Top Ten Family Medicine Articles to Change Your Practice

FMF
Family Medicine Forum
Forum en médecine familiale

THE COLLEGE OF FAMILY PHYSICIANS OF CANADA
LE COLLÈGE DES MÉDECINS DE FAMILLE DU CANADA

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Fracture Prevention with Infrequent Zoledronate in Women 50 to 60 Years of Age

Mark J. Bolland, M.B., Ch.B., Ph.D., Zaynah Nisa, B.Nurs., Anna Mellar, B.Sc., Chiara Gasteiger, Ph.D., Veronica Pinel, M.D., Borislav Mihov, B.Phty., Sonja Bastin, M.B., Ch.B., Andrew Grey, M.D., Ian R. Reid, M.D., Greg Gamble, M.Sc., and Anne Horne, M.B., Ch.B.

NEJM 2025 ; 392:239-248

Why it Matters

- Bisphosphonates reduce relative risk of all clinical fractures by 21%, vertebral fractrures by 61% and hip fracture by 36%
- Zolendronate (IV infusion) prevents fractures in postmenopausal women when administered q12-18 months
- Its effects on bone density and turnover persists >5 years
- Does infrequent administration of Zolendronate prevent fractures?

Funding

- Government
  Health Research Council of New Zealand

- Conducted at:
  Clinical Research Center
  University of Auckland

Methods

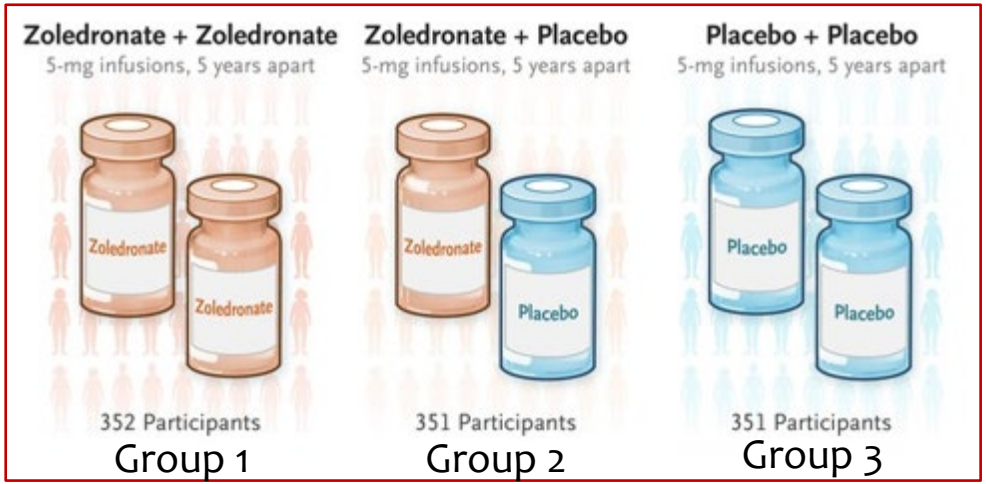
- 10 yr prospective, double-blind, randomized, placebo-controlled trial

- Participants:
  - n = 1054
  - Early postmenopausal women (50-60 yrs)
  - BMD T scores < 0 and > -2.5
    (lumbar spine, femoral neck or hip)

- Exclusion:
  - T score < -2.5
  - Previous fracture, major illness or metabolic bone disease, use of osteoporosis meds, prednisone

Methods

- Study Design:
  - Participants randomized to receive:



Followed for 10 yrs

- Spinal radiographs at baseline, 5 yrs, 10 yrs
- Normal T score >/= - 1

Methods

- Primary Outcome:
  - Morphometric vertebral fracture
    - Defined as >/= 20% change in vertebral height from that seen at baseline

- Secondary Outcome:
  - Fragility fracture
  - Any fracture
  - Major osteoporotic fracture

Results

Participants:

- Of the 1054 women, 1003 (95.2%) completed the 10 yr follow-up
- Mean age at baseline: 56

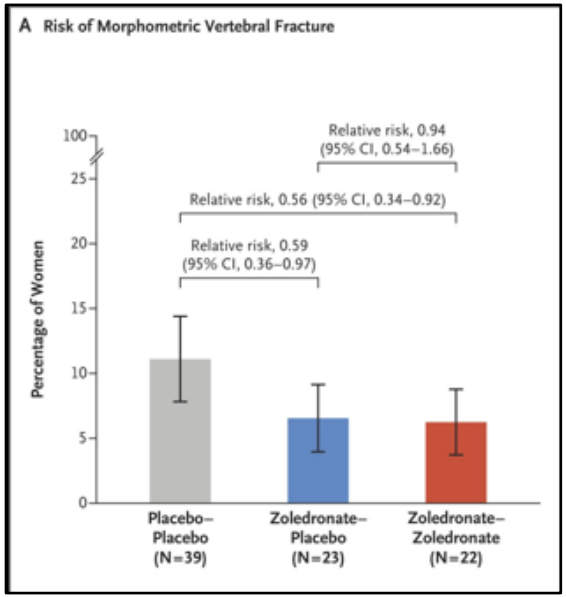
Results

- A new morphometric vertebral fracture was lower in both Group 1 (zoledronate–zoledronate) and Group 2 (zoledronate–placebo) vs Group 3 (placebo-placebo):

Zoledronate–zoledronate: 6.3%

Zoledronate–placebo: 6.6%

Placebo–Placebo: 11.1%



Results

NNT:

- NNT to prevent one woman from having a new morphometric vertebral fracture during the 10 year period:
  - In Group 1 - NNT = 21
    (zolendronate-zolendronate)
  - In Group 2 – NNT = 22
    (zolendronate-placedo)

Results

Secondary End Points:

Table 2. The Effect of Zoledronate on Fracture Outcomes.*

End Point	Zol–Zol (N=352)	Zol–Placebo (N=351)	Placebo–Placebo (N=351)	Zol–Zol and Zol–Placebo (N=703)
	no. of women with ≥1 new fracture (%)			
Primary end point				
Morphometric vertebral fracture†	22 (6.3)	23 (6.6)	39 (11.1)	45 (6.4)
Secondary end points				
Fragility fracture	71 (20.2)	78 (22.2)	99 (28.2)	149 (21.2)
Any fracture	87 (24.7)	96 (27.4)	124 (35.3)	183 (26.0)
Major osteoporotic fracture	41 (11.6)	49 (14.0)	69 (19.7)	90 (12.8)

Results

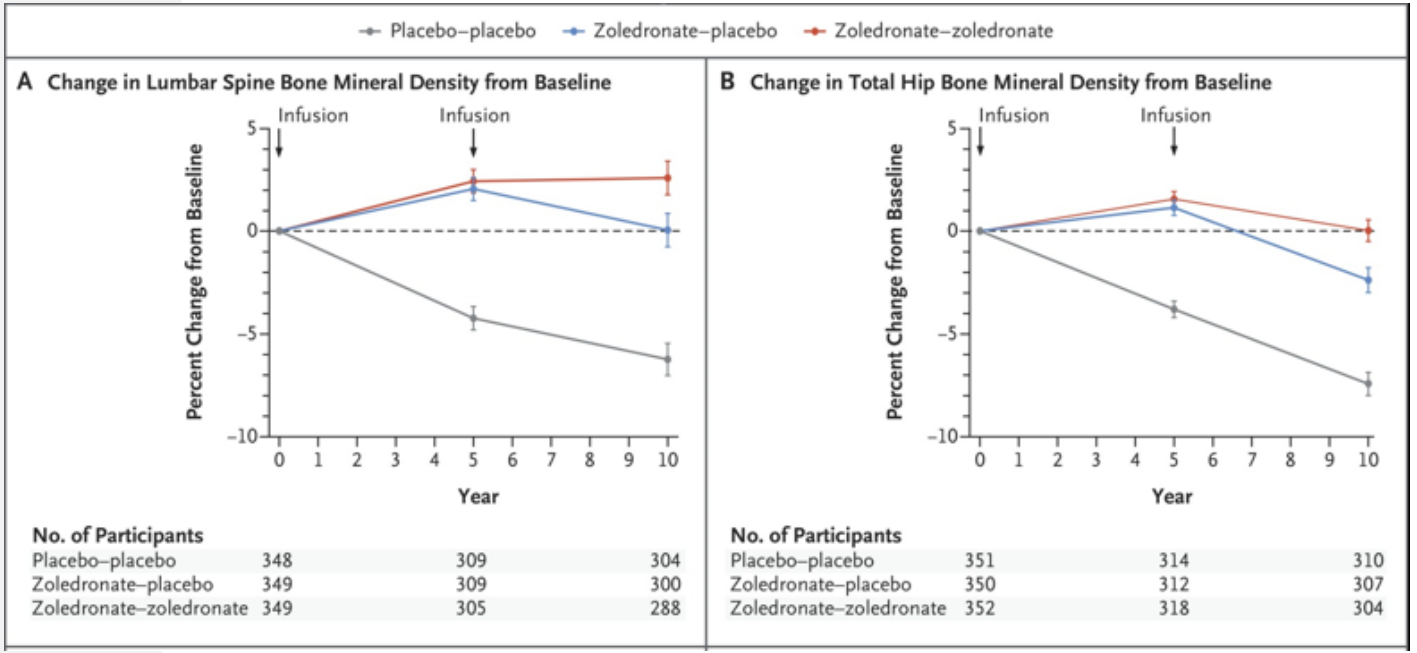
Relative risk of other fractures:

- ***Zoledronate–zoledronate vs placebo-placebo***
  Fragility fracture: RR 0.72
  Any fracture: RR 0.70
  Major osteoporotic fracture: RR 0.60

- ***Zoledronate–placebo vs placebo-placebo***
  Fragility fracture: RR 0.79
  Any fracture: RR 0.77
  Major osteoporotic fracture: RR 0.71

Results

- Bone Mineral Density
  - At 5 years, difference in % change in BMD (hip, spine) between each of the zolendrone groups and placebo-placebo ranged from 4.9 to 6.6 %points



No. of Participants			
Placebo–placebo	348	309	304
Zoledronate–placebo	349	309	300
Zoledronate–zoledronate	349	305	288

No. of Participants			
Placebo–placebo	351	314	310
Zoledronate–placebo	350	312	307
Zoledronate–zoledronate	352	318	304

Limitations

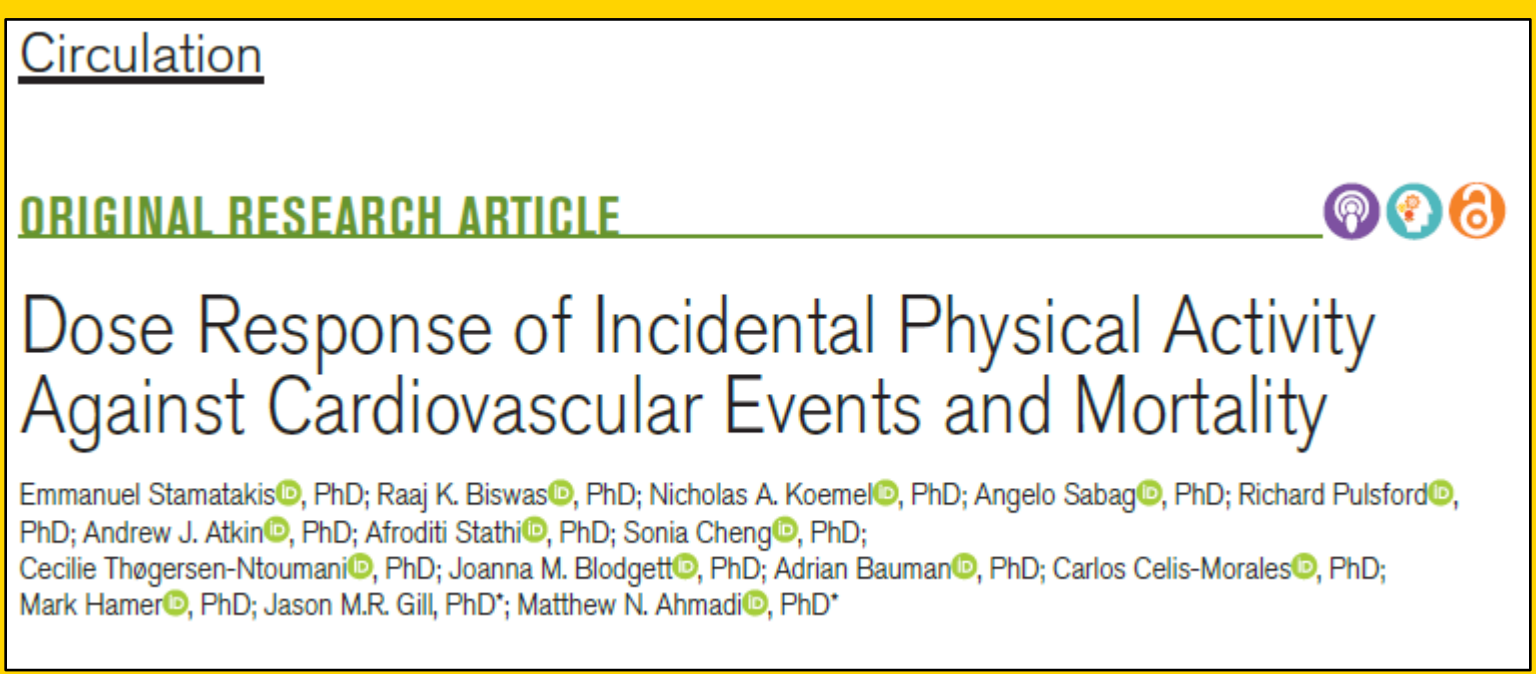
- Trial cohort consist of early postmenopausal women without osteoporosis

Bottom Line

- Administring zolendronate only twice, baseline and at 5 years, significantly reduces the risk of vertebral and other fractures over a 10-period when compared to placebo

- A single dose also, baseline and placebo at 5 years, tended towards benefit

- ***Infrequent zoledronate (every 5 or 10 yrs) is effective and safe for fracture prevention in early post menopausal women***



Circulation

ORIGINAL RESEARCH ARTICLE

Dose Response of Incidental Physical Activity Against Cardiovascular Events and Mortality

Emmanuel Stamatakis, PhD; Raaj K. Biswas, PhD; Nicholas A. Koemel, PhD; Angelo Sabag, PhD; Richard Pulsford, PhD; Andrew J. Atkin, PhD; Afroditi Stathi, PhD; Sonia Cheng, PhD; Cecilie Thøgersen-Ntoumani, PhD; Joanna M. Blodgett, PhD; Adrian Bauman, PhD; Carlos Celis-Morales, PhD; Mark Hamer, PhD; Jason M.R. Gill, PhD*; Matthew N. Ahmadi, PhD*

Circulation 2025 ; 151(15):1063-1075

Why it Matters

- CVD is the leading cause of death globally
- Physical activity = cardioprotective
- Regular structured exercise:
  - Not appealing
    - Lack of time
    - Lack of motivation
    - Low confidence in exercise capacity or skills
  - Inaccessible
    - Poor access
    - Cost

- Incidental Physical Activity (activities of daily living) – moderate (~23.9min/day) and vigorous (~4.6min/day) is associated with lower risk (23-50%) in CVD (events and mortality)

Funding

- Government
- UK Biobank
  - database of adults between 40 and 69 years of age at baseline containing detailed genetic, lifestyle, and health information from over 500,000 UK adults recruited between 2006 and 2010.

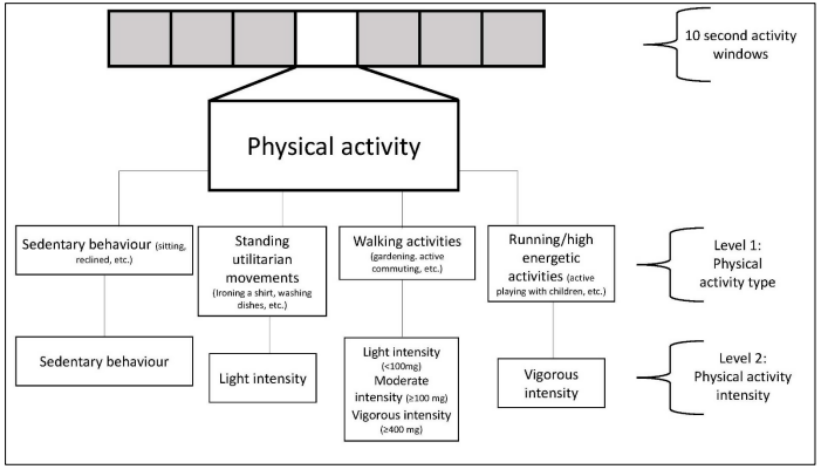
Methods

- Prospective cohort study
- n = 24,139 non-exercisers

Methods

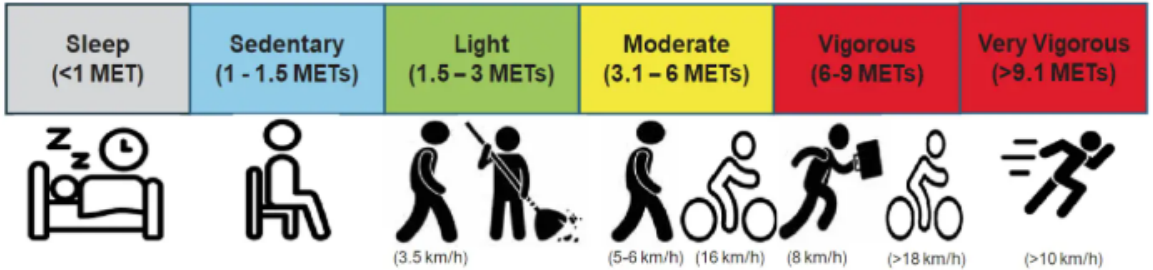
- Wrist worn accelerometer data was used to calculate a physical activity energy expenditure estimation method

- Using a validated 2-stage machine learning-based Random Forest activity classifier



Methods

- Physical activity intensity was classified into:
  - light (2-3 METs, folding clothes, washing dishes)
  - moderate (2-<6 METs walking briskly)
  - vigorous (>/=6 METs, actively playing with children, running, fast walking



Approximate relative intensity

$\%VO_{2max}$	<25	25-44	45-59	60-84	>84
$\%HR_{max}$	<30	30-49	50-59	70-89	>89

VO_{2max} = maximal aerobic capacity
HR_{max} = maximal heart rate

Methods

- Data Analysis:
  - Appropriate statistical methods were used to reduce risk of reverse causation by undiagnosed disease
    - Removal of individuals with poor health, high frailty or with an event in the first 1-3 years of follow-up
  - Analyses were adjusted for:
    - Age, sex, education, ethnicity, fruit and vegetable consumption, accelerometer estimated sleep duration, screen time, prevalent cancer, CVD-related medication use, family hx CVD

Results

- All levels of physical activity (light, moderate, vigorous) showed an inverse association with MACE, CV mortality and ACM:

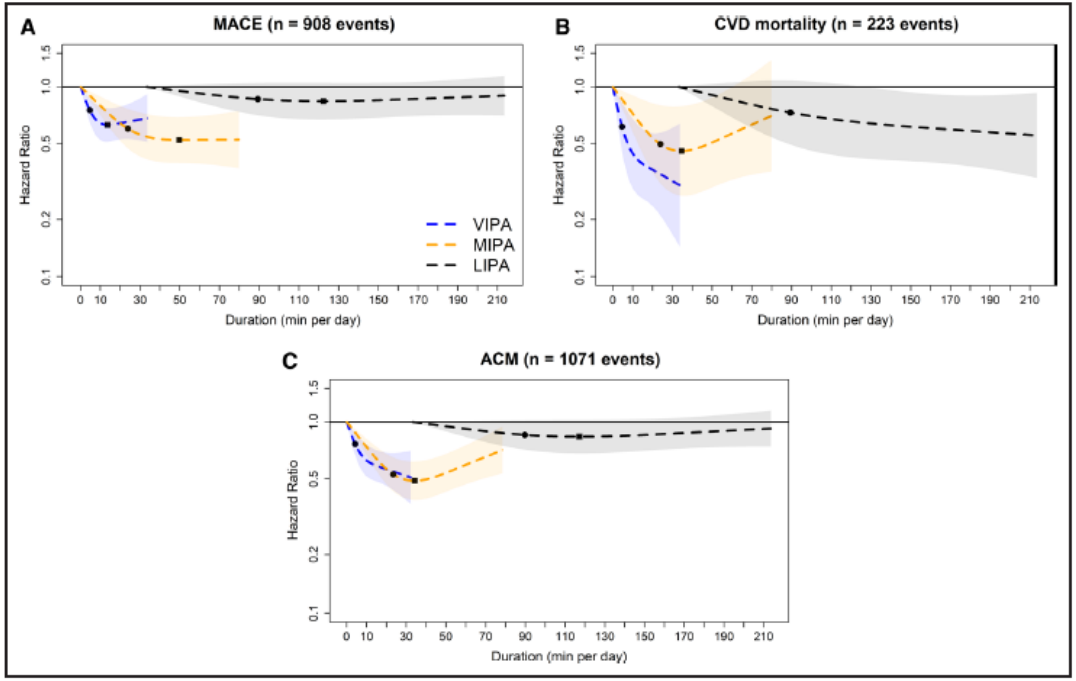
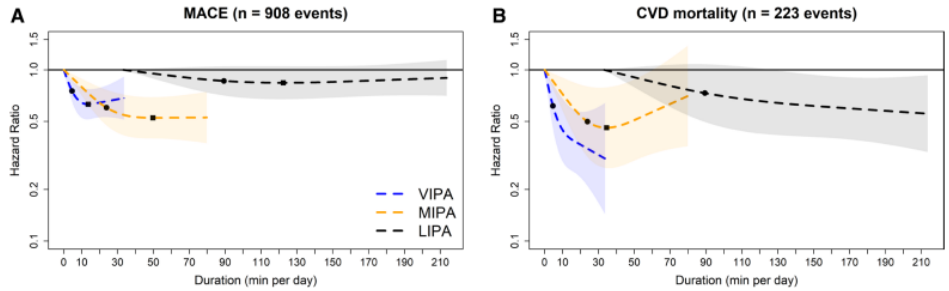


Figure 3. Adjusted dose response associations of daily incidental VIPA, MIPA, and LIPA physical activity with overall MACE, CVD mortality, and all-cause mortality.

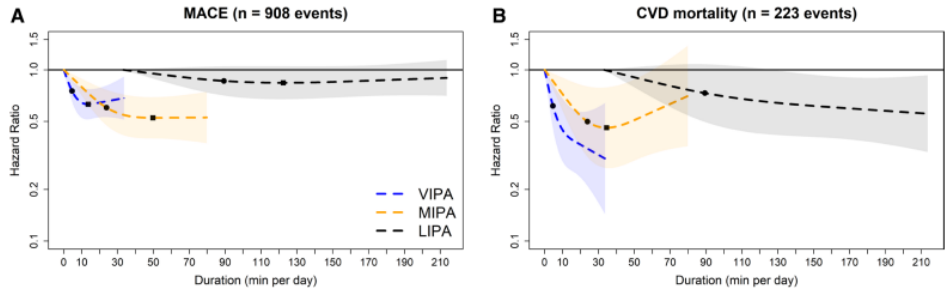
Results

- For Vigorous IPA median dose (~4.6min/day) was associated with Hazard Ratio (HR) of:
  - 0.75 for MACE
  - 0.62 for CVD mortality
  - 0.76 for all-cause mortality
- Benefit plateaued at ~10 to 30 min/day



Results

- For Moderate IPA median dose (~23.9min/day) was associated with Hazard Ratio (HR) of:
  - 0.60 for MACE
  - 0.50 for CVD mortality
  - 0.53 for all-cause mortality
- Benefit plateaued at ~35 mins/day



Results

- For Low IPA:
  - subtle inverse gradient with all outcomes
  - Statistical significant for CVD mortality only at values > ~130 mins/day

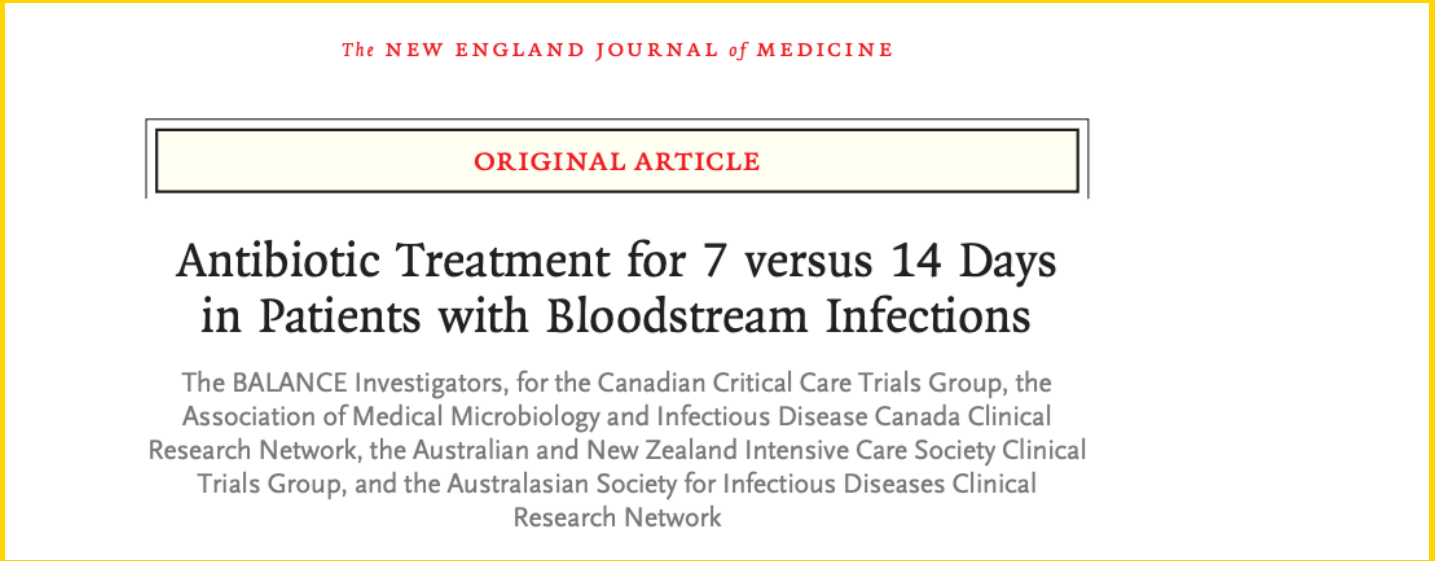
Limitations

- There was a 5.5 year lag time between the UK Biobank baseline measurement at which non-exercising status was determined and when accelerometry measurements were collected
- Possible uncaptured confounding variables
- UK Biobank – representation of generalized population?

Bottom Line

- In non-exercising adults:
  - Incidental nonstructured physical activity - moderate and vigorous intensities – is associated with lower risk of cardiovascular events and death
- Moderate = ~23.8 mins/day
- Vigorous = ~4.6 mins/day

- **So encourage informal exercise:**
  - **Walk (pets, park far away, take stairs)**
  - **Support community programs for activity**



The New England Journal of Medicine 2025

Why it Matters

2.9 million deaths per year worldwide due to bloodstream infections

Early antibiotic therapy improves survival but limited studies assessing duration of antibiotic therapy

Shorter duration of therapy could reduce complications, antimicrobial exposure, antimicrobial resistance and cost

Funding

Canadian Institutes of Health Research, Physicians Services, by the Ontario Ministry of Health Alternate Funding Plan Innovation Fund, by a grant (2017-08) from the Canadian Frailty Network, by the Australian National Health Medical Research Council, and by the New Zealand Health Research Council

Methods

Randomized controlled non-blinded trial – multicenter international study

Primary intention-to-treat analysis, modified intention to treat and per protocol analysis also conducted. 4% non inferiority margin used

74 hospitals in seven countries: Canada, Australia, New Zealand, Saudi Arabia, Israel, Switzerland, United States

1814 patients were randomly assigned to 7 days of antibiotic treatment, and 1794 to 14 days

Dosing, route and selection of antibiotic at discretion of treating team

Treatment group concealed until day 7

Methods

Modified intention to treat excluded patients who died before day 7

Per protocol excluded those who had more than 2 day difference in assigned duration of antibiotic

Exclusion criteria: patients with severe immunosuppression, foci requiring prolonged treatment, prosthetic heart valves, single cultures with possible contaminants, fungemia, or cultures yielding *Staphylococcus aureus*.

Primary outcome: Death from any cause by 90 days after diagnosis of bloodstream infection

Results

55% of patients in ICU, 45% on hospital wards

75.4% of infections acquired in the community, 14.4% on hospital wards, and 11.2% in ICUs

Infections originated from urinary tract (42.2%), abdomen (18.85), lung (13.0%), vascular catheters (6.5%) and skin or soft tissue (5.2%)

Results

In 7 day group 261 patients (14.5%) died vs 286 patients (16.1%) in 14 day group at 90 days

Difference, -1.6% (95% CI, -4.0-0.8) - noninferior

Modified intention to treat and per protocol also showed noninferiority

Longer durations of antibiotics were given in 23.1% of 7 day group vs 10.7% in 14 day group

Results

Analysis	7 Days	14 Days	Risk Difference (95% CI)
	no. of events/total no.		*percentage points*
Intention-to-treat	261/1802	286/1779	−1.6 (−4.0 to 0.8)
Per-protocol	178/1370	222/1483	−2.0 (−4.5 to 0.6)
Modified intention-to-treat	247/1788	272/1765	−1.6 (−3.9 to 0.7)

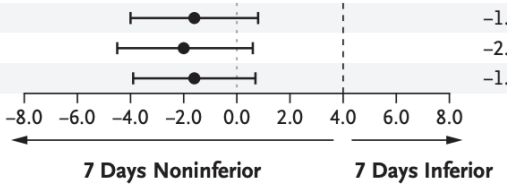


Figure 2. Primary Outcome According to Analysis.

Shown are the differences between the groups in the primary outcome — death from any cause by 90 days after the date of diagnosis of a bloodstream infection — in the intention-to-treat, per-protocol, and modified intention-to-treat analyses. The modified intention-to-treat analysis excluded patients who died before day 7 of treatment (i.e., before divergence in the treatment-duration assignment). A 95.7% confidence interval is shown for the intention-to-treat analysis (accounting for alpha spending in interim analyses), and 95% confidence intervals are shown for the other two analyses. The widths of the confidence intervals have not been adjusted for multiplicity. The dashed line indicates the noninferiority margin of 4 percentage points.

Limitations

Did not include Staph aureus - a common cause of BSI with high morbidity and mortality

Predominantly Canadian hospitals (75%)

UTIs 40% of study population

4% non-inferiority margin used

Non adherence rate high

Bottom line

Solid evidence that 7 day course of antibiotics sufficient to treat most bloodstream infections

Not powered to examine different sources of BSI

Multivitamin Use and Mortality Risk in 3 Prospective US Cohorts

Erikka Loftfield, PhD, MPH; Caitlin P. O'Connell, MPH; Christian C. Abnet, PhD, MPH; Barry I. Graubard, PhD; Linda M. Liao, PhD; Laura E. Beane Freeman, PhD; Jonathan N. Hofmann, PhD; Neal D. Freedman, PhD, MPH; Rashmi Sinha, PhD

JAMA Network Open. 2024;7(6):e2418729

Why it Matters

High usage of multivitamins (⅓ Adults)

Unclear impact on morbidity and mortality.

It is important to know if MV are preventing disease.

Funding

- This work was supported by the intramural research program of the National Institutes of Health, the National Institute of Environmental Health Sciences (grant No. Z01-ES049030)
- National Cancer Institute (grant No. Z01-CP010119)
- Office of Dietary Supplements Research Scholars Award, National Institutes of Health.

Methods

- Cohort Study
  - NIH-AARP Diet and Health Study
  - PLCO Cancer Screening Trial
  - Agricultural Health Study
- Final sample 390, 124 participants,
  - 234, 593 in time varying analyses
- Exposure: Multivitamin use 1993-2001 and f/u 1998-2004
- Baseline and f/u questionnaires, data analysed from 2022-2024.

Methods

- MV use
- Baseline and f/u questionaires
- Covariates
- MV use daily vs nondaily
- National Death Index
- Cause specific mortality

Table 1. Participants, Follow-Up Time, and Deaths in the 3 Cohorts

Characteristic	No.			
	AARP	PLCO	AHS	Total
Participants in study	327 732	42 732	19 660	390 124
Follow-up, person-years	6 576 546	827 313	457 626	7 861 485
Follow-up, median (IQR), y	23.5 (17.9-23.6)	21.3 (15.7-23.5)	23.9 (23.0-25.2)	23.5 (18.0-23.6)
All-cause mortality	145 632	15 898	3232	164 762
Diseases of the heart mortality	31 135	3221	704	35 060
Cancer mortality	44 197	4605	1034	49 836
Cerebrovascular diseases mortality	8143	945	187	9275

Methods

Statistical Analysis

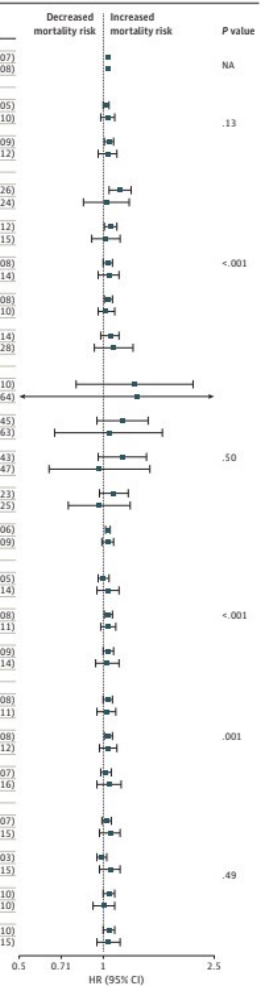
- Cox proportional hazards models
  - MV use and mortality
- Adjusted for:
  - Age, sex, race/ethnicity, education, BMI, smoking, alcohol, diet, physical activity, family history, and other supplements.
- Time-varying analysis
- Cause specific mortality analyzed

Results

- 55% Male, median age 61
- All cause mortality
- Heart Disease Mortality
- Cancer Mortality
- Cerebrovascular Mortality

Figure 1. Stratified Baseline Estimates for the Association of Daily Multivitamin Use and All-Cause Mortality (N = 390 124)

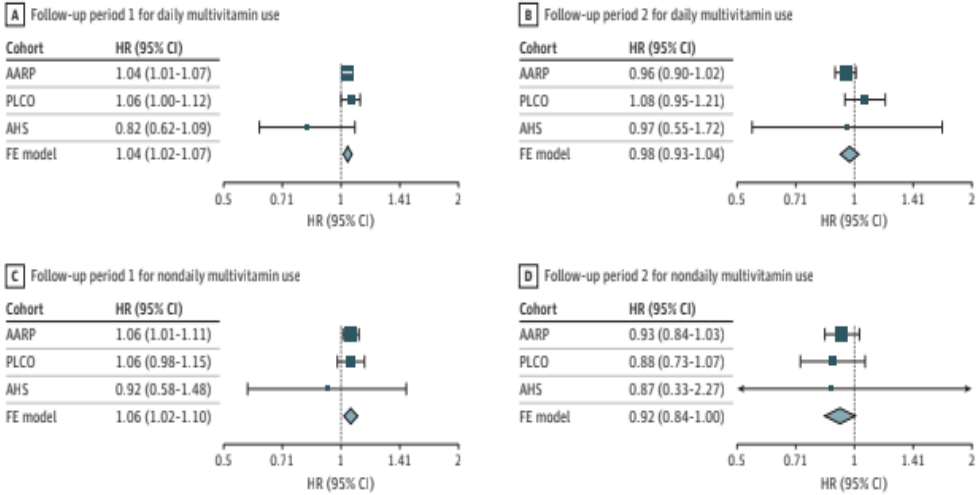
Variable	Deaths, No. for daily users/No. for nonusers	HR (95% CI)	P value
Overall			
Follow-up period 1	17 843/19 025	1.04 (1.02-1.07)	
Follow-up period 2	52 834/56 733	1.04 (0.99-1.08)	NA
Sex			
Males			
Follow-up period 1	10 698/13 040	1.02 (1.00-1.05)	
Follow-up period 2	29 126/36 688	1.04 (0.98-1.10)	.13
Females			
Follow-up period 1	7145/5985	1.05 (1.01-1.09)	
Follow-up period 2	23 708/20 045	1.04 (0.96-1.12)	
Age category, y			
<55			
Follow-up period 1	936/1084	1.15 (1.05-1.26)	
Follow-up period 2	3632/4583	1.03 (0.85-1.24)	
55-59			
Follow-up period 1	2599/2903	1.06 (1.01-1.12)	
Follow-up period 2	8692/9779	1.02 (0.91-1.15)	
60-64			
Follow-up period 1	4831/5196	1.04 (1.00-1.08)	<.001
Follow-up period 2	15 179/16 225	1.05 (0.96-1.14)	
65-69			
Follow-up period 1	7932/8295	1.04 (1.01-1.08)	
Follow-up period 2	21 733/22 328	1.02 (0.96-1.10)	
≥70			
Follow-up period 1	1545/1547	1.06 (0.98-1.14)	
Follow-up period 2	3598/3818	1.09 (0.93-1.28)	
Race and ethnicity			
American Indian or Alaska Native			
Follow-up period 1	40/52	1.29 (0.80-2.10)	
Follow-up period 2	121/117	1.32 (0.48-3.64)	
Asian or Pacific Islander			
Follow-up period 1	190/212	1.17 (0.95-1.45)	
Follow-up period 2	613/614	1.05 (0.67-1.63)	
Hispanic			
Follow-up period 1	207/247	1.17 (0.96-1.43)	.50
Follow-up period 2	727/829	0.97 (0.64-1.47)	
Non-Hispanic Black			
Follow-up period 1	518/700	1.09 (0.97-1.23)	
Follow-up period 2	1383/1875	0.97 (0.75-1.25)	
Non-Hispanic White			
Follow-up period 1	16 888/17 841	1.04 (1.02-1.06)	
Follow-up period 2	49 990/53 298	1.04 (0.99-1.09)	
Smoking status			
Never			
Follow-up period 1	4523/4766	1.00 (0.96-1.05)	
Follow-up period 2	18 912/19 884	1.04 (0.95-1.14)	
Former			
Follow-up period 1	9278/9404	1.04 (1.01-1.08)	<.001
Follow-up period 2	26 896/27 801	1.04 (0.98-1.11)	
Current			
Follow-up period 1	4042/4855	1.04 (1.00-1.09)	
Follow-up period 2	7026/9048	1.03 (0.94-1.14)	
BMI category			
18.5 to <25			
Follow-up period 1	6977/6350	1.04 (1.00-1.08)	
Follow-up period 2	19 736/18 273	1.03 (0.95-1.11)	
25 to < 30			
Follow-up period 1	6984/7851	1.04 (1.01-1.08)	.001
Follow-up period 2	22 034/24 791	1.04 (0.97-1.12)	
≥30			
Follow-up period 1	3519/4536	1.02 (0.98-1.07)	
Follow-up period 2	10 451/13 125	1.05 (0.95-1.16)	
HEI-2015 quartile			
Quartile 1			
Follow-up period 1	4715/6839	1.03 (0.99-1.07)	
Follow-up period 2	10 574/16 851	1.06 (0.97-1.15)	
Quartile 2			
Follow-up period 1	4484/4917	0.99 (0.95-1.03)	
Follow-up period 2	12 477/14 591	1.06 (0.97-1.15)	.49
Quartile 3			
Follow-up period 1	4345/4077	1.05 (1.00-1.10)	
Follow-up period 2	13 767/13 339	1.01 (0.92-1.10)	
Quartile 4			
Follow-up period 1	4299/3192	1.05 (1.00-1.10)	
Follow-up period 2	16 016/11 952	1.04 (0.95-1.15)	



Results

- Over 390 000 adults
- Over 20 years f/u
- ***Daily MV does not lower mortality***
- Possibly link to 4% mortality increase

Figure 2. Meta-Analysis of the Time-Varying Estimates for the Association of Multivitamin Use and All-Cause Mortality



Limitations

- Observational design
- Potential misclassification of MV
- Recall errors
- Missing data
- Mostly white participants, limiting diversity
- Differences in MV composition and confounding
- MV users may be more health conscious

Bottom Line

Did not find evidence to support improved longevity among healthy adults who take regular multivitamins.

Effectiveness and cost-effectiveness of an individualised, progressive walking and education intervention for the prevention of low back pain recurrence in Australia (WalkBack): a randomised controlled trial

Natasha C Pocovi, Chung-Wei Christine Lin, Simon D French, Petra L Graham, Johanna M van Dongen, Jane Latimer, Dafna Merom, Anne Tiedemann, Christopher G Maher, Ornella Clavisi, Shuk Yin Kate Tong, Mark J Hancock

Lancet 2024; 404: 134-44.

Why it Matters

- Back pain = common and substantial contributor to disease
- Exercise (walking) is recommended as prevention
- Investigate *clinical effectiveness* and *cost effectiveness* of walking program

Funding

- National Health and Medical Research Council funded the trial (APP1161889).
- Low back pain centre of research

Methods

WalkBack

- Randomized controlled trial
  - Two arms
- 25 physiotherapy clinics
- Australia
- Prospectively registered
- Adults recovered from recent (6 mo) low back pain episode
- Recovery = 7 consecutive pain free days (≤1 on a 0–10 scale)
- Exclusion: unsafe walking, regular exercise, recent spine surgery, pregnancy, unable to complete questionnaire

Methods

WalkBack

- Primary Outcome
  - Time from randomization to first recurrence of activity limiting back pain
  - Monthly f/u x 3 y
- Secondary Outcome
  - Any recurrence of pain
  - Care-seeking recurrence
  - Patient reported disability, QOL, behaviour, adverse event
  - Objective physical activity
  - Economic Evaluation

Methods

- 3206 screened
- 701 enrolled
- Mean age 54
- 81% Female
- Follow-up 96%

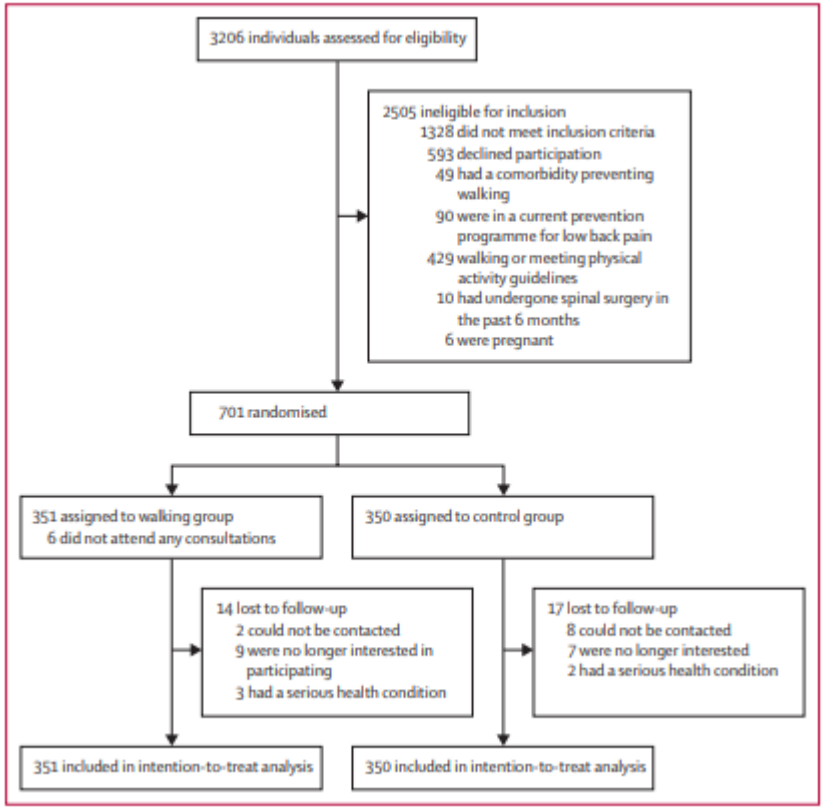


Figure 1: **Trial profile**

Methods

WalkBack

- Non-specific low back pain
  - pain b/w 12th rib and buttocks crease x 24h
  - Not attributable to a specific diagnosis (vertebral fracture, infection, cancer)
  - Pain intensity greater than 2 on a 0-10 scale
  - Interference with day to day activity
- Intervention
  - 6 session with physiotherapist
  - 5 by 12 weeks, 1 at 6 months
  - Individualized progressive walking program
  - Pedometer, diary, and education provided
  - Target 5/week for 30mins by 6 months

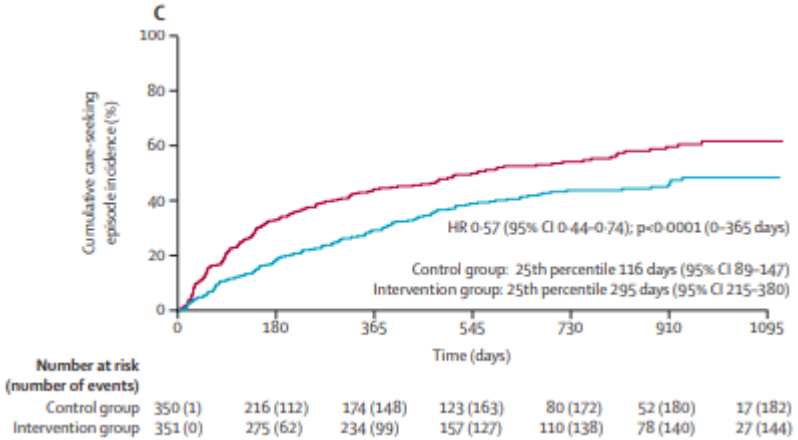
Methods

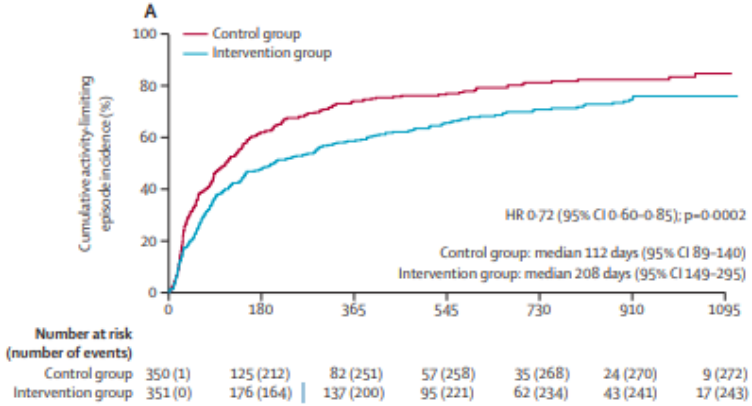
Statistical Analysis

- Primary Outcome analyzed using Cox regression and calculated median days to recurrence
  - Powered to detect 25% reduction in recurrence in pain
  - 349 participants per group
  - Intention to treat principle
- Secondary Outcomes assessed with linear mixed effects models
- Accelerometer Data
- Economic Evaluation over 12 months, all available cost and effect values
  - Costs associated with intervention (attendance, pedometer, printing costs)
  - Healthcare costs of back pain (hospital, health care services, medications)

Results

- Walking Intervention reduced recurrence by 28% (HR 0.72, p+0.0002)
- Median time to recurrence 208 vs 112 days





Results

- Secondary Outcomes
  - Reduced risk of any recurrence
  - Disability and QOL scores improved
- Economic Outcomes
  - Costs higher in intervention group
  - Intervention gained more QALY and prevented recurrence
  - 94% chance of being cost-effective
- Safety
  - similar adverse events, more therapies in control group.

Bottom Line

Individualized progressive walking and education intervention reduced risk of low back pain recurrence and was likely cost effective.

Research

JAMA Internal Medicine | Original Investigation

Butter and Plant-Based Oils Intake and Mortality

Yu Zhang, MBBS; Katia S. Chadaideh, PhD; Yanping Li, PhD; Yuhan Li, SM; Xiao Gu, PhD; Yuxi Liu, PhD; Marta Guasch-Ferré, PhD; Eric B. Rimm, ScD; Frank B. Hu, MD, PhD; Walter C. Willett, MD, DrPH; Meir J. Stampfer, MD, DrPH; Dong D. Wang, MD, ScD

JAMA Intern Med. 2025;185(5):549-560.
doi:10.1001/jamainternmed.2025.0205
Published online March 6, 2025.

Why it Matters

- Diet is known to be a major factor in Mortality and Morbidity
- This study addressed the question of whether the source of fat predominant in the diet is associated with important differences in outcomes.

Funding

- Government

  National Institute of Health USA

- Location- Three large cohort studies performed in USA.

Methods

- *prospective population-based cohort study*
- *Data from 3 large cohorts:*
  - *the Nurses' Health Study (1990-2023), t*
  - *The Nurses' Health Study II (1991-2023)*
  - *The Health Professionals Follow-up Study (1990-2023).Women and men*
- *Subjects were free of cancer, cardiovascular disease (CVD), diabetes, or neurodegenerative*
- *disease at baseline were included.*

Methods

- Study Design: Cohort Study

EXPOSURES Primary exposures included intakes of butter (butter added at the table and from cooking) and plant-based oil (safflower, soybean, corn, canola, and olive oil). Diet was assessed by validated semiquantitative food frequency questionnaires every 4 years.

Results

Table 3. Association of Intakes of Different Butter or Oil Types With Total Mortality Risk[a]

Variable	Levels of intake[b] Level 1	Level 2	Level 3	Level 4	*P* for trend	Total mortality[c]
Butter from baking and frying						
Median intake (NHS/NHSII/HPFS), g/d	0.0/0.0/0.0	1.9/1.8/2.1	3.6/3.4/3.9	6.7/5.8/7.2	NA	NA
Total No. of cases	48 218	1818	639	257	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	0.98 (0.93-1.02)	1.05 (0.97-1.13)	1.13 (1.00-1.28)	.19	1.04 (0.98-1.11)
Model 2, HR (95% CI)[e]	1 [Reference]	0.98 (0.93-1.02)	1.01 (0.94-1.10)	1.04 (0.92-1.18)	.91	1.00 (0.94-1.07)
Butter added to food or bread						
Median intake (NHS/NHSII/HPFS), g/d	0.0/0.1/0.0	2.6/2.5/2.1	5.0/5.0/4.5	12.5/10.8/11.0	NA	NA
Total No. of cases	39 716	9615	2864	2037	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	1.06 (1.03-1.09)	1.10 (1.06-1.15)	1.23 (1.18-1.29)	<.001	1.10 (1.08-1.12)
Model 2, HR (95% CI)[e]	1 [Reference]	1.03 (1.00-1.05)	1.03 (0.99-1.07)	1.09 (1.04-1.14)	<.001	1.04 (1.02-1.05)
Corn oil						
Median intake (NHS/NHSII/HPFS), g/d	0.0/0.0/0.0	1.3/1.3/1.8	2.7/2.3/3.5	4.9/4.1/6.7	NA	NA
Total No. of cases	47 847	1980	827	278	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	1.03 (0.98-1.09)	1.11 (1.03-1.20)	1.15 (1.01-1.30)	.001	1.14 (1.06-1.23)
Model 2, HR (95% CI)[e]	1 [Reference]	1.01 (0.96-1.06)	1.09 (1.01-1.17)	1.05 (0.92-1.19)	.09	1.07 (0.99-1.15)
Safflower oil						
Median intake (NHS/NHSII/HPFS), g/d	0.0/0.0/0.0	1.0/0.8/1.2	1.9/1.4/2.2	3.9/3.2/4.6	NA	NA
Total No. of cases	50 396	322	148	66	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	0.90 (0.80-1.00)	0.98 (0.83-1.15)	0.91 (0.72-1.16)	.11	0.84 (0.67-1.04)
Model 2, HR (95% CI)[e]	1 [Reference]	0.94 (0.84-1.04)	1.03 (0.87-1.21)	0.91 (0.72-1.16)	.33	0.90 (0.72-1.11)
Canola oil						
Median intake (NHS/NHSII/HPFS), g/d	0.0/0.0/0.0	1.5/1.3/1.7	3.0/2.6/3.2	5.4/4.8/5.9	NA	NA
Total No. of cases	47 839	2201	653	239	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	0.89 (0.85-0.94)	0.89 (0.82-0.97)	0.86 (0.75-1.00)	<.001	0.80 (0.74-0.87)
Model 2, HR (95% CI)[e]	1 [Reference]	0.93 (0.89-0.98)	0.90 (0.82-0.98)	0.90 (0.78-1.04)	<.001	0.85 (0.78-0.92)
Soybean oil						
Median intake (NHS/NHSII/HPFS), g/d	1.6/1.5/1.4	4.6/4.5/4.1	8.6/8.2/7.0	14.1/13.0/11.4	NA	NA
Total No. of cases	31 116	14 329	4271	1216	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	0.95 (0.92-0.98)	0.89 (0.84-0.93)	0.94 (0.87-1.01)	<.001	0.95 (0.92-0.97)
Model 2, HR (95% CI)[e]	1 [Reference]	0.93 (0.90-0.96)	0.89 (0.84-0.93)	0.91 (0.84-0.98)	<.001	0.94 (0.91-0.96)
Olive oil						
Median intake (NHS/NHSII/HPFS), g/d	0.5/0.6/0.5	7.3/7.3/5.9	14.1/14.1/10.3	23.6/23.0/18.5	NA	NA
Total No. of cases	43 295	5480	1571	574	NA	NA
Model 1, HR (95% CI)[d]	1 [Reference]	0.81 (0.79-0.84)	0.71 (0.67-0.75)	0.73 (0.67-0.80)	<.001	0.88 (0.87-0.89)
Model 2, HR (95% CI)[e]	1 [Reference]	0.89 (0.86-0.91)	0.80 (0.76-0.84)	0.82 (0.76-0.89)	<.001	0.92 (0.91-0.94)

Methods

MAIN OUTCOMES AND MEASURES

Primary Outcome: Total mortality

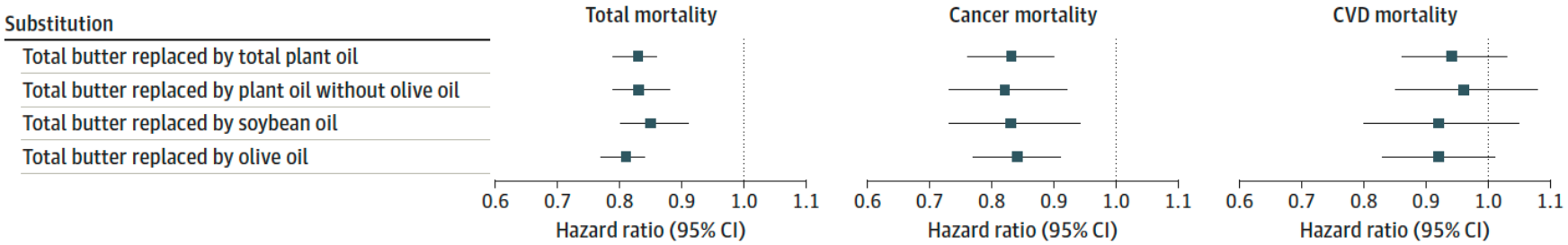
Secondary Outcomes: Mortality due to cancer and Cardiovascular Disease.

Deaths were identified through the National

Death Index and other sources. A physician classified the cause of death based on death certificates and medical records.

Results

Figure. Estimated Effects of Substituting Butter With Different Plant-Based Oils on Mortality Risk



Results

Replacing 10g/day of total butter intake by an equivalent amount of total plant-based oil was associated with an estimated 17% reduction in total mortality

(HR, 0.83; 95% CI, 0.79-0.86;

P < .001), a 17%reduction in cancer mortality (HR, 0.83; 95%

CI, 0.76-0.90; P < .001)

Results

- 15% higher all cause mortality in those who consumed butter relative to plant based oils.

Strengths

Large sample size

Long follow-up duration
Repeated measurements of

However, the study also has several limitations. First, dietary data from FFQs and

Limitations

Participants may have altered their Diets over time (perhaps in response to chronic disease)

Participants may have mistakenly reported margarine intake as butter

Participants were mostly white and health care professionals.

Limitations

Diet was self reported

Bottom Line

- 15% higher all cause mortality in those who consumed butter relative to plant based oils.

nature medicine

Article

https://doi.org/10.1038/s41591-025-03628-4

Liberal fluid intake versus fluid restriction in chronic heart failure: a randomized clinical trial

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Accepted: 4 March 2025

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Check for updates

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Why It Matters

Patient with Congestive Heart Failure are often advised ot restrict fluid. Is this advice worthwhile?

Methods

Randomized Controlled Study Congestive Heart Failure outpatients.

504 Patients

Advice for liberal fluid intake versus receiving advice for fluid restriction, up to 1,500 ml per day

Kansas City, Missouri, USA

Methods

Primary outcome

Health status after 3 months,

(Kansas City Cardiomyopathy Questionnaire)

Secondary outcomes

Thirst

Distress

Safety events.

Results

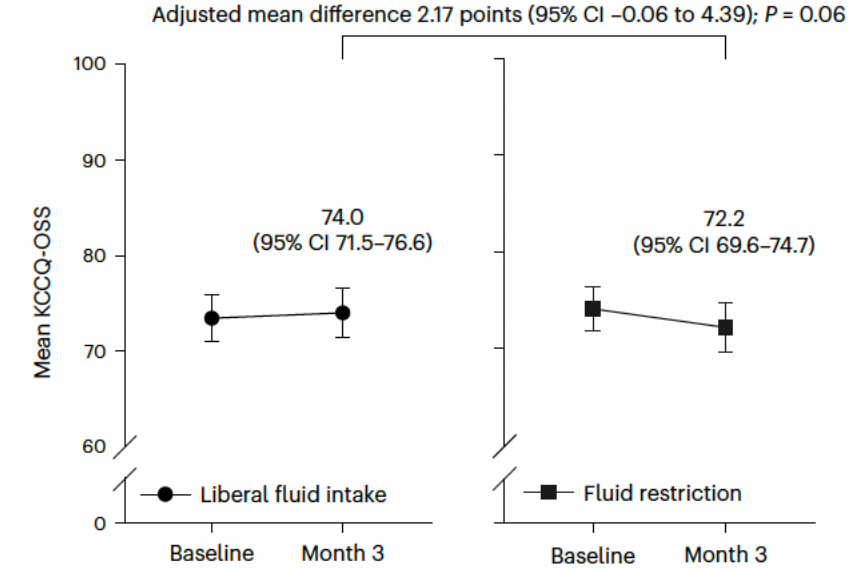

Fig. 2 | Primary outcome: changes in KCCQ-OSS at 3 months. The primary outcome, KCCQ-OSS after 3 months, was 74.0 (95% CI 71.5 to 76.6) in the liberal fluid intake group ($n = 242$) versus 72.2 (95% CI 69.6 to 74.7) in the fluid restriction group ($n = 233$), with a mean difference after adjustment for baseline scores of 2.17 (95% CI −0.06 to 4.39; $P = 0.06$). KCCQ-OSS values are unadjusted means (95% CI).

Results

No Significant Difference in CHF? Severity Scores.

The Fluid restriction group was thirstier

There was no difference in Safety events

Strengths

Randomized controlled study

Relatively large

Limitations

We do not know if the patients followed the Fluid restriction advice.

Not blinded

Bottom Line

Fluid Restriction is not indicated for most patients with CHF

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MARCH 6, 2025 VOL. 392 NO. 10

Male-Partner Treatment to Prevent Recurrence of Bacterial Vaginosis

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Why It Matters

Recurrent Bacterial Vaginosis is a common problem. It is unclear if treatment of male partners is an effective strategy.

Methods

Open-label, randomized, controlled trial of couples in which a woman had bacterial vaginosis and was in a monogamous relationship with a male partner

Methods

In the partner-treatment group, the woman received first-line recommended antimicrobial agents and the male partner received oral and topical antimicrobial treatment (metronidazole 400-mg tablets and 2% clindamycin cream applied to penile skin, both twice daily for 7 days).

Methods

In the control group, the woman received first-line treatment and the male partner received no treatment (standard care). The primary outcome was recurrence of bacterial vaginosis within 12 weeks.

Results

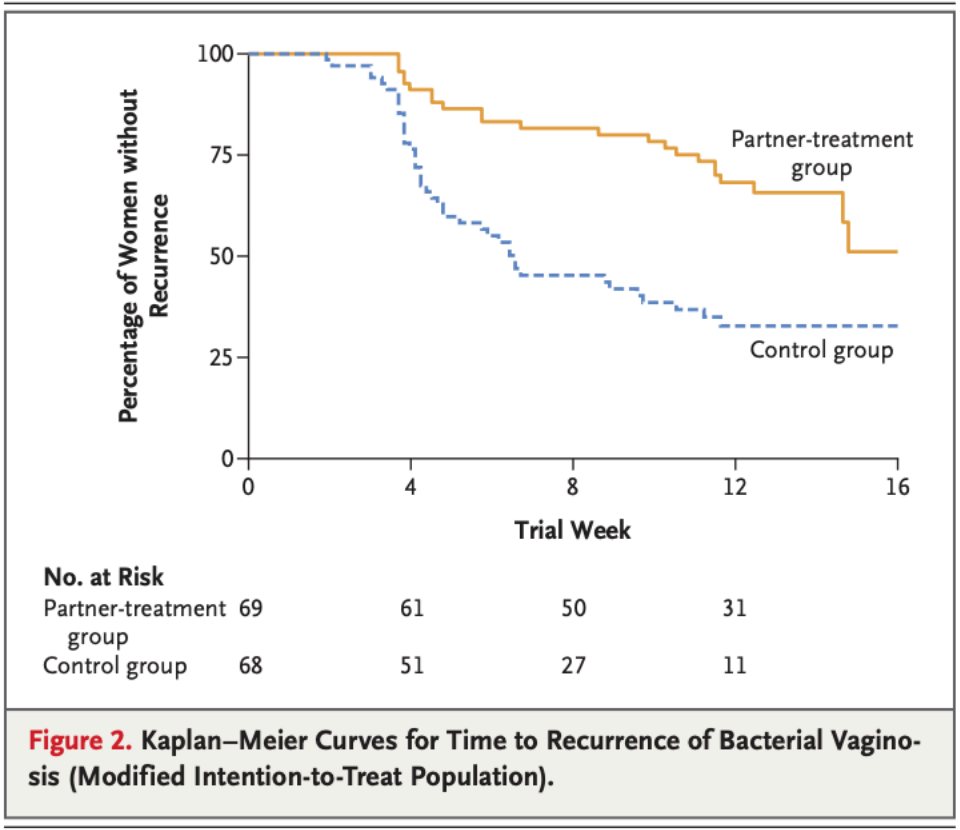

Figure 2. Kaplan–Meier Curves for Time to Recurrence of Bacterial Vaginosis (Modified Intention-to-Treat Population).

Strengths

Randomized

Included Topical treatment of male partners

Limitations

Participants attended one sexual health service and maybe higher risk than the general population.

The distribution of different ethnic groups was representative of urban Australia, although there were few Aboriginal or Torres Strait Islander women.

The trial was stopped early at the interim analysis because of a significant difference between the two groups.

Few couples (nine) reported sex with an additional partner during the trial; it is possible that some did not disclose concurrent partners.

Treated men were asked specifically about adverse events; we do not have data on the occurrence of adverse events in the control group.

Participants and clinicians were not blinded but the laboratory staff and microscopist assessing the primary outcome were not.

Bottom Line

Treating male partners with a week of oral metronidazole and topical clindamycin, together with treatment of women, resulted in a lower rate of recurrence of bacterial vaginosis.

Research

Switching from a 2-dose to a 1-dose program of gender-neutral routine vaccination against human papillomavirus in Canada: a mathematical modelling analysis

Mélanie Drolet PhD, Jean-François Laprise PhD, Éléonore Chamberland MSc, Chantal Sauvageau MD MSc, Sarah Wilson MD MSc, Gillian H. Lim MSc, Gina Ogilvie MD DrPH, Ashleigh Tuite PhD MPH, Marc Brisson PhD

Cite as: *CMAJ* 2024 October 7;196:E1136-43. doi: 10.1503/cmaj.240787

Why It Matters

HPV vaccine guidelines for Canada use a two dose regime.

A one dose regime would allow resources to be re-directed to increasing uptake of the vaccine

Funding

Public Health Agency of Canada, the Canadian

Institutes of Health Research

The Bill and Melinda Gates Foundation

(PATH/Single dose

HPV vaccine evaluation consortium),

Canadian Immunization Research Network.

Methods

HPV-ADVISE, an individual-based transmission-dynamic model of HPV infections and diseases, was used to mathematically model vaccination programs in 2 provinces.

-Quebec, a province with high HPV vaccination coverage (around 85%)

-Ontario, which has lower coverage (around 65%).

We examined non-inferior and pessimistic scenarios of the efficacy (vaccine efficacy of 98% or 90%) and average vaccine duration (lifelong, 30 yr, or 25 yr) of 1 dose compared with 2 doses (98% vaccine efficacy, lifelong vaccine duration).

Main outcomes were the relative reduction in HPV-16 (by sex) and cervical cancers, and the number of doses needed to prevent 1 cervical cancer.

Methods

Non-inferior and pessimistic scenarios of the efficacy (vaccine efficacy of 98% or 90%) and average vaccine duration (lifelong, 30 yr, or 25 yr) of 1 dose compared with 2 doses (98% vaccine efficacy, lifelong vaccine duration).

Methods

Primary Outcome

Reduction in HPV-16 (by sex) and cervical cancers, and the number of doses needed to prevent 1 cervical cancer.

Results

1-dose HPV vaccination would avert a similar number of cervical cancers as 2 doses in Canada, under various scenarios.

-Under the most pessimistic Scenario (25-yr vaccine duration), 1-dose vaccination would avert fewer cervical cancers than 2 doses, by about 3 percentage points over 100 years.

Results

Using the WHO threshold of Cancer Elimination Goal (<4cases/100,000 female-years)

All the mathematical scenariors achieved this goal

Using the most pessimistic modeling, it lead to elimination of cervical cancer in Canada between 2032-2040

Bottom Line

NACI has already updated guidelines!!

As a family physician, what is most important to remember is:

-Routine vaccination occursb9-13 years old, gender-neutral.

-For the routine group (under 15), a single dose is now often considered sufficient.

-Older individuals (15+) require 2 doses (or 3 if immunocompromised).

Use the data to help educate and reduce anxiety of caregivers to the updated vaccine schedules

Age and Ageing 2025; **54:** afaf004
https://doi.org/10.1093/ageing/afaf004

RESEARCH PAPER

Early detection and management of hearing loss to reduce dementia risk in older adults with mild cognitive impairment: findings from the treating auditory impairment and cognition trial (TACT)

Ruan-Ching Yu[1], Menelaos Pavlou[2], Anne G.M. Schilder[3,4,5], Doris-Eva Bamiou[3], Glyn Lewis[1,6], Frank Robert Lin[7], Gill Livingston[1,6], Danielle Proctor[6,8], Rumana Omar[2], Sergi G. Costafreda[1,6]

Why It Matters

*Age-related hearing loss and mild cognitive impairment (MCI) independently increase **dementia risk***

Previous research (ACHIEVE RCT) suggested that hearing aids **reduce cognitive decline** in older adults who are already at high risk

Can we get high-risk groups to **use their hearing aids consistently and change outcomes?**

Why It Matters

Prior Studies have shown that Hearing aids increase performance on Cognitive tests in this population by 27%

Bucholc M, Mcclean PL, Bauermeister S et al. Association of the use of hearing aids with the conversion from mild cognitive impairment to dementia and progression of dementia: a longitudinal retrospective study. Alzheimer Dement (NY). 2021;7:e12122.

Funding

This study was funded by Alzheimer's Research UK (ARUK-PRRF2017-001) and supported by the National Institute for Health and Care Research University College London Hospitals Biomedical Research Centre.

GL, AGMS and SGC are supported by the National Institute for Health and Care Research Programme Grants for Applied Research (NIHR203670).

Methods

Feasibility study

Randomized Controlled Trial

London, UK memory clinics

58 people ≥55 years with untreated hearing loss and mild cognitive impairment.

Treatment Group

immediate hearing aid fitting and dispensing

Control group

Healthy ageing education and a GP (FP) letter recommending audiological referral.

Both were followed for 6 months.

Methods

Primary outcomes

***Recruitment** (feasibility target: 50%; 95% CI: 39%–*

*61%) and **retention** (feasibility target: 80%; 95% CI: 71%–89%); **intervention** completion (≥2 visits) and hearing aid use*

(acceptability target: 80%; 95% CI: 71%–89%) for the intervention group and 50% difference between arms (95% CI:

31%–69%).

Methods

Secondary outcome

Hearing aid fitting

Cognition on multiple measures

Results

Figure 2. CONSORT Summary of recruitment and follow-up of participants in the study.

Table 1. Baseline demographic and clinical characteristics of 58 participants with MCI and hearing loss.

	Intervention Mean (SD) /N (%)	Control Mean (SD) /N (%)
Demographics	79.9 (7.4)	77.8 (6.4)
Age at screening (years)		
Female gender	9 (32%)	11 (41%)
White British or other white background	22 (76%)	23 (79%)
Hearing		
Have you ever used hearing aids (single question)	11 (38%)	12 (41%)
Any self-perceived hearing loss (single question)	19 (66%)	18 (62%)
Any self-perceived hearing loss (single question)	19 (66%)	18 (62%)
At least moderate hearing handicap (HHIE-S ≥ 10)	18 (61%)	18 (61%)
PTA 0.5–4 kHz: right ear (dB HL)	37.4 (10.2)	37.1 (17.6)
PTA 0.5–4 kHz: left ear (dB HL)	39.9 (11.5)	39.9 (16.2)
QuickSIN average (dB SNR)	9.2 (3.8)	8.3 (6.5)
Medical history		
Any cardio-vascular condition	19 (68%)	23 (85%)
Diabetes	3 (11%)	10 (37%)
High blood pressure	13 (46%)	18 (67%)
Ischaemic heart disease	8 (29%)	2 (7%)
Stroke	5 (18%)	6 (22%)
Ever smoked	20 (71%)	19 (70%)
Alcohol intake (units/week)	4.1 (5.8)	8.5 (14.4)
Falls (times in the last 6 months)	0.6 (1.0)	1.2 (3.7)
Communication partner's participation	2 (10%)	0 (0%)

HHIE-S, Hearing Handicap Inventory for the Elderly Screening Version; N, number of participants; PTA, pure tone average; QuickSIN, Quick Speech-In-Noise test. SD, standard deviation. SNR: Speech-to-noise ratio.

Results

Table 2. Hearing aid outcomes of TACT hearing intervention in MCI populations with hearing loss

Outcomes	Intervention group	Control group	% Difference [95% CI]
Number randomised	29	29	-
Intervention completion rate (2 visits or more)	24/29 (83%)	21/29 (72%)	+10.3% [−11%, 32%]
[a]Hearing aids outcomes at 6 m			
Fitted with hearing aids	24/29 (83%)	6/29 (21%)	+62% [42%, 82%]
Self-reported use (IOI-HA)			
Mean daily use in hours (SD)	5.3 (4.6)	1.8 (4.2)	-
Daily use >0 hr	18/24 (75%)	5/23 (22%)	+53% [29%, 77%]
[a] Daily use ≥4 hr	13/24 (54%)	3/23 (13%)	+41% [17%, 65%]

[a]Indicates the secondary outcomes; hr, hours; CI, confident interval; numbers are number of participants and percentage, except for daily hearing use in hours, with SD, standard deviation. IOI-HA: International Outcome Inventory for Hearing Aids [27].

Results

Table 3. Baseline and 6-month measures of cognition, hearing disability, depression, quality of life, loneliness, social functioning and physical function outcomes in both groups and the intervention effect.

Outcomes	Baseline		6-month follow up		Intervention effect[a] (95% CI)
	Intervention mean (SD)	Control mean (SD)	Intervention mean (SD)	Control mean (SD)	
Cognition					
ACE-III total score	78.3 (13.0)	78.6 (16.7)	80.9 (10.6)	80.8 (15.5)	+1.2 (−1.9, 4.2)
Memory	17.8 (6.0)	18.9 (6.3)	18.7 (5.8)	19.6 (6.6)	+0.5 (−1.4, 2.4)
TMT-A—processing speed	64.8 (52.4)	56.1 (41.6)	57.9 (42.0)	45.2 (20.3)	−2.7 (−14.3, 9.0)
TMT-B—cognitive flexibility	141.7 (63.8)	123.4 (56.2)	142.3 (60.1)	135.9 (64.0)	−8.6 (−33.9, 16.6)
DWRT—total words recalled	2.7 (2.3)	3.4 (1.8)	3.2 (2.9)	2.9 (2.2)	+1.0 (−0.3, 2.3)
Hearing disability					
HHIE-S	14.6 (12.4)	13.2 (9.8)	10.1 (11.1)	12.8 (9.0)	−3.3 (−9.7, 3.1)
Depression					
GDS	3.3 (2.6)	3.9 (3.5)	2.3 (1.9)	5.1 (4.3)	−2.1 (−4.0, −0.3)
Quality of life					
SF-36—general health	58.8 (21.9)	54.6 (25.0)	56.9 (22.7)	47.8 (26.4)	+4.8 (−5.3, 14.8)
EQ-5D—your health today	68.3 (23.7)	64.9 (20.9)	70.8 (21.2)	67.4 (20.4)	+0.7 (−10.6, 11.9)
Loneliness					
UCLA loneliness scale score	33.4 (10.0)	37.0 (9.7)	29.9 (5.5)	36.9 (10.0)	−1.8 (−7.8, 4.3)
Social functioning					
SF-DEM total score	27.6 (6.5)	29.1 (6.1)	27.3 (5.6)	29.4 (4.9)	−0.7 (−3.5, 2.0)
Functional independence					
IADL score	3.7 (0.6)	3.7 (0.7)	3.8 (0.4)	3.9 (0.3)	−0.1 (−0.3, 0.2)
Physical strength					
Grip strength average	21.7 (10.0)	22.1 (8.9)	23.5 (8.6)	22.7 (7.6)	0.8 (−1.4, 3.0)

[a]Intervention effects were calculated using linear regression models adjusted for baseline outcome value. ACE-III, Addenbrooke's Cognitive Examination IIIDWRT, Delayed Word Recall Test; EQ-5D, EuroQol-5 Dimension; GDS, Geriatric Depression Scale; HHIE-S, Hearing Handicap Inventory for the Elderly Screening Version; IADL, Brody instrumental activities of daily living scale; N, number of participants; SF-36, 36-Item Short Form Survey; SFDEM, Social Functioning in Dementia Scale; TMT-A & B, Trail Making Test Parts A & B.

Results

Twenty-four participants were fitted with hearing aids in the intervention arm, and 6 in the control arm (difference: 62% [42%–82%]).

At 6 months, retention was 81% [69%–90%]. Hearing intervention completion (≥2 visits) was achieved by 24 (83%).

Daily hearing aid use was reported by 18 (75%) intervention versus 5 (22%) control participants, a difference of 53% [29%–77%].

Cognition on ACE Memory Test was higher in the intervention group (not significant

Results

Cognition: The intervention group showed a slightly better trend in total cognitive scores (ACE-III)

Mood: The intervention group showed a notable reduction in **Geriatric Depression Scale scores** compared to the control group.

Quality of Life: Trends suggested an improvement in self-reported quality of life (SF-36).

Randomized Controlled Study

Strengths

Limitations

Small study with limited power

Single city site

COVID- 19 Lockdown

- Recruitment was stopped
- Many face to face session were changed to virtual.

Bottom Line

Providing a structured pathway for hearing aid fitting and adherence in MCI patients is **not just about hearing**; it may also improve **mood, quality of life, and potentially slow cognitive decline.**

Those identified with MCI, consider hearing testing

Thank you!

Please fill out your session evaluation now!

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