Demenz Update

24. Birsecker HerzFortbildung

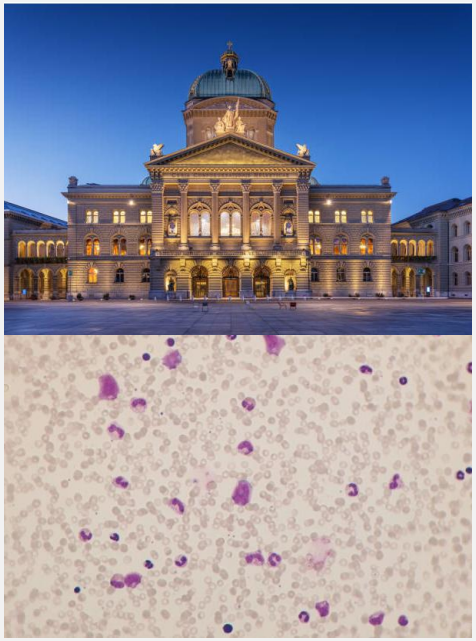
Hakan Sarikaya

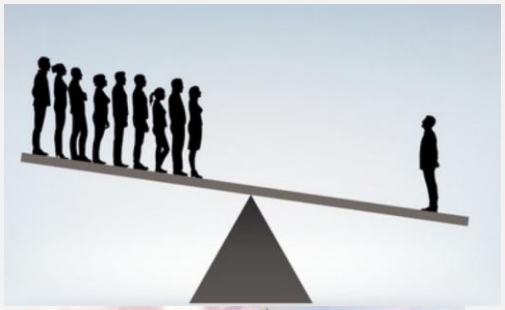
30.01.2026

Brain Health – Bedeutung weltweit

Bassetti et al. The European Academy of Neurology Brain Health Strategy. Eur J Neurol 2022

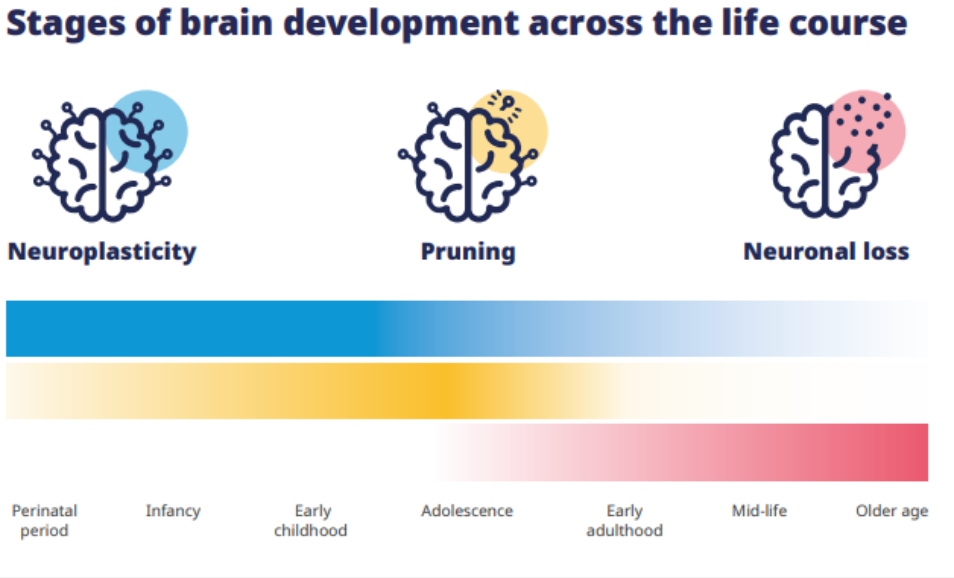
Brain Health – what we need





Brain

- Geburt: 100 Milliarden Nervenzellen (~ Sterne in Galaxie)
- 1 Nervenzelle -> 1000 bis 100'000 Synapsen! (Erwachsene: 100 Billionen Synapsen)
- Gesamtlänge Nervenbahnen = 5.8 Mio km (145 x Erdumrundung)
- 2 % des Körpergewichts , aber 20% des O2-Verbrauchs !
- v = 430 km/h



Neurologie im Alter – Bedeutung?

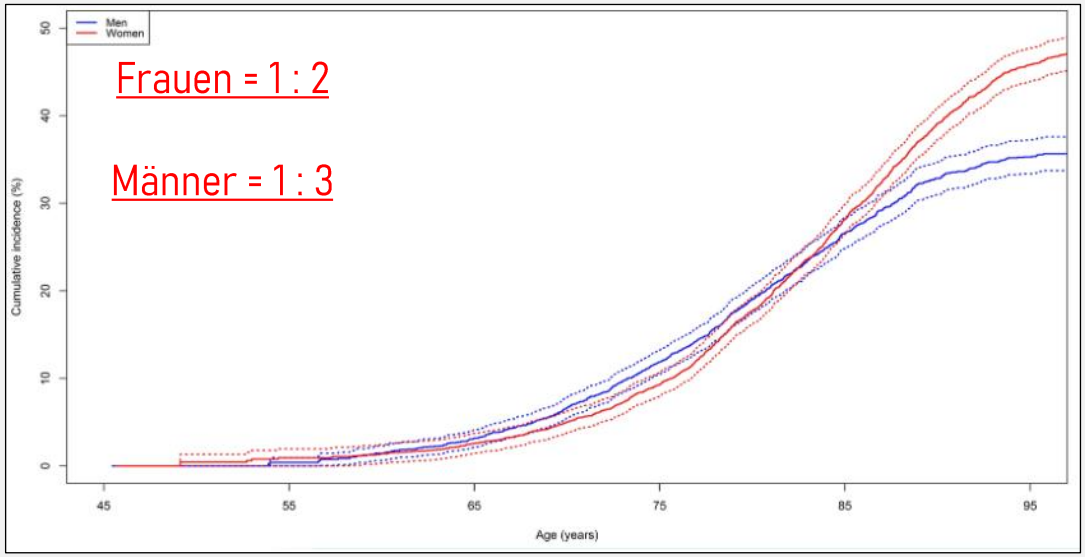
RESEARCH PAPER

Lifetime risk of common neurological diseases in the elderly population

Licher et al. JNNP 2019

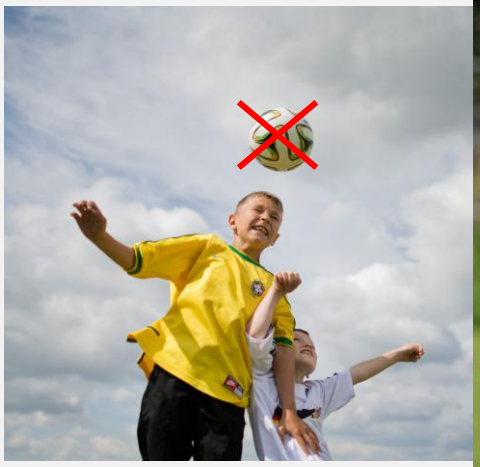
Rotterdam Study 1990 - 2016
N = 12'102 (>45 J.) ; Durchschnittsalter 64 J.

Ziel: Lebenszeitrisiko für Demenz, Hirnschlag oder Parkinson

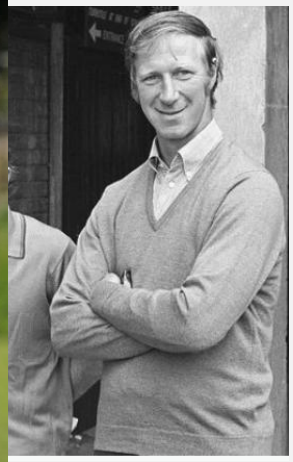


Protektion

Lancet Neurol 2026; 25: 170–80



chronic traumatic encephalopathy



rlton, Jack Charlton

Neurodegenerative Disease Mortality among former professional soccer players

N Engl J Med 2019; 381:1801-1808

7676 former professional soccer players
23,028 controls from the general population
fup = 18 years ; 15% died

Lower risk for cancer and CHD
OR 3.5 for M.Alzheimer / M. Parkinson
OR 4.9 for dementia medication
Goalkeaper lowest risk

Protektion


TikTok
@papillon.mma

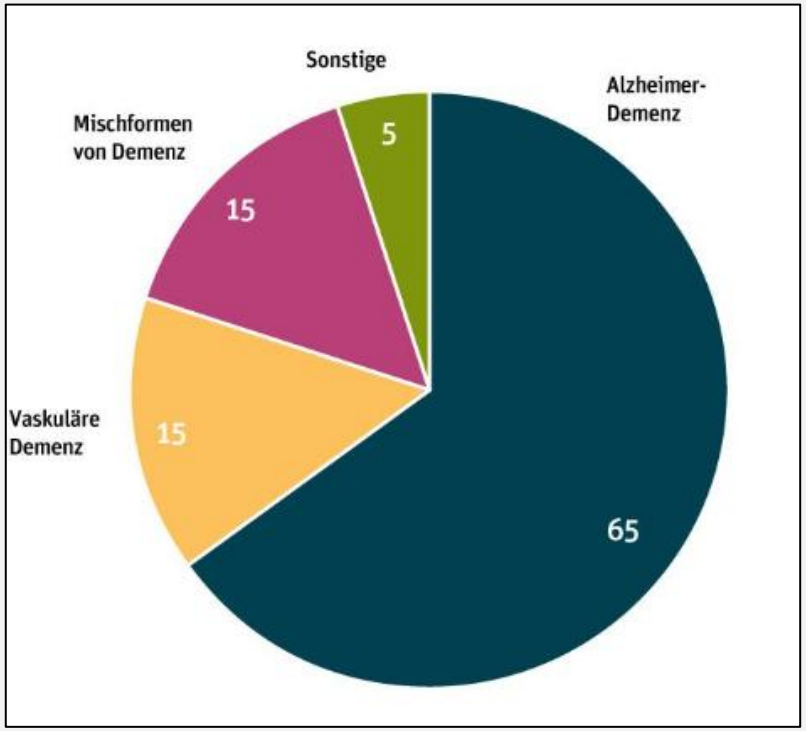

TikTok
@papillon.mma
PAPILLON MMA

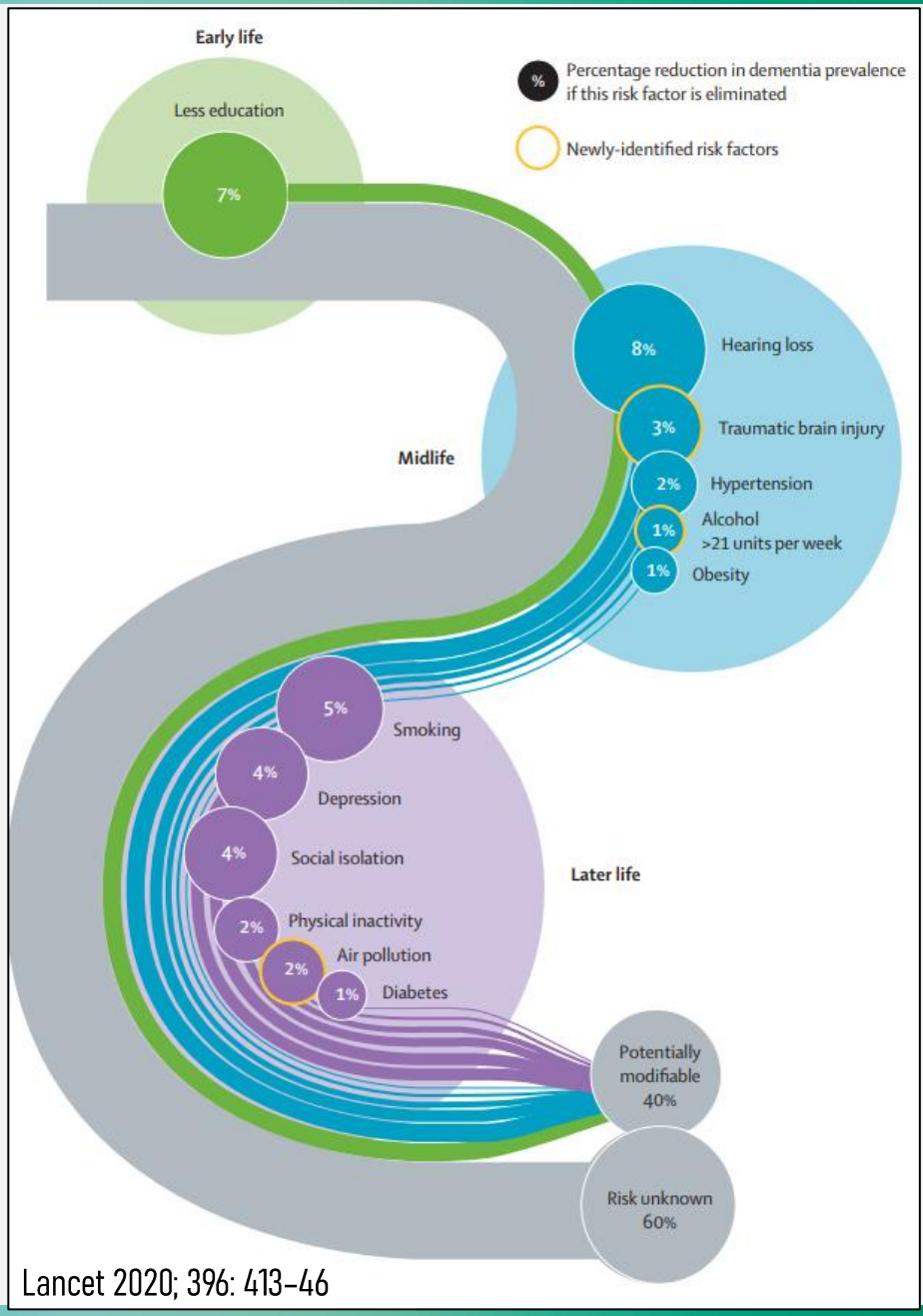

TikTok
@papillon.mma
10X
10X


TikTok
@powerslap
KUDO

Demenzen

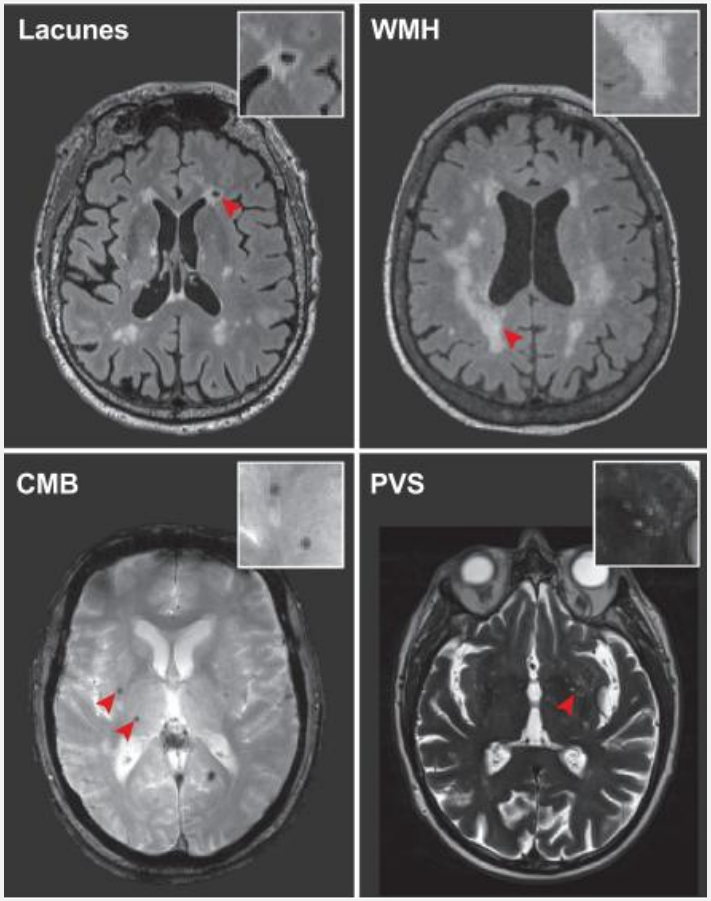
Prävalenz Global:
2019 = 50 Mio ⇒ 2050 = 150 Mio





Lancet 2020; 396: 413–46

Demenz & Hirnschlag

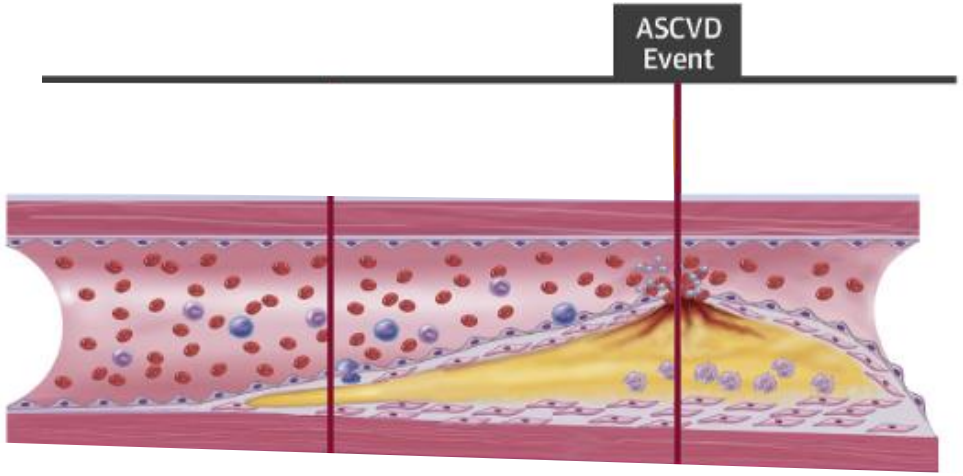


Alzheimer's Dement. 2022;1–12

Blood pressure lowering and prevention of dementia: an individual patient data meta-analysis

Eur Heart J 2022;43:4980–4990

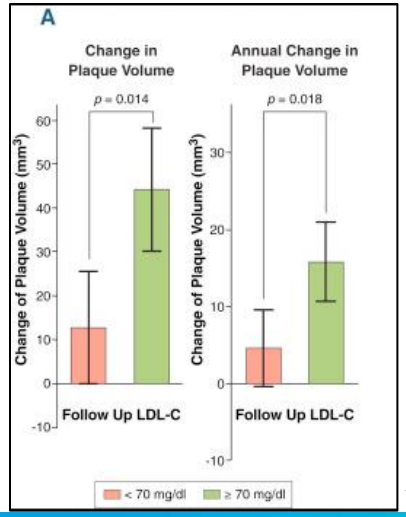
Cardiovascular risk as CONTINUUM



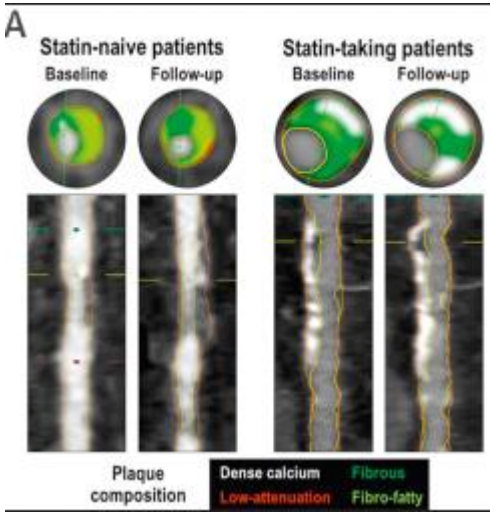
Natural History of Coronary Artery Disease

J Am Heart Assoc. 2023;12:eJAHA/2022/028892

Effects of statins on plaque progression & composition

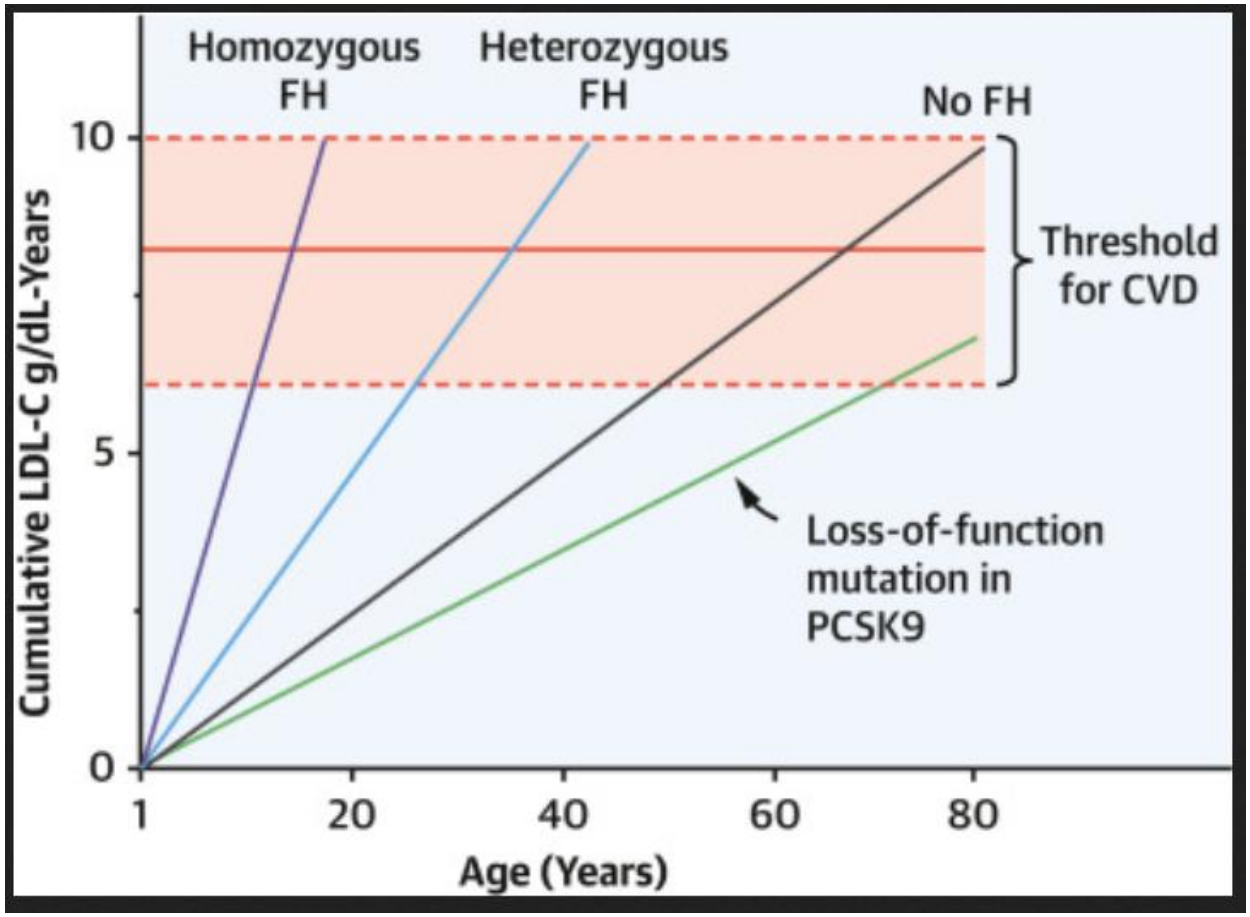


JACC 2017; 10(4):437-446



JACC 2018;11(10):1475-1484

LDL-C "Years"

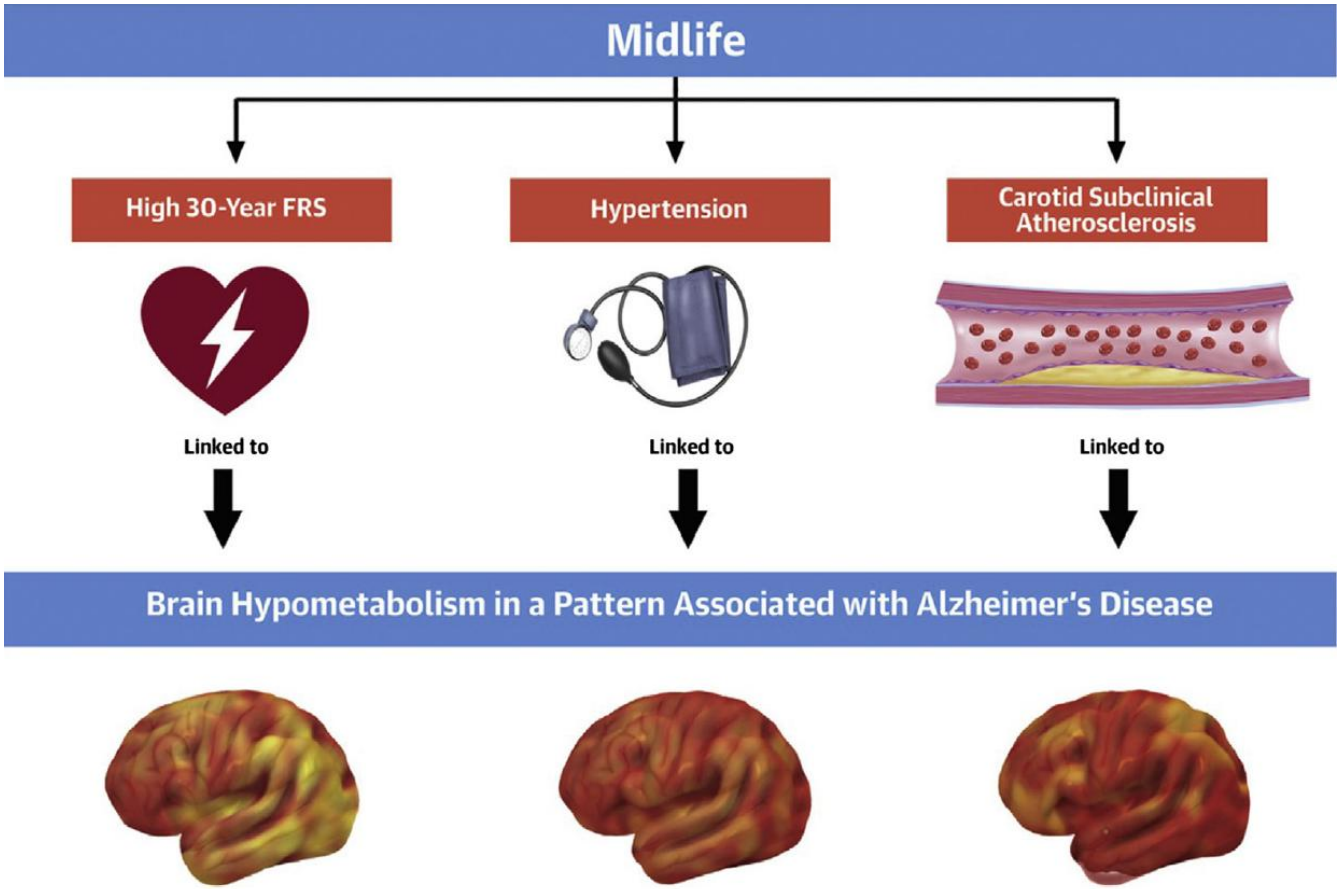


↑ female gender

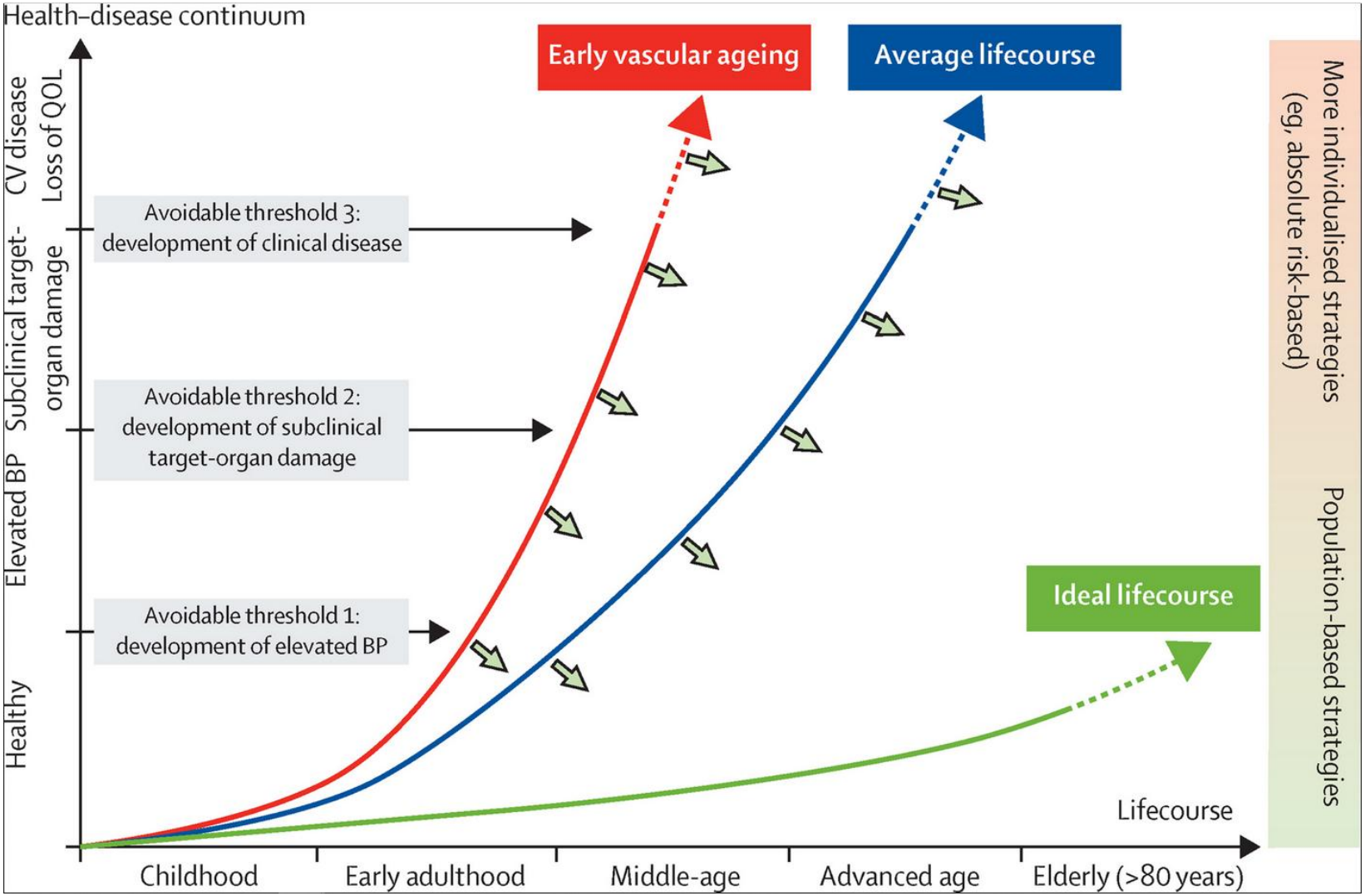
↓ hypertension, Lp(a) smoking, diabetes

JACC 2023;82(22):2152-2162

PESA (Progression of Early Subclinical Atherosclerosis)

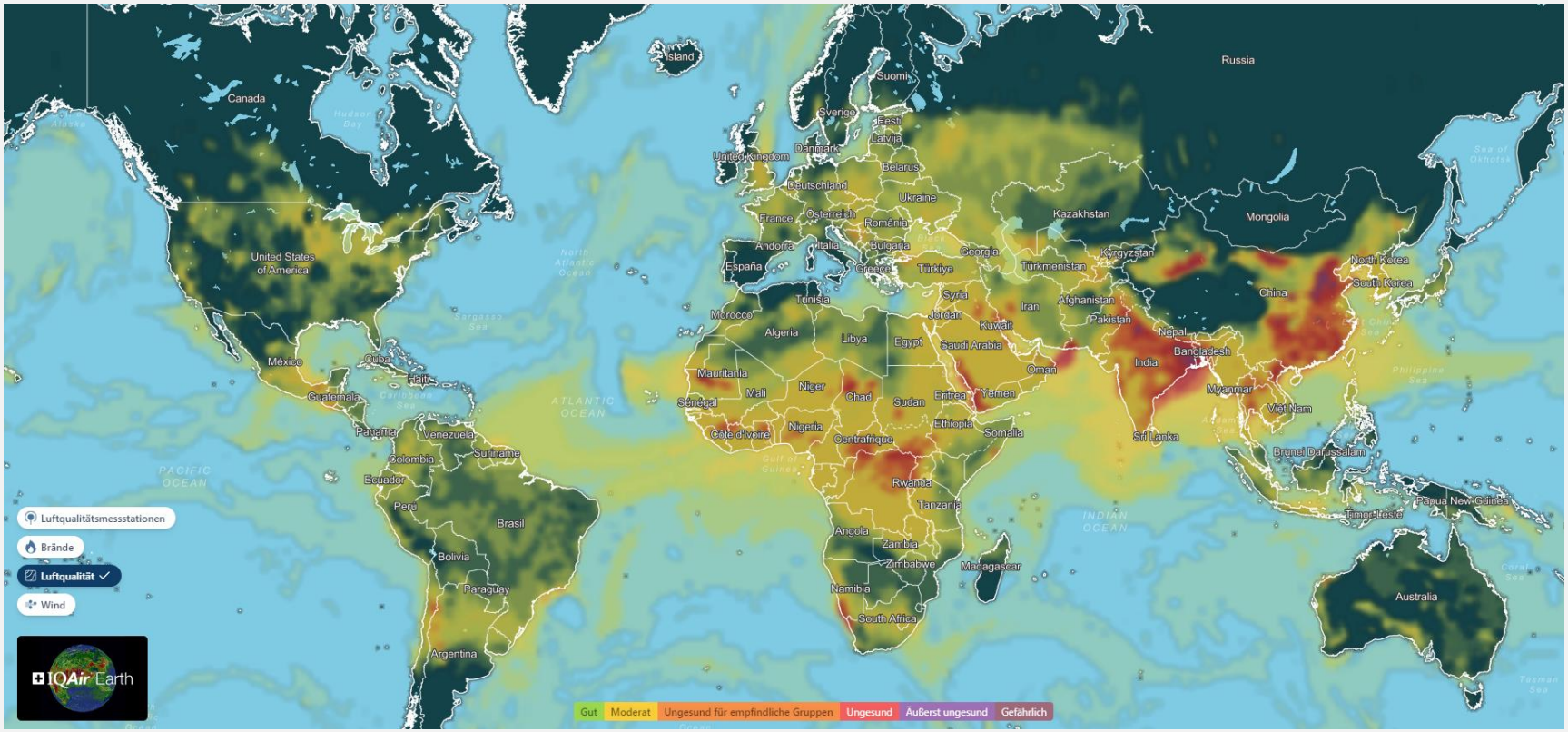


J Am Coll Cardiol 2021;78:156-179



Lancet 2016;388,:2565-2712

Air pollution - worldwide



www.iqair.com

Micro-/Nanoplastics

Jahr	Produktion weltweit (Mio. Tonnen/Jahr)
1950	1,5
1970	35
1990	100
2000	200
2010	270
2015	322
2020	367
2022	390
2023	ca. **400+** (geschätzt)

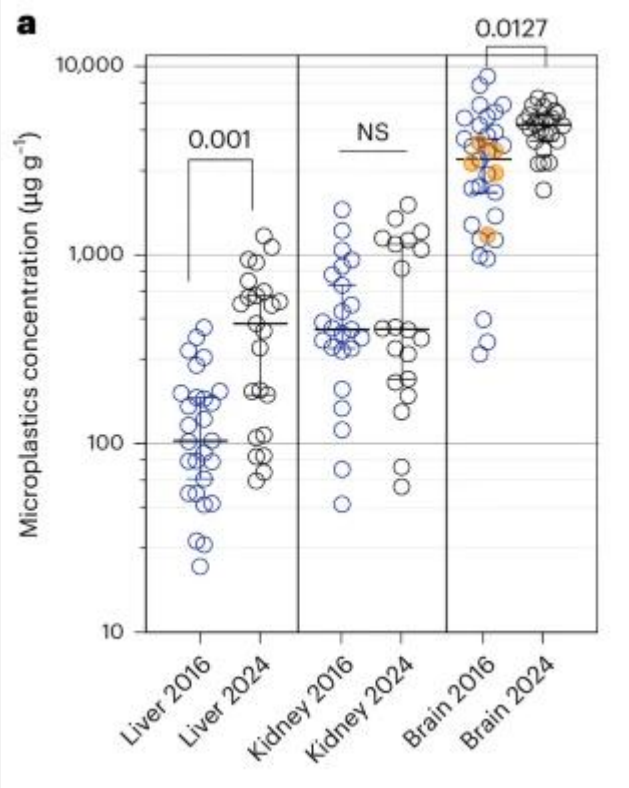
Hauptquellen von Mikroplastik in Prozent (weltweit, gerundet):

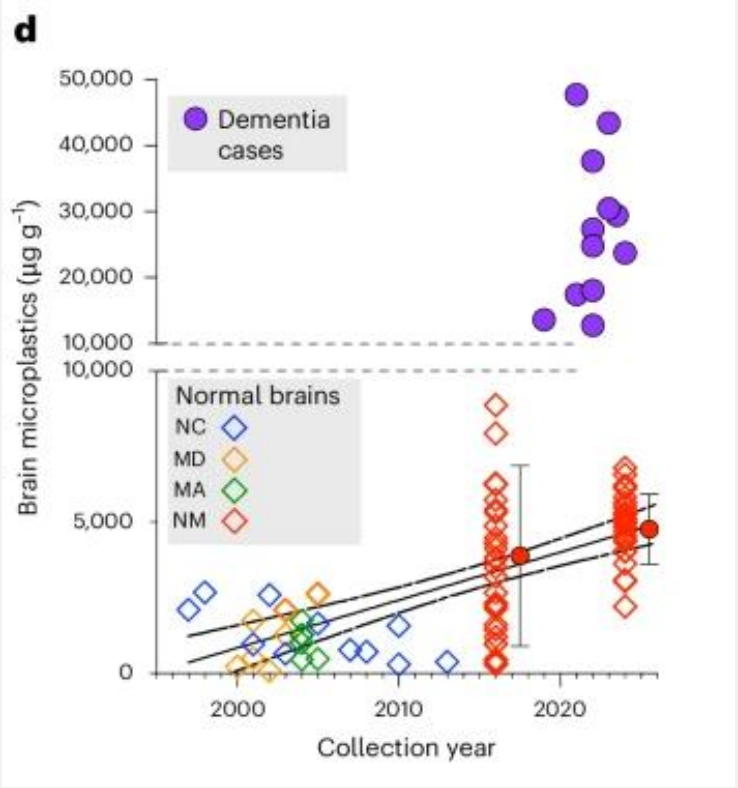
Quelle	Anteil an Mikroplastik-Freisetzung (%)
Abrieb von Reifen	28–35 %
Textilfasern (Waschmaschinenabwasser)	15–25 %
Kunststoffverwitterung (Verpackung etc.)	10–20 %
Pelletverluste (Rohstoffverluste in Industrie)	10–15 %
Straßenmarkierungen	7–10 %
Kosmetika und Pflegeprodukte	<2 %
Farben/Lacke (z. B. Schiffe, Gebäude)	5–10 %
Zigarettenfilter	ca. 2–5 %
Verluste durch Müllentsorgung/Littering	schwer zu beziffern, aber relevant

Aufnahme menschlicher Körper

Aufnahmeweg	Quellen	Anteil
Luft	Textilfasern, Reifenabrieb, Hausstaub	30-40%
Nahrung	Fisch, Meeresfrüchte,	30-50%
Trinkwasser	Leitungswasser, PET-Flasche	10-20%
Hautkontakt	(Nanoplastik)	<1%

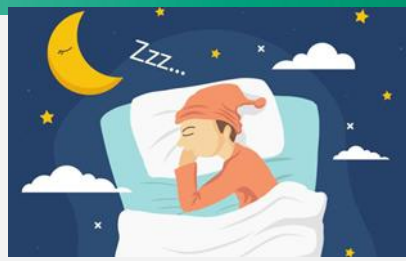
Micro-/Nanoplastics

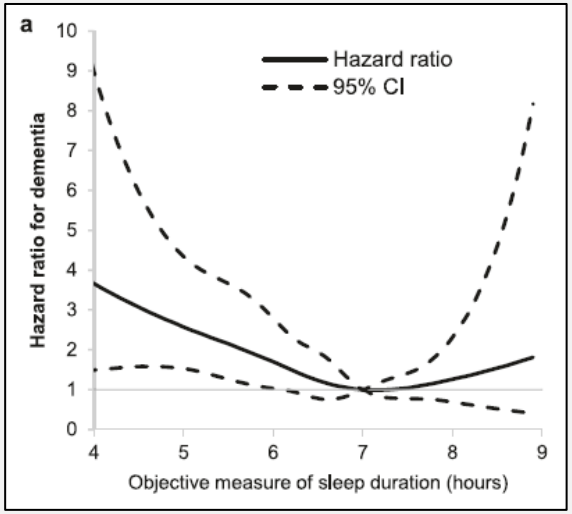




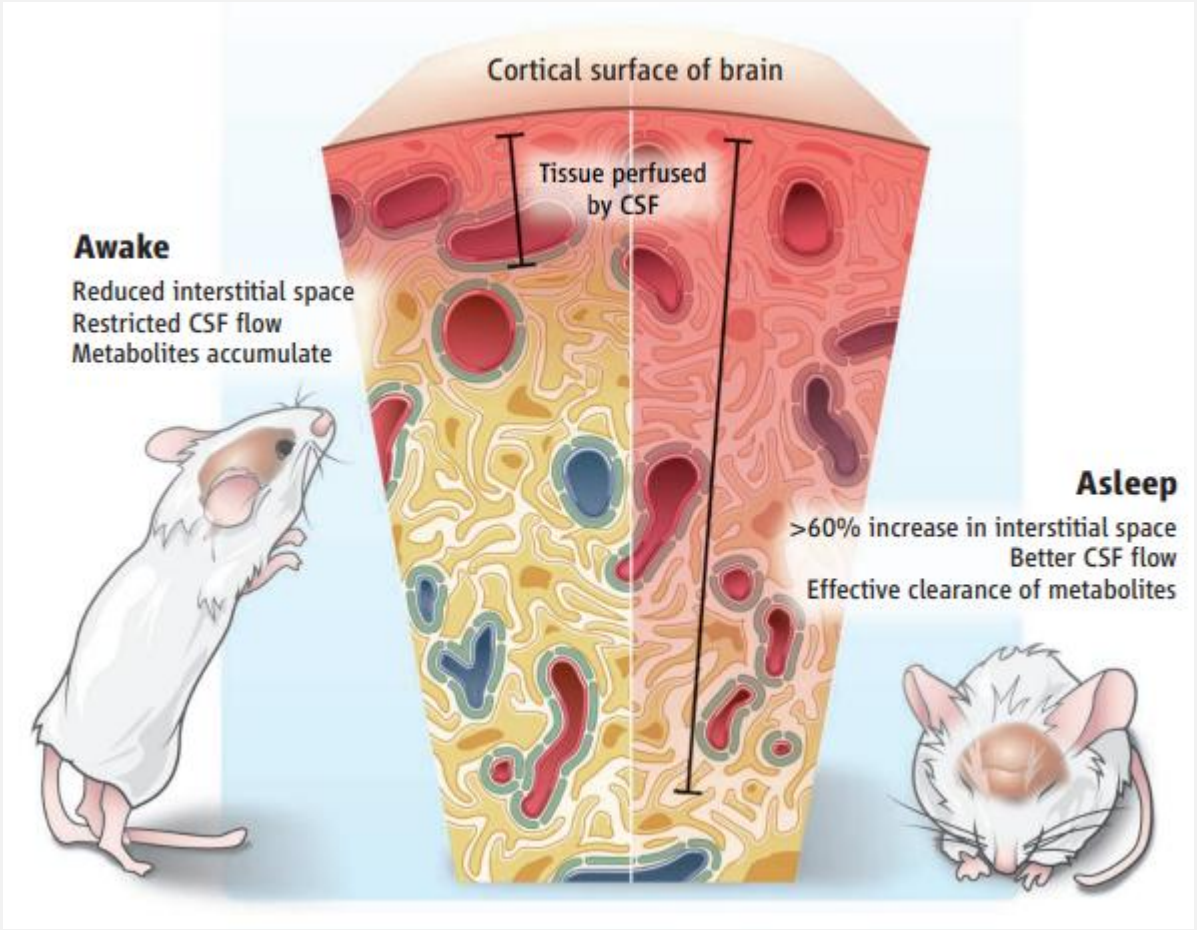
Nature Medicine 2025; 31, 1114–1119

Schlaf & Demenz



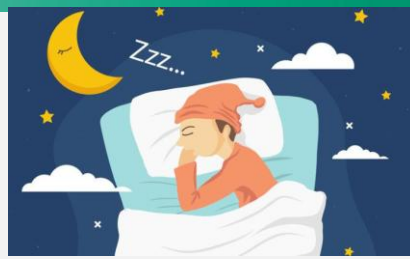


Association of sleep duration in middle and old age with incidence of dementia. Nat Comm 2021



Xie et al. Science 2013

Schlafmuster

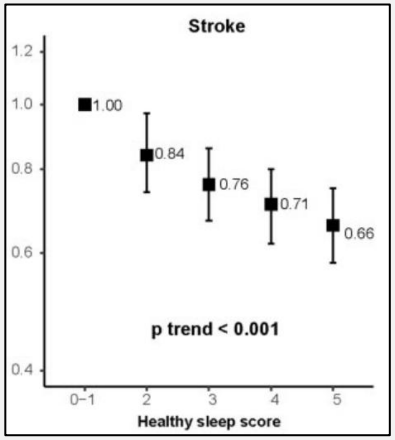


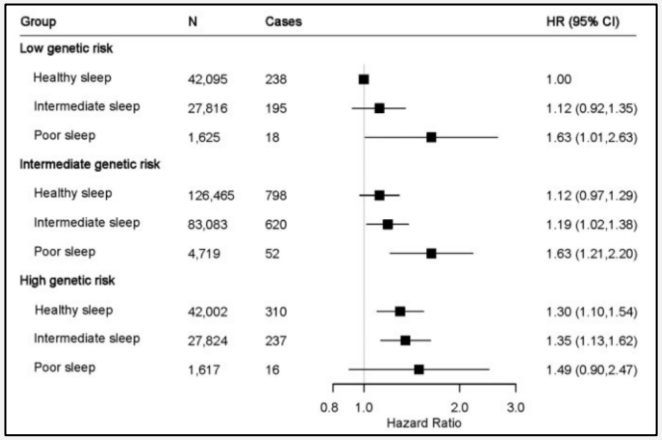
Sleep patterns, genetic susceptibility, and incident cardiovascular disease: a prospective study of 385 292 UK biobank participants

Eur Heart 2020;41:1182-1189

Healthy Sleep Score:

I) Early chronotype sleep
II) Sleep 7-8 h per day
III) No insomnia
IV) No snoring
V) No daytime sleepiness





Healthy Diet

Salt intake ↓

Potassium intake ↑








The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 4, 2013 VOL. 368 NO. 14

Primary Prevention of Cardiovascular Disease with a Mediterranean Diet

NEJM. 2013;368:1279-1290

Neurology 2012;79(15):1540-7

Stroke. 2014;45(12):3754-832












pur &
gemixt
Maltesers 100g
3.50
MGM's Peanut 150G
3.20
Haribo Goldbären 175g
1.85
Haribo Goldbären sauer 100G
1.95
Haribo Pfirsich 100g
1.95
Stimorol Wild Cherry Beutel 91G
5.30
Maltesers
M&M's
HARIBO
Goldbären
Zum Teilen
HARIBO
Goldbären
Sauer
HARIBO
Pfirsiche
STIMOROL
WILD CHERRY
FLAVOR
Ricola
Airwaves

Original Investigation

Mediterranean Diet and Age-Related Cognitive Decline
A Randomized Clinical Trial

Cinta Valls-Pedret, MSc; Aleix Sala-Vila, DPharm, PhD; Mercè Serra-Mir, RD; Dolores Corella, DPharm, PhD; Rafael de la Torre, DPharm, PhD; Miguel Ángel Martínez-González, MD, PhD; Elena H. Martínez-Lapiscina, MD, PhD; Montserrat Fitó, MD, PhD; Ana Pérez-Heras, RD; Jordi Salas-Salvadó, MD, PhD; Ramon Estruch, MD, PhD; Emilio Ros, MD, PhDMay 11, 201511:00 am ET

JAMA Intern Med. 2015;175(7):1094-1103

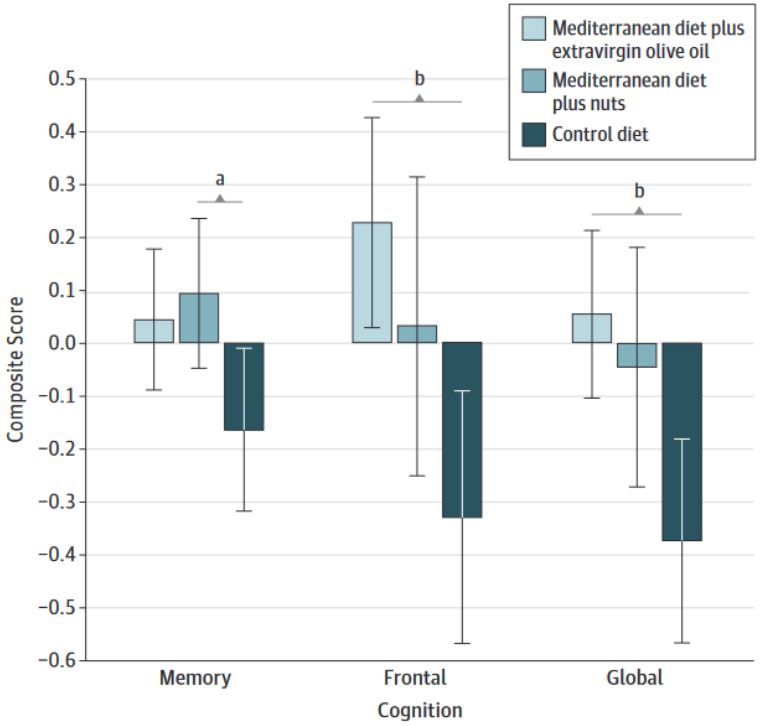
n = 447 cognitively healthy volunteers at high cardiovascular risk (mean 67y)

Barcelona

Intervention:

I) Mediterranean diet with extravirgin olive oil
II) Mediterranean diet with nuts
III) Control diet (advice to reduce dietary fat)

FUP: 4.1 y



Mediterranean diet & brain imaging

Higher adherence to Mediterranean or overall healthy dietary patterns is associated with:

- larger total brain and gray matter volume
- greater hippocampal volume
- less cortical and subcortical atrophy
- slower brain volume decline over time
- lower cortical Amyloid-Beta burden

Mechanisms may include:

- anti-inflammatory effects, oxidative stress reduction, and better vascular/metabolic regulation

Data mainly from observational studies

Neurology 2018 Jun 12;90(24):e2166-e2173
Neurology 2018 May 15;90(20):e1789-e1798.
Neurology 2017 Jan 31;88(5):449–455.
J Alzheimers Dis. 2018;64(1):281-290
Am J Clin Nutr 2022;115:1270-1281

Unhealthy diet & cognition

High saturated fat intake is associated with:

- poorer global cognition and verbal memory
- higher MCI & dementia risk
- smaller gray and white matter volumes and smaller hippocampus on MRI
- reduced hippocampal functional connectivity on fMRI

Sugar-sweetened beverages consumption is linked to:

- poor memory, greater cognitive decline and higher dementia incidence
- smaller total and hippocampal volume on MRI
- reduced hippocampal neurogenesis in animal studies

Potential mechanisms:

proinflammation, oxidative stress, cortical insulin resistance, reduced neurotrophic factors, endothelial dysfunction

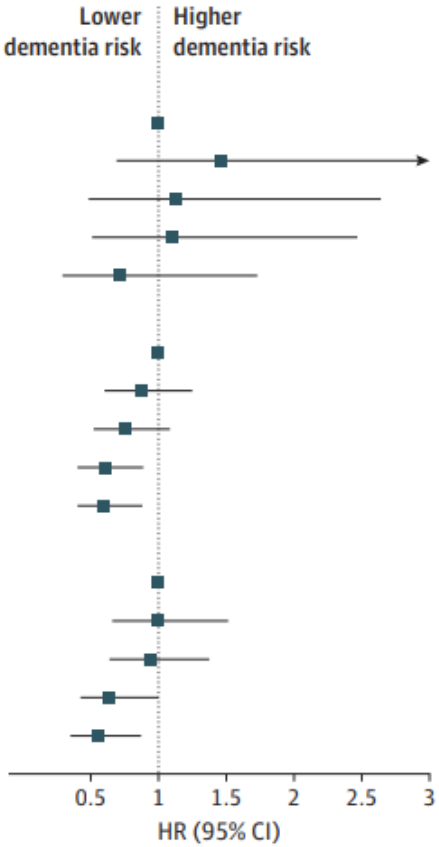
Ann Neurol 2012;72:124–134
Dement Geriatr Cogn Disord 2006;22:99–107
Neurology 2018 Jun 12;90(24):e2166-e2173
Neurology. 2018 May 15;90(20):e1789-e1798
Alzheimers Dement 2017 Sep;13(9):955-964
Physiol Behav 2013 Aug 15:120:164-72
Appetite 2014 Sep:80:41-54

Original Investigation | Neurology

Physical Activity Over the Adult Life Course and Risk of Dementia in the Framingham Heart Study

Francesca R. Marino, PhD; Chenglin Lyu, MS; Yuqing Li, MPH; Tianyu Liu, MS; Rhoda Au, PhD; Phillip H. Hwang, PhD, MPH

Age group by PAI quintile	HR (95% CI)
Early adult life (62 cases/1526 participants)	
1	1 [Reference]
2	1.46 (0.70-3.04)
3	1.12 (0.48-2.64)
4	1.11 (0.51-2.46)
5	0.71 (0.29-1.73)
Midlife (273 cases/1943 participants)	
1	1 [Reference]
2	0.87 (0.60-1.25)
3	0.75 (0.52-1.08)
4	0.60 (0.41-0.89)
5	0.59 (0.40-0.88)
Late-life (232 cases/885 participants)	
1	1 [Reference]
2	1.00 (0.66-1.51)
3	0.94 (0.64-1.38)
4	0.64 (0.42-1.00)
5	0.55 (0.35-0.87)



Key Points

Question When during the adult life course is physical activity most associated with risk of incident dementia?

Findings In this cohort study of 1526 early adult-life, 1943 midlife, and 855 late-life participants in the Framingham Heart Study, individuals with the highest levels of physical activity at midlife and late life had 41% and 45% lower risk of all-cause dementia, respectively, compared with those with the lowest levels of physical activity, a statistically significant difference. Early adult-life physical activity was not associated with dementia risk.

Meaning These findings suggest that timing efforts to promote physical activity during midlife or late life may be warranted to help delay or prevent dementia.

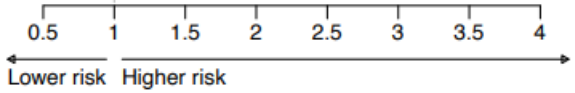
JAMA Network Open. 2025;8(11):e2544439. doi:10.1001/jamanetworkopen.2025.44439

Associations of physical frailty, depression and their interaction with incident all-cause dementia among older adults: evidence from three prospective cohorts

Yihong Ding ,[1] Mingrui Duan,[1] Jie Shen,[2] Lisha Xu,[3] Yuehui Ma,[4] Di He,[5,6] Yimin Zhu[1]

D Pooled

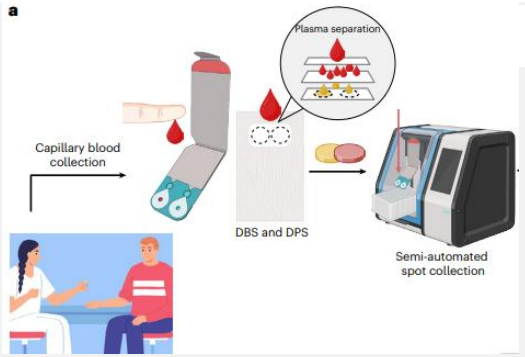
Depression	Frailty	Cases/N	Person years	HR (95% CI)	I^2, %
No					
	Robust	3351/107 746	1 408 797	1.00 (Reference)	
	Pre-frail	3817/84 590	1 076 388	1.41 (1.34 to 1.48)	50.0
	Frail	602/7779	91 224	2.39 (2.18 to 2.62)	0.0
Yes					
	Robust	245/6419	83 969	1.38 (1.21 to 1.57)	34.6
	Pre-frail	753/11 403	139 515	2.04 (1.88 to 2.21)	30.0
	Frail	320/3010	32 803	3.23 (2.86 to 3.65)	41.6



General Psychiatry 2025;**38**:e102172. doi:10.1136/gpsych-2025-102172

Praxis

A minimally invasive dried blood spot biomarker test for the detection of Alzheimer's disease pathology



Nature Medicine (2026)

p-tau217

Diagnostik:

- Anamnese (**Fremdanamnese !!**)
- **MoCA** > MMSE
- NPSYCH (Aufmerksamkeit, exekutive Dysfunktion, Gedächtnis, Sprache, etc)
- Labor
- Bildgebung (MRI)

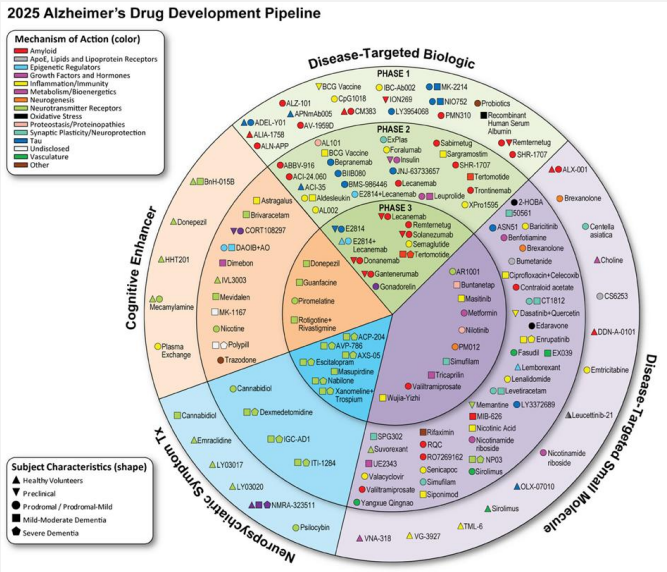
Liquor

	Aβ1-42 Aβ1-42/Aβ1-40	pTau181	Tau
Alzheimer-Erkrankung (MCI- und Demenz-Stadien)	--	++	++
Frontotemporale Demenzen	normal	normal	(+)
Lewy-Körperchen-Erkrankung	-	normal	+
Parkinson-Krankheit, Amyotrophe Lateralsklerose, Multisystematrophie	normal	normal	normal
Creutzfeldt-Jakob-Krankheit	normal	(+)	+++
Normaldruck-Hydrozephalus	normal	(+)	+
Vaskuläre Demenz	normal	normal	(+)
Gemischte Demenz, vaskulär und Alzheimer	--	+	+
Depression	normal	normal	normal

Praxis

Medikamentöse Therapie:

- Cholinesterase-Inhibitoren
- (Ginkgo biloba)
- (Nahrungsmittelergänzungen)

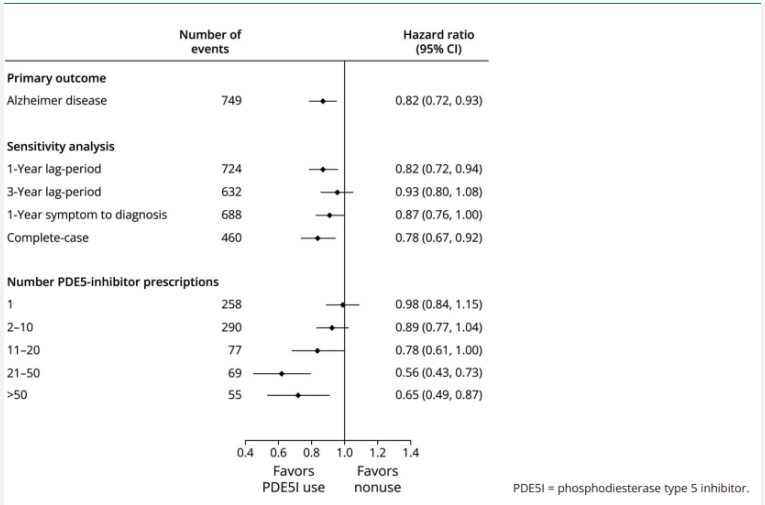


RESEARCH ARTICLE | February 7, 2024 | Check for updates

Phosphodiesterase Type 5 Inhibitors in Men With Erectile Dysfunction and the Risk of Alzheimer Disease

February 27, 2024 issue • 102 (4) e209131 • https://doi.org/10.1212/WNL.0000000000209131

A Cohort Study



The NEW ENGLAND JOURNAL of MEDICINE
ESTABLISHED IN 1812 JANUARY 5, 2023 VOL. 388 NO. 1

Lecanemab in Early Alzheimer's Disease

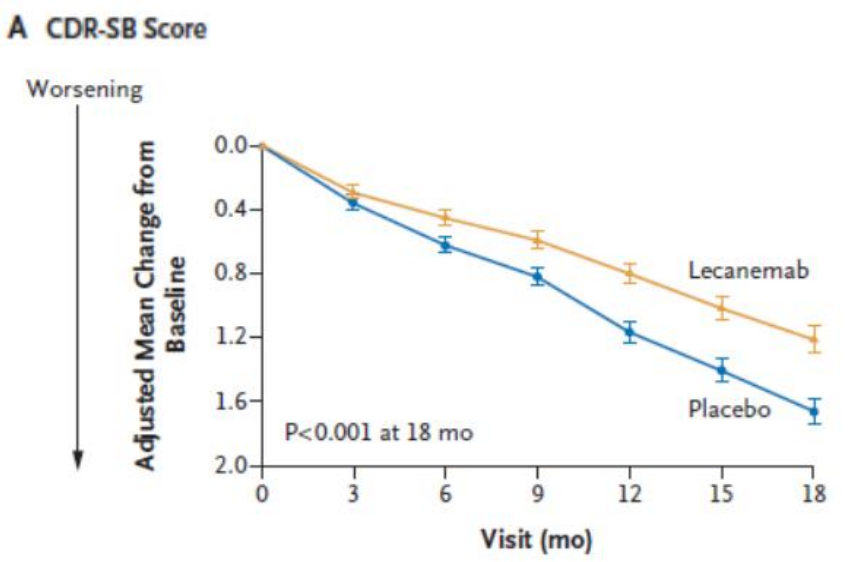
JAMA | Original Investigation

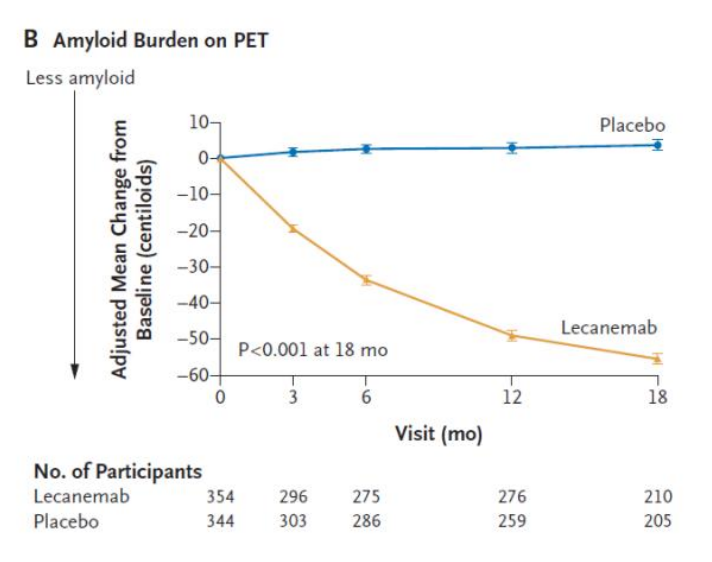
Donanemab in Early Symptomatic Alzheimer Disease
The TRAILBLAZER-ALZ 2 Randomized Clinical Trial

John R. Sims, MD; Jennifer A. Zimmer, MD; Cynthia D. Evans, PhD; Ming Lu, MD, MS, MPH; Paul Ardayfio, PhD; JonDavid Sparks, PhD; Alette M. Wessels, PhD; Sergey Shcherbinin, PhD; Hong Wang, PhD; Emel Serap Monkul Nery, MD; Emily C. Collins, PhD; Paul Solomon, PhD; Stephen Salloway, MD; Liana G. Apostolova, MD; Oskar Hansson, MD, PhD; Craig Ritchie, MD, PhD; Dawn A. Brooks, PhD; Mark Mintun, MD; Daniel M. Skovronsky, MD, PhD; for the TRAILBLAZER-ALZ 2 Investigators

Praxis

Anti-Amyloid-AK





- ARIA-E
- ARIA-H

Zusammenfassung

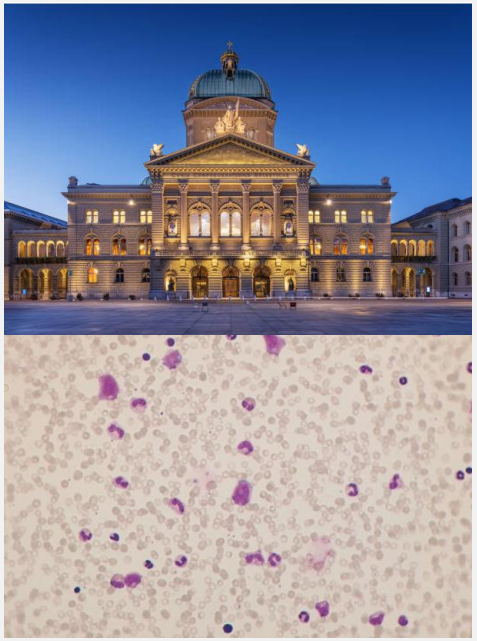
- Aktuell: Prävention > Therapie
  - Protektion: Impfungen !
  - Risikofaktoren: arterielle Hypertonie !
  - Lifestyle (mittleres Alter!)

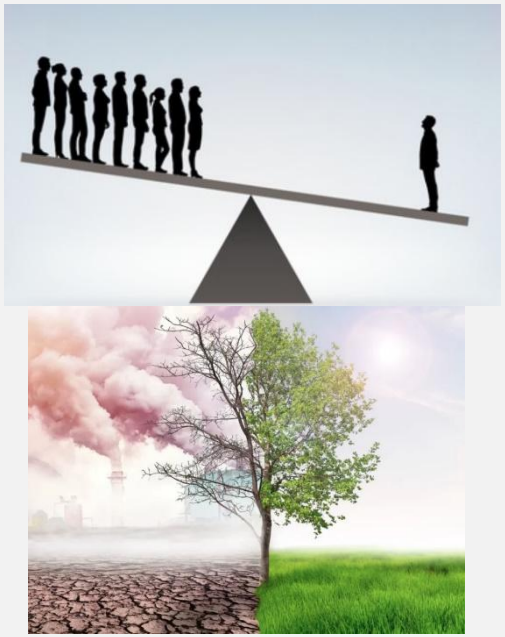
- Bald: Diagnostik ++

  Therapie ++

- Demenz & CVD: **Prävention = öffentliche Aufgabe** > Eigenverantwortung

Brain Health – what we need

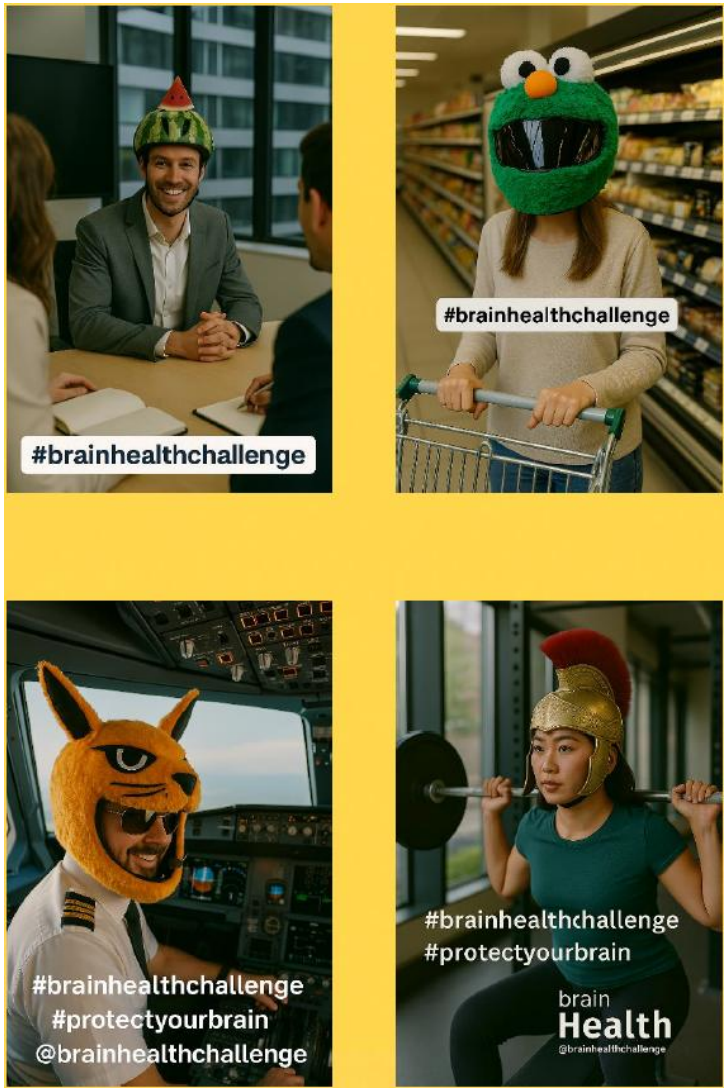




Danke!

Brain Health

Certificate of Advanced Studies



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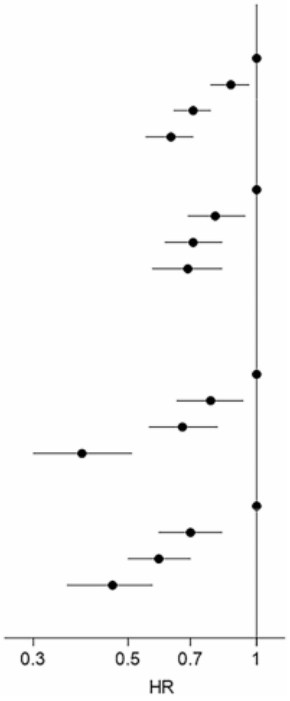
RESEARCH Open Access

Physical activity, muscle strength, sedentary behavior, sleep, and genetic risk of stroke and dementia: findings from a large cohort study

Li-Hua Chen[1,2,3†], Cai-Long Chen[4†], Yan Hong[1†], Xi Yin[1], Ziwei Liu[1], Ying Lu[1], Zike Chen[1], Ying Tan[5], Fu-Rong Li[6], Yang Li[7], Guo-Chong Chen[3], Tong Liu[2*] and Haili Tian[8*]

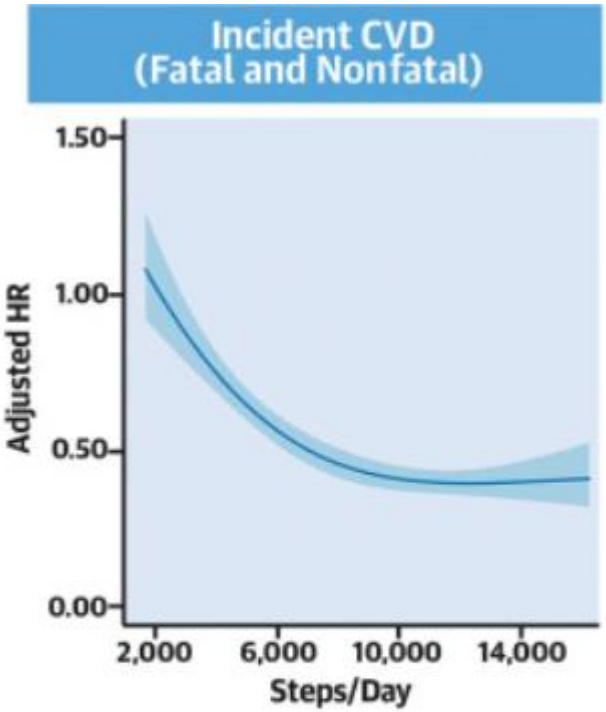
	Score	n/N	HR (95% CI)
Stroke			
APOE ε4 non-carriers	0-1	621/37,328	1.00 (Referent)
	2	1089/85,034	0.87 (0.78-0.96)
	3	1083/118,509	0.71 (0.64-0.78)
	4	462/71,204	0.63 (0.55-0.71)
APOE ε4 carriers	0-1	254/14,421	1.00 (Referent)
	2	423/33,316	0.80 (0.69-0.94)
	3	470/47,601	0.71 (0.61-0.83)
	4	218/29,098	0.69 (0.57-0.83)
Dementia			
APOE ε4 non-carriers	0-1	204/37,328	1.00 (Referent)
	2	317/85,034	0.78 (0.65-0.93)
	3	322/118,509	0.67 (0.56-0.81)
	4	82/71,204	0.39 (0.30-0.51)
APOE ε4 carriers	0-1	222/14,421	1.00 (Referent)
	2	329/33,316	0.70 (0.59-0.83)
	3	344/47,601	0.59 (0.50-0.70)
	4	113/29,098	0.46 (0.36-0.57)



Optimal Daily Step Count

10'000 ?

Olympische Spiele Japan 1964
«Manpo-kei» = **10'000 Schritt**-Zähler



	Steps/day	Adjusted HR (95% CI)
Minimum dose	2,735	0.89 (0.79-0.99)
Optimum dose	7,126	0.49 (0.45-0.55)
Risk reduction at 16,000 steps	16,000	0.42 (0.33-0.53)

JACC 2023;82(15):1483-1494