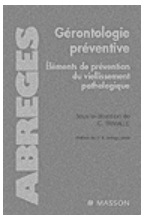
Prévention du déclin cognitif : intérêts de l'alimentation et de l'activité physique

Dr Christophe TRIVALLE
Pôle Vieillissement, Réadaptation et Accompagnement
Hôpital Paul Brousse, APHP
christophe.trivalle@pbr.aphp.fr
Site: gerontoprevention.free.fr

DU Maladie d'Alzheimer et troubles apparentés :

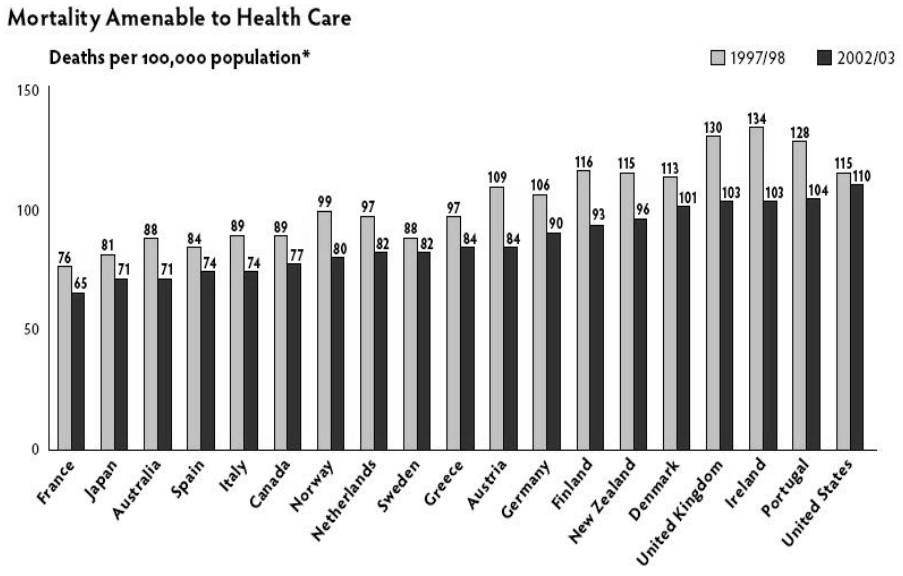
approches cognitives, psychothérapeutiques, comportementales, environnementales et éducatives

DU de Prévention du vieillissement pathologique



Abrégé de Gérontologie préventive

Mortalité évitable avant 75 ans



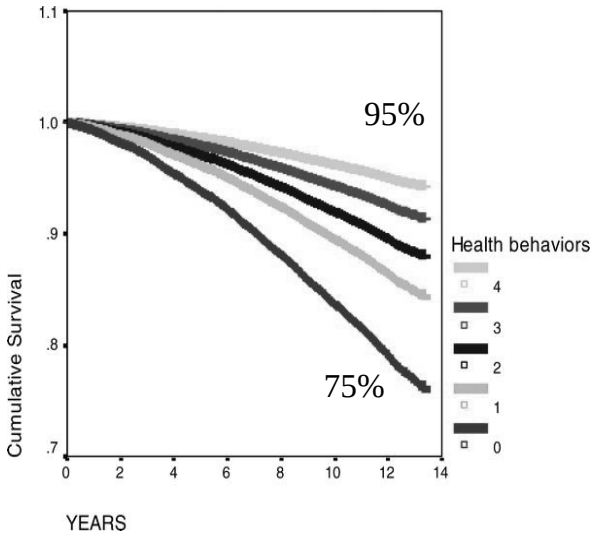
Why Not the Best? Results from the National Scorecard on US Health System Performance, July 2008.

Les différences de mortalité prématurée entre catégories socio-professionnelles sont essentiellement liées au mode de vie et aux pratiques de prévention :

- alcoolisme (+++)
- tabagisme (+++)
- nutrition
- sédentarité
- conduites dangereuses

Combined impact of health behaviours and mortality in men and women: the EPIC-Norfolk prospective population study

Kay-Tee K et al. PLOS Med 2008; 5: e12



- 20 244 personnes suivies pendant 11 ans en moyenne
- Âge : 45 à 79 ans

Étude de 4 attitudes favorables en terme de santé (1 point par item, score de 0 à 4):

•Non fumeur
•Consommation modérée d'alcool (de 1 verre/sem à 2 verres/j)
•Manger 5 fruits et légumes/j
•Pratiquer un exercice physique au moins ½ heure/j

- Ajustement sur sexe, âge, BMI et niveau social

Ceux qui ont un score de 0, ont un risque de décès X 4,4 par rapport à ceux qui ont un score de 4.

Ceux qui ont un score de 4 gagnent 14 ans d'espérance de vie par rapport à ceux qui cumulent les 4 facteurs de risque.

Score de risque de démence à 20 ans

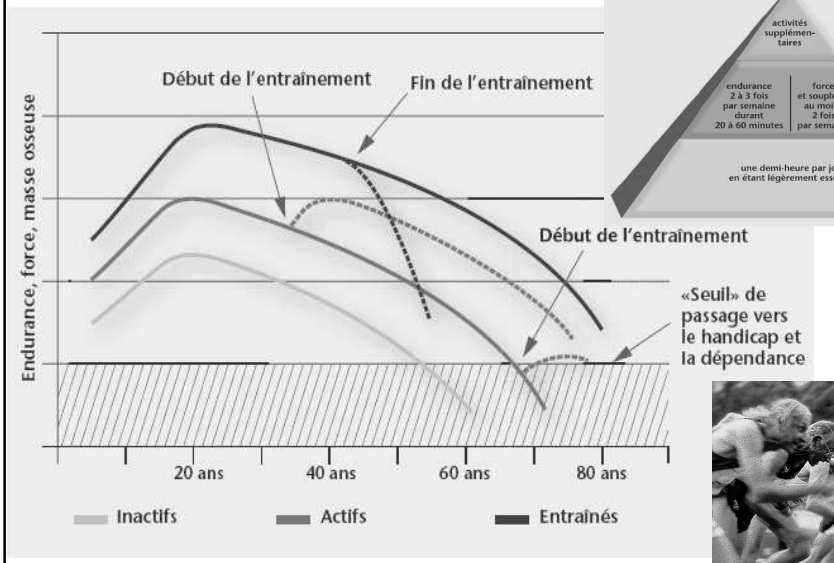
(Population d'âge moyen 50 ans, étude Cardiovascular Risk Factors, Aging and Dementia, CAIDE)

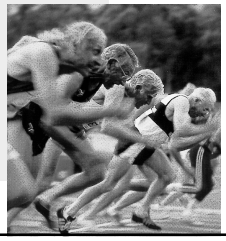
Age	< 47 ans	0
	47-53 ans	3
	> 53 ans	4
Niveau d'études		
	> 10 ans	0
	7-9 ans	2
	< 9 ans	3
Sexe	féminin	0
	masculin	1
Pression artérielle		
	< 140 mmHg	0
	> 140 mmHg	2
IMC	< 30 kg/m^2	0
	> 30 kg/m^2	2
Cholestérol total		
	< 6,5 mmol/l	0
	> 6,5 mmol/l	2
Activité physique		
	oui	0
	non	1

Score total	Risque de démence
0-5	1%
6-7	1,9%
8-9	4,2%
10-11	7,4%
12-15	16,4%

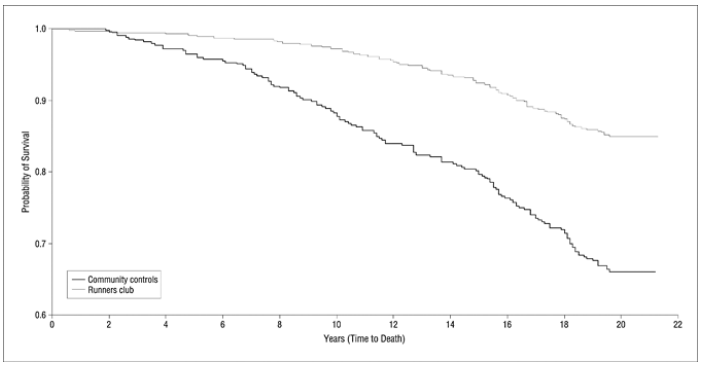
Kivipelto et al. Lancet Neurology 2006;9: 735-41.

Toute activité physique est bénéfique quel que soit l'âge





Kaplan-Meier unadjusted survival curves for all cause mortality in runners club members and community controls from study onset through 19 years of follow-up



Cohorte de patients de 50 ans en moyenne en 1984, 538 membres d'un club de course à pied et 423 contrôles. 19 ans plus tard, 15% des coureurs sont décédés contre 34% des contrôles

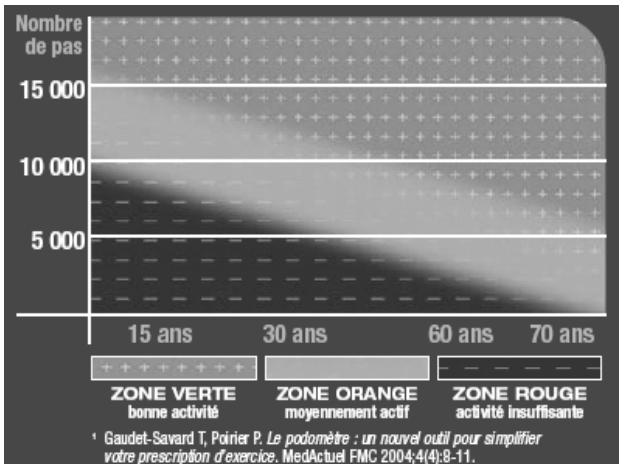
Chakravarty, E. F. et al. Arch Intern Med 2008;168:1638-1646.

ARCHIVES OF INTERNAL MEDICINE

10 000 pas par jour

En moyenne, au bureau, on réalise 2 000 pas par jour

30 minutes de marche sont équivalentes **à 4 000 pas**

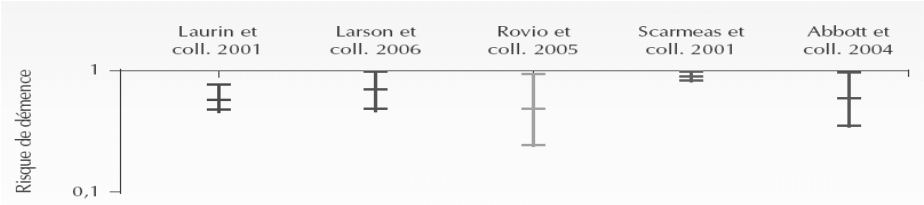


[1] Gaudet-Savard T, Poirier P. *Le podomètre : un nouvel outil pour simplifier votre prescription d'exercice*. MedActuel FMC 2004;4(4):8-11.

Exercice physique et déclin cognitif

Risque de démence : exercice versus sédentarité

Études de cohorte



Age > 65 ans, suivi d'environ 5 ans: les personnes qui faisaient de l'exercice présentaient un risque de diagnostic de démence de 10 à 45% inférieur par rapport aux sédentaires

Laurin et al. Activity and risk of cognitive impairment and dementia in elderly persons. Arch Neurol 2001;38:498-504.

Wang L, Larson EB et al. Performance-based physical function and future dementia in older people. Arch Intern Med 2006;166:1115-1120.

Rovio et al. Leisur-time physical activity at midlife and the risk of dementia and Alzheimer's disease. Lancet Neurol 2005; 4: 705-711.

Scarmeas et al. Influence of leisure activity on the incidence of Alzheimer's disease. Neurology 2001;57:2236-2242.

Abbott et al. Walking and dementia in physically capable elderly men. JAMA 2004;292:1447-1453.

Effects of Physical Activity on Cognitive Functioning in Middle Age: Evidence From the Whitehall II Prospective Cohort Study

Archana Singh-Manoux, PhD, Melvyn Hillsdon, PhD, Eric Brunner, PhD, and Michael Marmot, PhD, MBBS, FFPHM, FRCP

Objectives. We examined the association between physical activity and cognitive functioning in middle age.

Methods. Data were derived from a prospective occupational cohort study of 10308 civil servants aged 35–55 years at baseline (phase 1; 1985–1988). Physical activity level, categorized as low, medium, or high, was assessed at phases 1, 3 (1991–1994), and 5 (1997–1999). Cognitive functioning was tested at phase 5, when respondents were 46–68 years old.

Results. In both prospective (odds ratio [OR] = 1.65; 95% confidence interval [CI] = 1.30, 2.10) and cross-sectional (OR = 1.79; 95% CI = 1.38, 2.32) analyses, low levels of physical activity were a risk factor for poor performance on a measure of fluid intelligence. Analyses aimed at assessing cumulative effects (summary of physical activity levels at the 3 time points) showed a graded linear relationship with fluid intelligence, with persistently low levels of physical activity being particularly harmful (OR = 2.21; 95% CI = 1.37, 3.57).

Conclusions. Low levels of physical activity are a risk factor for cognitive functioning in middle age, fluid intelligence in particular. (*Am J Public Health.* 2005; 95:2252–2258. doi:10.2105/AJPH.2004.055574)

Physical activity and enhanced fitness to improve cognitive function in older people without known cognitive impairment

Angevaren M, Aufdemkampe G, Verhaar HJJ, Aleman A, Vanhees L

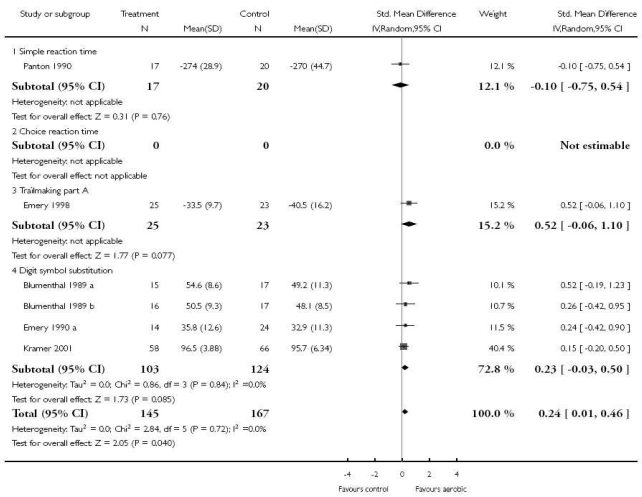
Cochrane Database of Systematic Reviews 2008, Issue 3. Art. No.: CD005381.

Analysis 1.1. Comparison 1 Aerobic exercise vs. any intervention, Outcome 1 Cognitive speed.

Review: Physical activity and enhanced fitness to improve cognitive function in older people without known cognitive impairment

Comparison: 1 Aerobic exercise vs. any intervention

Outcome: 1 Cognitive speed



Physical Activity, Including Walking, and Cognitive Function in Older Women

Jennifer Weuve; Jae Hee Kang; JoAnn E. Manson; et al.

JAMA. 2004;292(12):1454-1461 (doi:10.1001/jama.292.12.1454)

- 1,5 heure de marche d'un pas normal par semaine retarderait de 1,5 an le déclenchement de la démence

Exercise effects on cognitive and neural plasticity in older adults

Kirk Erickson and Arthur F Kramer

Br. J. Sports Med. published online 16 Oct 2008; doi:10.1136/bjsm.2008.052498

- L'entraînement physique est associé à une réduction de l'atrophie cérébrale, surtout des aires frontales, temporales et pariétales (augmentation du volume de matière grise)

Voluntary Exercise Decreases Amyloid Load in a Transgenic Model of Alzheimer's Disease

Paul A. Adlard, Victoria M. Perreau,* Viorela Pop,* and Carl W. Cotman

The Journal of Neuroscience, April 27, 2005 • 25(17):4217–4221 • 4217

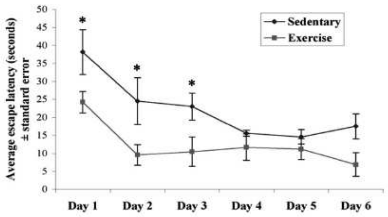


Figure 3. The effect of exercise on Morris water maze performance. Average escape latencies for sedentary and exercising TgCRND8 animals in the Morris water maze are shown. Exercised animals show improved performance across the time course, with significant differences present on the first 3 d of trials, compared with the sedentary animals (*$p < 0.02$). Error bars indicate ± SE.

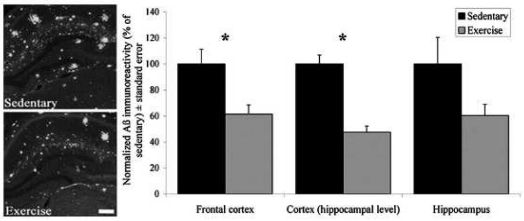


Figure 1. The effect of exercise on Aβ load in three different brain regions of TgCRND8 mice. Exercising animals show a significant (*) reduction in Aβ immunoreactivity in the frontal cortex ($p = 0.018$) and cortex at the level of the hippocampus ($p = 0.0003$). There is also a decrease in Aβ in the hippocampus of exercising animals ($p = 0.06$). The photomicrograph shows a representative section from both groups. Scale bar, 200 μm. Error bars indicate ± SE.

The Effect of Group-Based Exercise on Cognitive Performance and Mood in Seniors Residing in Intermediate Care and Self-Care Retirement Facilities: A Randomized Controlled Trial

Anne K Brown, Teresa Liu-Ambrose, Robyn Tate and Stephen Lord

Br. J. Sports Med. published online 16 Oct 2008

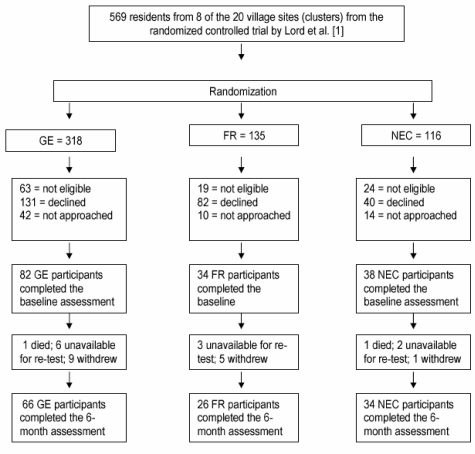


Figure 1. Flow Chart Outlining the Number of Participants in Each Experimental Group.

Sydney, Australia.

154 seniors (19 men and 135 women), aged 62 to 95 years.

1) a general group-based exercise (GE) program composed of resistance training and balance training exercises; 2) a flexibility exercise and relaxation technique (FR) program; or 3) no-exercise control (NEC). The intervention groups (GE and FR) participated in one-hour exercise classes twice a week for a total period of six months.

Main Outcome Measures: Using standard neuropsychological tests, we assessed cognitive performance at baseline and at six-month retest in the following domains: 1) fluid intelligence; 2) visual, verbal, and working memory; and 3) executive functioning. We also assessed mood by the Geriatric Depression Scale and the Positive and Negative Affect Schedule.

Results: **The GE program significantly improved cognitive performance of fluid intelligence compared with FR or NEC**. Also, there were significant improvements in the PANAS-P scale within both the GE and FR groups and an indication that the two exercise programs reduced depression in those with initial high Geriatric Depression Scale scores.

Effect of Physical Activity on Cognitive Function in Older Adults at Risk for Alzheimer Disease: A Randomized Trial

Nicola T. Lautenschlager; Kay L. Cox; Leon Flicker; et al.

JAMA. 2008;300(9):1027-1037 (doi:10.1001/jama.300.9.1027)

Design and Setting Randomized controlled trial of a 24-week physical activity intervention conducted between 2004 and 2007 in metropolitan Perth, Western Australia. Assessors of cognitive function were blinded to group membership.

Participants We recruited volunteers who reported memory problems but did not meet criteria for dementia. Three hundred eleven individuals aged 50 years or older were screened for eligibility, 89 were not eligible, and 52 refused to participate. A total of 170 participants were randomized and 138 participants completed the 18-month assessment.

Intervention Participants were randomly allocated to an education and usual care group or to a 24-week home-based program of physical activity.

Main Outcome Measure Change in Alzheimer Disease Assessment Scale–Cognitive Subscale (ADAS-Cog) scores (possible range, 0-70) over 18 months.

Results In an intent-to-treat analysis, participants in the intervention group improved 0.26 points (95% confidence interval, −0.89 to 0.54) and those in the usual care group deteriorated 1.04 points (95% confidence interval, 0.32 to 1.82) on the ADAS-Cog at the end of the intervention. The absolute difference of the outcome measure between the intervention and control groups was −1.3 points (95% confidence interval, −2.38 to −0.22) at the end of the intervention. At 18 months, participants in the intervention group improved 0.73 points (95% confidence interval, −1.27 to 0.03) on the ADAS-Cog, and those in the usual care group improved 0.04 points (95% confidence interval, −0.46 to 0.88). Word list delayed recall and Clinical Dementia Rating sum of boxes improved modestly as well, whereas word list total immediate recall, digit symbol coding, verbal fluency, Beck depression score, and Medical Outcomes 36-Item Short-Form physical and mental component summaries did not change significantly.

Conclusions In this study of adults with subjective memory impairment, a 6-month program of physical activity provided a modest improvement in cognition over an 18-month follow-up period.

Hypothèses

-l'exercice physique modifierait les réseaux neuronaux en cause dans l'attention et la mémoire à court terme associé à une réduction de l'atrophie cérébrale des aires frontales, temporales et pariétales

-par amélioration de la perfusion vasculaire cérébrale, de la santé cardiovasculaire, de la neuroplasticité et de la neurogenèse

-la démence et l'athérosclérose ont en commun de nombreux facteurs de risque (HTA, hypercholestérolémie, diabète) qui sont améliorés par l'exercice physique

-chez le rat, l'exercice diminue la neurodégénérescence (moins de plaques bêta-amyloïdes) et augmente les taux de facteur neurotrophique cérébral (brain-derived neurotrophic factor, BDNF). Le BDNF améliore la transmission synaptique et la neurogenèse.

Biais

- Les gens physiquement actifs sont souvent plus scolarisés, s'alimentent mieux et sont exposés à un risque vasculaire moindre
- Ils présentent des taux moindres de maladie cardio-vasculaire, de diabète, de cancer, d'hypertension, d'obésité, de dépression, d'ostéoporose et de mortalité précoce

Avantages de l'exercice en prévention

- Personnes non démentes
  - Risque moindre de démence
  - Risque moindre de maladie d'Alzheimer
  - Déclin cognitif plus lent
- Personnes déments (MA)
  - Déclin cognitif plus lent
  - Déclin fonctionnel plus lent
  - Moins de problèmes comportementaux

Alimentation et déclin cognitif

Pourquoi s'intéresser à l'alimentation ?

-Vitamine K: synthèse des sphingolipides qui est 1 des principaux constituants des neurones et de leur membrane. La vit K est nécessaire à l'activation de la protéine Gas6 qui intervient dans la multiplication cellulaire, la lutte contre l'apoptose et favorise la survie cellulaire.

-Les vitamines B6, B12 et folates jouent un rôle important dans la synthèse de l'ADN. Leurs carences peuvent entraîner une augmentation de l'homocystéine corrélée au risque de MA. L'hypothèse est une apoptose des neurones de l'hippocampe suite à des lésions de l'ADN.

-La neurotoxicité du peptide bêta-amyloïde passerait par les radicaux libres associés. D'où le possible effet neuro-protecteur des vitamines C et E ou des flavonoïdes. Chez le rat, la vitamine E (myrtilles, fraises, épinards, jus de pommes) augmenterait la neurogenèse au niveau de l'hippocampe.

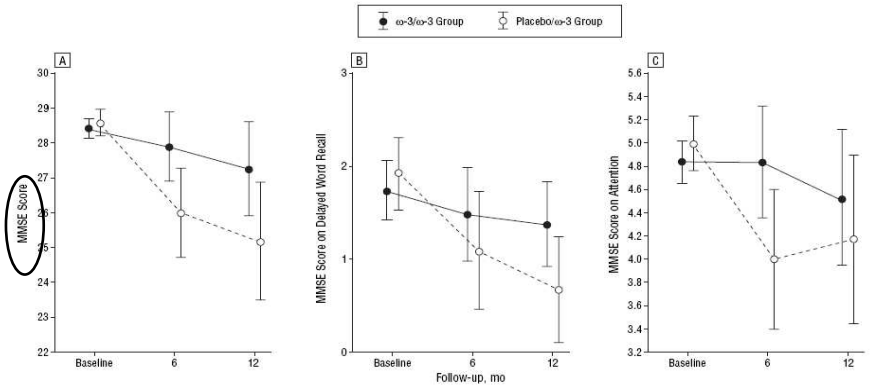
-Le rôle protecteur des oméga-3 s'expliquerait par leurs capacités à protéger les vaisseaux, à réduire l'inflammation au niveau cérébral et à faciliter la régénération des cellules nerveuses.

ω-3 Fatty Acid Treatment in 174 Patients With Mild to Moderate Alzheimer Disease: OmegAD Study

A Randomized Double-blind Trial

Arch Neurol. 2006;63:1402-1408

Yvonne Freund-Levi, MD; Maria Eriksdotter-Jönhagen, MD, PhD; Tommy Cederholm, MD, PhD; Hans Basun, MD, PhD;



In a subgroup (n=32) with very mild cognitive dysfunction (MMSE 27 points), a significant (*P*.05) reduction in MMSE decline rate was observed in the-3 fatty acid–treated group compared with the placebo group. A similar arrest in decline rate was observed between 6 and 12 months in this placebo subgroup when receiving-3 fatty acid supplementation.

Vitamines

Vitamin B_{12} status and rate of brain volume loss in community-dwelling elderly *Neurology® 2008;71:826-832*

107 sujets de 61 à 87 ans. Le risque d'atrophie cérébrale est très augmenté chez les sujets avec des taux de vitamine B12 <308 pmol/l (OR: 3,17, IC 95%: 1,25-30,47)

Mécanisme: la carence en B12 peut entraîner une hyperhomocystéinémie qui est un facteur de risque indépendant de MA. Les taux d'homocystéine sont corrélés au volume hippocampique et à l'atrophie du lobe temporal

Low Vitamin K Intakes in Community-Dwelling Elders at an Early Stage of Alzheimer's Disease

NANCY PRESSE, DtP*; BRYNA SHATENSTEIN, PhD, PDt*; MARIE-JEANNE KERGOAT, MD; GUYLAINE FERLAND, PhD

J Am Diet Assoc. 2008;108:2095-2099.

31 patients âgés en moyenne de 77 ans présentant une MA à un stade précoce (MMS moy : 25, extr: 13-30) vs 31 contrôles

Apports alimentaires en vit K étudiés sur 5 jours: 63 ± 90 µg/j chez les MA vs 139 ± 233 µg/j chez les témoins (p<0,0001)

Apports= légumes (verts+++), graisses d'assaisonnement et fruits

Dietary patterns and risk of dementia

The Three-City cohort study*

P. Barberger-Gateau, PhD
C. Raffaitin, MD
L. Letenneur, PhD
C. Berr, PhD
C. Tzourio, PhD
J.F. Dartigues, PhD
A. Alpérovitch, PhD

Address correspondence and reprint requests to Dr. P. Barberger-Gateau, INSERM, U593, University Victor Segalen Bordeaux 2, case 11, 146 rue Léo-Saignat, F-33076 Bordeaux cedex, France
Pascale.Barberger-Gateau@isped.u-bordeaux2.fr

ABSTRACT

Background: Dietary fatty acids and antioxidants may contribute to decrease dementia risk, but epidemiologic data remain controversial. The aim of our study was to analyze the relationship between dietary patterns and risk of dementia or Alzheimer disease (AD), adjusting for sociodemographic and vascular risk factors, and taking into account the ApoE genotype.

Methods: A total of 8,085 nondemented participants aged 65 and over were included in the Three-City cohort study in Bordeaux, Dijon, and Montpellier (France) in 1999–2000 and had at least one re-examination over 4 years (rate of follow-up 89.1%). An independent committee of neurologists validated 281 incident cases of dementia (including 183 AD).

Results: Daily consumption of fruits and vegetables was associated with a decreased risk of all cause dementia (hazard ratio [HR] 0.72, 95% CI 0.53 to 0.97) in fully adjusted models. Weekly consumption of fish was associated with a reduced risk of AD (HR 0.65, 95% CI 0.43 to 0.994) and all cause dementia but only among ApoE ε4 noncarriers (HR 0.60, 95% CI 0.40 to 0.90). Regular use of omega-3 rich oils was associated with a decreased risk of borderline significance for all cause dementia (HR 0.46, 95% CI 0.19 to 1.11). Regular consumption of omega-6 rich oils not compensated by consumption of omega-3 rich oils or fish was associated with an increased risk of dementia (HR 2.12, 95% CI 1.30 to 3.46) among ApoE ε4 noncarriers.

Conclusion: Frequent consumption of fruits and vegetables, fish, and omega-3 rich oils may decrease the risk of dementia and Alzheimer disease, especially among ApoE ε4 noncarriers.

Neurology© 2007;69:1921–1930

Table 4 Association between food and risk of Alzheimer disease: The Three-City cohort study, 1999–2004

	Model 1, n = 7,783		Model 2, n = 7,427		Model 3, n = 7,369	
	HR (95% CI)	p	HR (95% CI)	p	HR (95% CI)	p
Fruit and vegetable frequent consumers	0.70 (0.49–0.997)	0.048	0.72 (0.50–1.04)	0.08	0.73 (0.50–1.05)	0.09
Butter	0.83 (0.61–1.13)	0.24	0.78 (0.56–1.07)	0.12	0.77 (0.55–1.06)	0.11
Goose or duck fat	1.43 (0.72–2.83)	0.30	1.13 (0.52–2.45)	0.75	1.08 (0.47–2.48)	0.85
Olive oil	0.84 (0.61–1.18)	0.32	0.90 (0.63–1.28)	0.55	0.89 (0.62–1.28)	0.53
Omega-3 rich oil	0.40 (0.13–1.25)	0.12	0.44 (0.14–1.37)	0.16	0.43 (0.14–1.35)	0.15
Sunflower or grape seed oil	1.18 (0.87–1.60)	0.29	1.12 (0.81–1.54)	0.49	1.18 (0.85–1.63)	0.33

Model 1: proportional hazard models adjusted for age, gender, education, city, income, and marital status. Model 2: model 1 plus additional adjustment for ApoE genotype (possession of the ε4 allele). Model 3: model 2 plus additional adjustment for body mass index and diabetes.

Fruit and Vegetable Consumption and Cognitive Decline in Aging Women

Jae H. Kang, ScD,[1] Alberto Ascherio, MD, DrPH,[1–3] and Francine Grodstein, ScD[1,2]

We prospectively examined fruit and vegetable intake in relation to cognitive function and decline among aging women. Participants were followed from in 1976 with biennial questionnaires, and food frequency questionnaires were administered in 1984, 1986, and every 4 years thereafter. From 1995 to 2001, we administered, by telephone, six cognitive tests measuring general cognition, verbal memory, category fluency, and working memory. We repeated assessments two years later for 13,388 women (>90% follow-up). We averaged dietary intakes from 1984 through the first cognitive assessment, and used linear regression to obtain multivariable-adjusted mean differences in performance and decline in performance across intake levels. Fruits were not associated with cognition or cognitive decline. However, total vegetable intake was significantly associated with less decline. Specifically, on a global score combining all tests, women in the highest quintile of cruciferous vegetables declined slower (by 0.04 unit; 95% confidence interval, 0.003, 0.07; p trend = 0.1) compared with the lowest quintile. Women consuming the most green leafy vegetables also experienced slower decline than women consuming the least amount (by 0.05 unit; 95% confidence interval, 0.02, 0.09; p trend < 0.001). These mean differences were equivalent to those observed for women about 1 to 2 years apart in age.

Ann Neurol 2005;57:713–720

Les médianes de consommations quotidiennes étaient de 3,1 portions de légumes et de 2,4 fruits. Les plus fortes consommation de légumes ont été associées à un moindre déclin cognitif, surtout pour les légumes à feuilles vertes (salades vertes, épinards, choux vert: médiane 0,8 portions quotidiennes). Le ralentissement du déclin chez les personnes ayant une consommation dans le quintile supérieur était équivalent à un âge plus jeune de 1,5 années.

Associations of vegetable and fruit consumption with age-related cognitive change

M.C. Morris, ScD; D.A. Evans, MD; C.C. Tangney, PhD; J.L. Bienias, ScD; and R.S. Wilson, PhD

Abstract—*Objective:* To examine the association between rates of cognitive change and dietary consumption of fruits and vegetables among older persons. *Methods:* The authors conducted a prospective cohort study of 3,718 participants, aged 65 years and older of the Chicago Health and Aging Project. Participants completed a food frequency questionnaire and were administered at least two of three cognitive assessments at baseline, 3-year, and 6-year follow-ups. Cognitive function was measured using the average z-score of four tests: the East Boston Tests of immediate memory and delayed recall, the Mini-Mental State Examination, and the Symbol Digit Modalities Test. *Results:* The mean cognitive score at baseline for the analyzed cohort was 0.18 (range: –3.5 to 1.6), and the overall mean change in score per year was a decline of 0.04 standardized units. In mixed effects models adjusted for age, sex, race, and education, compared with the rate of cognitive decline among persons in the lowest quintile of vegetable intake (median of 0.9 servings/day), the rate for persons in the fourth quintile (median, 2.8 servings/day) was slower by 0.019 standardized units per year ($p = 0.01$), a 40% decrease, and by 0.018 standardized units per year ($p = 0.02$) for the fifth quintile (median, 4.1 servings/day), or a 38% decrease in rates. The association remained significant (p for linear trend = 0.02) with further control of cardiovascular-related conditions and risk factors. Fruit consumption was not associated with cognitive change. *Conclusion:* High vegetable but not fruit consumption may be associated with slower rate of cognitive decline with older age.

NEUROLOGY 2006;67:1370–1376

Les consommations quotidiennes étaient de 2,3 portions de légumes et 2,2 de fruits. Les plus fortes consommations de légumes ont été associées à un moindre déclin cognitif, surtout pour les légumes à feuilles vertes. Une diminution du déclin équivalent à 5 années de moins a été notée dans les 2 quintiles les plus élevés (> 2 portions par jour).

Les épinards, c'est bon pour… la mémoire

Les légumes feuilles sont souvent les plus riches en vitamine E et consommés avec des graisses (vinaigrette, margarine, etc.) qui sont, non seulement riches en vitamine E, mais qui augmentent l'absorption de la vitamine E et d'autres nutriments liposolubles. D'autres constituants des légumes feuilles sont aussi associés à un moindre déclin cognitif: les folates, les polyphénols et les flavonoïdes antioxydants.

Il faudrait cependant vérifier la manière de préparer les légumes car, par exemple, de nombreux polyphénols se trouvent principalement dans la pelure (comme pour les fruits), et les éplucher ou les faire bouillir peut éliminer de grandes quantité de ces composants

Mediterranean Diet and Risk for Alzheimer's Disease

Nikolaos Scarmeas, MD,[1–3] Yaakov Stern, PhD,[1–3] Ming-Xin Tang, PhD,[1,4] Richard Mayeux, MD,[1–3] and Jose A. Luchsinger, MD[1,5]

Ann Neurol 2006;59:912–921

Le régime méditerranéen est caractérisé par: une forte consommation de légumes, fruits et céréales, d'acides gras insaturés (huile d'olive dans les vinaigrettes et cuisson) associée à une faible consommation de graisses saturées; une consommation modérée de poisson; une consommation faible à modérée de produits laitiers; une faible consommation de viande et volaille; une consommation régulière et modérée de vin aux repas

Table 1. Median Daily Intake for Individual Food Categories by Mediterranean Diet Score Tertiles and Overall

Food Categories	Low Tertile (MeDi score 0–3)	Middle Tertile (MeDi score 4–5)	High Tertile (MeDi score 6–9)	All (25th, 75th percentiles)
Dairy, gm/day	246	174	151	182 (128–292)
Meat, gm/day	101	86	65	85 (60–119)
Vegetable, gm/day	165	202	243	197 (153–250)
Fruit, gm/day	406	471	556	472 (372–582)
Legumes, gm/day	44	58	78	57 (38–90)
Cereal, gm/day	155	186	215	184 (140–233)
Fish, gm/day	15	21	47	20 (14–47)
MUFA/SFA ratio	0.57	0.82	0.97	0.80 (0.18–1.37)
Mild-to-moderate ethanol, %	21	33	45	32

Values represent calorie-adjusted residuals. For presentation purposes, a constant representing the predicted value for each category for 2,500kcal for men and 2,000kcal for women has been added.[42] MeDi = Mediterranean diet; MUFA = monounsaturated fatty acids; SFA = saturated fatty acids.

Mediterranean Diet, Alzheimer Disease, and Vascular Mediation

Nikolaos Scarmeas, MD; Yaakov Stern, PhD; Richard Mayeux, MD; Jose A. Luchsinger, MD

Arch Neurol. 2006;63:1709-1717

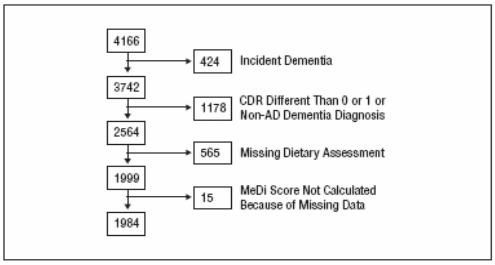


Figure 1. Flowchart describing sample size. AD indicates Alzheimer disease; CDR, Clinical Dementia Rating; MeDi, Mediterranean diet.

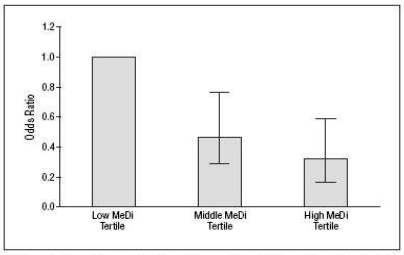


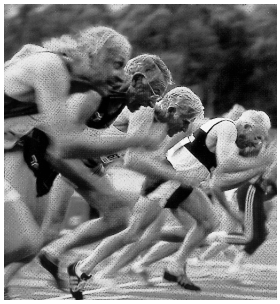
Figure 3. Odds ratios and 95% confidence intervals (bars) for subjects with Alzheimer disease vs nondemented subjects, for each Mediterranean diet (MeDi) adherence tertile based on logistic regression models that adjusted for cohort, age, sex, ethnicity, education, apolipoprotein E genotype, caloric intake, smoking, comorbidity index, and body mass index (calculated as weight in kilograms divided by height in meters squared).

Chaque unité additionnelle du score MeDi diminue de 10% le risque de MA. Par rapport aux sujets ayant le score le plus bas, ceux dans le tiers moyen ont 20% de risque de MA en moins et ceux dans le tiers supérieur, un risque réduit de 40%.
Les 2 éléments majeurs protecteurs sont une **consommation faible à modérée d'alcool** et une **forte consommation de légumes**.

Alimentation et déclin cognitif

- Une consommation importante de vitamines C et E, de vitamine K, de flavonoïdes, d'acides gras insaturés, de poisson, de vitamine B12 et de folates, associée à une consommation modeste ou modérée d'alcool et réduite en lipides serait associée à un moindre risque de MA et de déclin des fonctions cognitives
- Mais nombreuses études discordantes
- Car souvent, examen sélectif d'un composant alimentaire sans tenir compte du reste de l'alimentation
- Il semble plus logique d'analyser les effets d'une alimentation globale
- Par exemple, une forte consommation de poisson n'est bénéfique que si elle intègre une alimentation contrôlée en lipides
- De même, l'effet bénéfique de l'huile d'olive dans les salades passerait par une augmentation de la consommation totale de légumes

Conclusion



5 portions de fruits et légumes par jour, une portion de poisson par semaine, consommation modérée d'alcool et 10 000 pas par jour