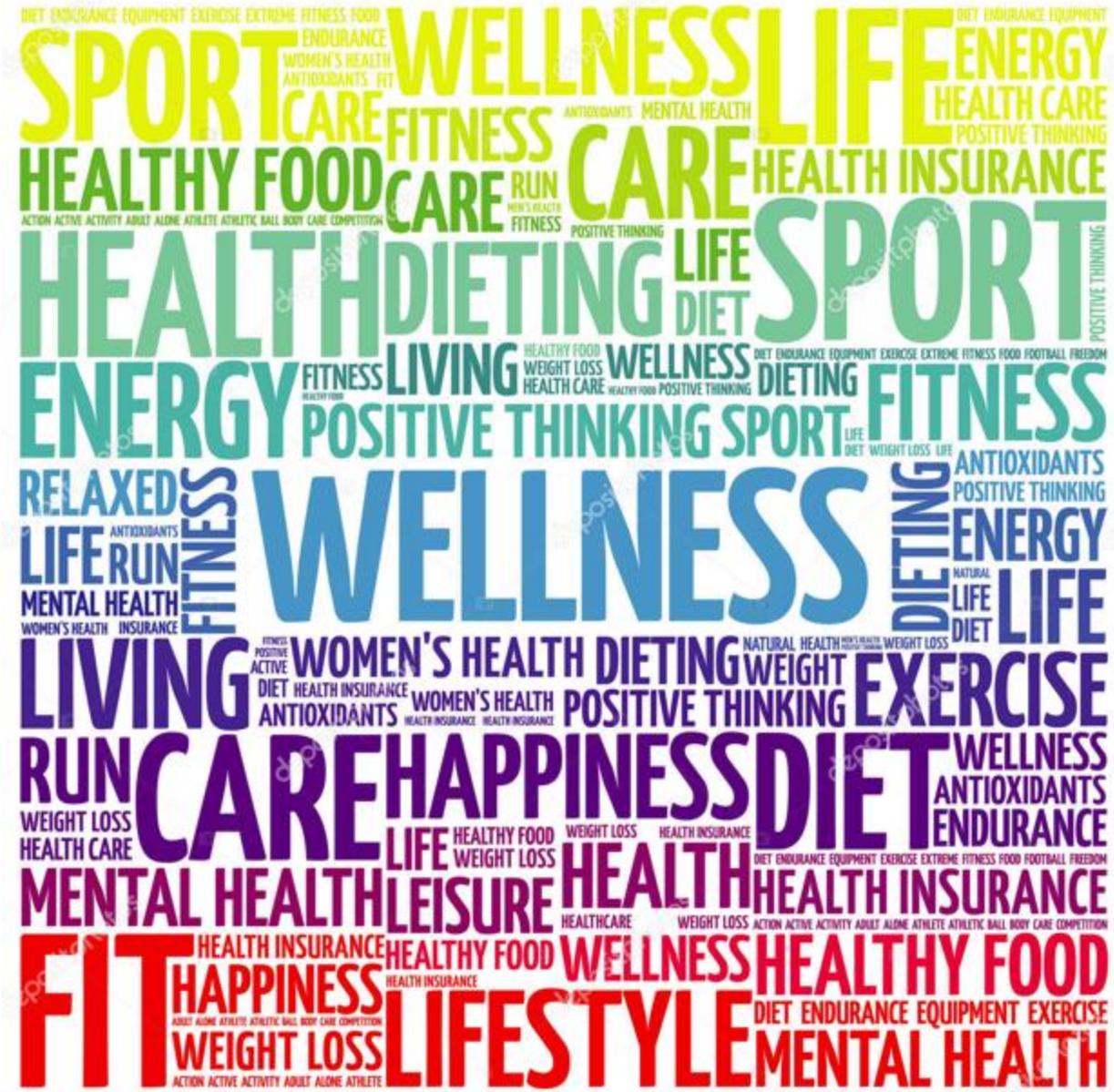
# Blue Zones

## Power 9: Lifestyle Habits of the World's Healthiest, Longest-Lived People



1. Moverse en forma natural
2. Propósito
3. Reducir el estrés
4. El criterio de 80%
5. Plantas
6. Vinito a las @5
7. Comunidad
8. Cariño

# En Conclusión



# En Conclusión

## Formando hábitos de cambio



# En donde estamos



Estamos juntos al inicio

# Diversificar y Experimentar



# Estudio de Harvard del Desarrollo del Adulto

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## The Good Life



LESSONS FROM THE WORLD'S LONGEST  
SCIENTIFIC STUDY OF HAPPINESS

CREATE A MORE MEANINGFUL  
AND SATISFYING LIFE

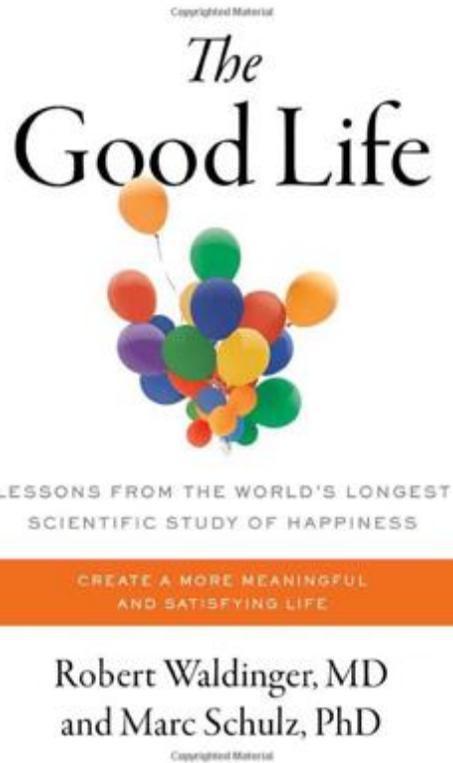
Robert Waldinger, MD  
and Marc Schulz, PhD

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- Robert Waldinger 4<sup>th</sup> project director over study lifetime
  - *“we learnt that people believe happiness is something they can achieve—if they buy that house or get a promotion or lose enough weight, then happiness will follow. We act as if it is a destination we will get to if we tick the right boxes, but the data very clearly shows that this is simply not true. And that’s a good thing, as contentment is no longer something out of reach, but eminently achievable for all of us.”*

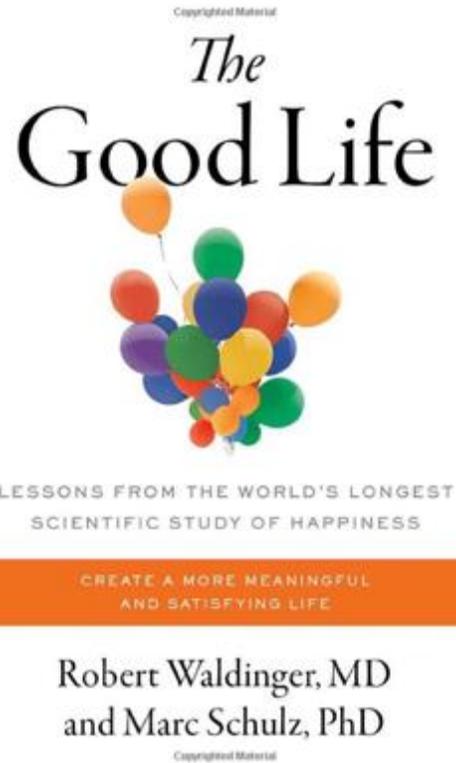
# Estudio de Harvard del Desarrollo del Adulto

## Resultados del Estudio



- Más feliz, más satisfecho, y vidas más saludable en general
  - Predice relaciones más fuertes
- La salud de nuestros cuerpos y nuestros cerebros conforme vivimos
  - **Lo predice la fortaleza de conexiones con otras personas**
- Los lazos sociales y las conexiones más fuertes en los 50s predice felicidad y contentamiento hasta los 80s
  - Amistades, club de libros, apegos románticos, grupos de la iglesia, compañeros de deportes y compañeros de trabajo

# Estudio de Harvard del Desarrollo del Adulto



- Desde 1938 [~ 85 años]
- Empezó con 724 participantes
  - Jóvenes de familias desfavorecidas y con dificultades en Boston
  - Estudiantes de pregrado de Harvard
    - Incorporo a las esposas de los hombres que originalmente participaron en el estudio
- Le dieron seguimiento a 1,300 descendientes del grupo inicial