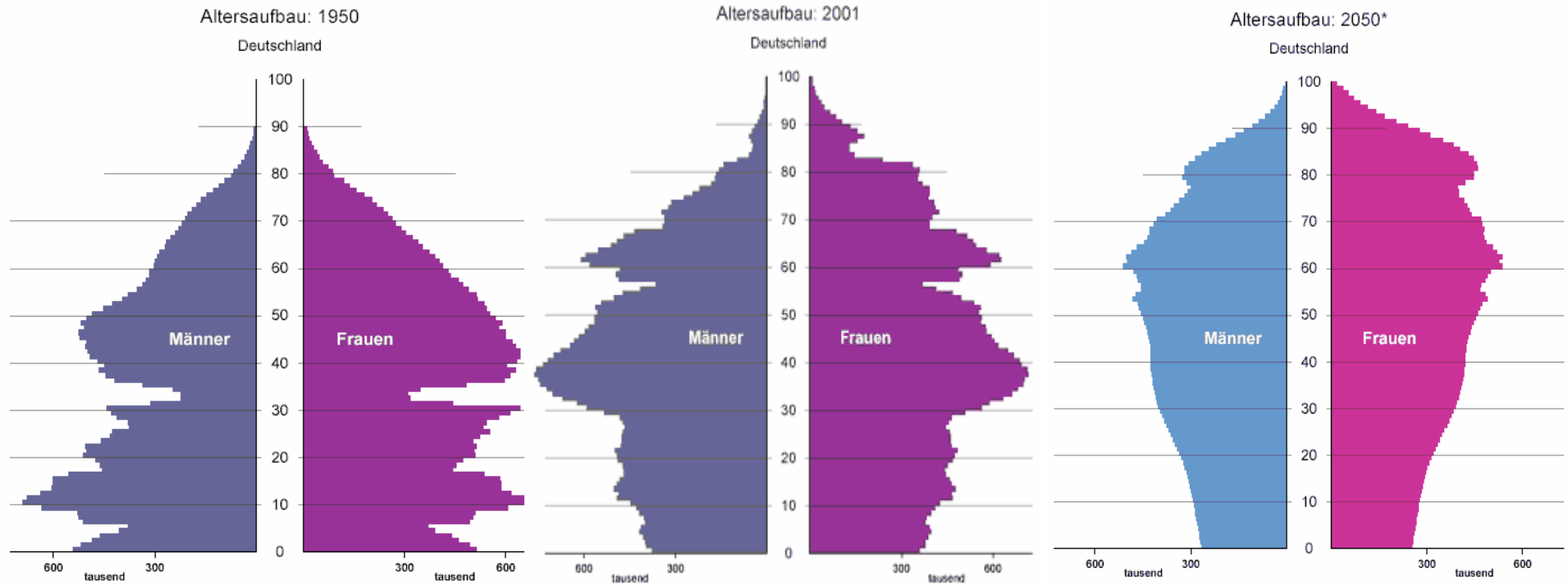
Gesundes Altern

Dr. M. Gogol
Klinik für Geriatrie
Krankenhaus Lindenbrunn



Die Gruppe der über 80jährigen ist die Gruppe mit dem größten Wachstum in allen Industrieländern

Lebenserwartung Männer USA

Age	70	75	80	85	90	95
Healthy	18,0	14,2	10,8	7,9	5,8	4,3
Average	12,4	9,3	6,7	4,7	3,2	2,3
Frail	6,7	4,9	3,3	2,2	1,5	1,0

JAMA 2001;285:2750-6

Lebenserwartung Frauen USA

Age	70	75	80	85	90	95
Healthy	21,3	17,0	13,0	9,6	6,8	4,8
Average	15,7	11,9	8,6	5,9	3,9	2,7
Frail	9,5	6,8	4,6	2,9	1,8	1,7

JAMA 2001;285:2750-6

Altern

-Körperlich
-Funktionell
-Geistig
-Sozial
-Kulturell
-Gesellschaftlich

Training

OPEN ACCESS Freely available online

PLOS MEDICINE

Combined Impact of Health Behaviours and Mortality in Men and Women: The EPIC-Norfolk Prospective Population Study

Kay-Tee Khaw[1*], Nicholas Wareham[2], Sheila Bingham[3], Ailsa Welch[1], Robert Luben[1], Nicholas Day[1]

1 Department of Public Health and Primary Care, Institute of Public Health, University of Cambridge School of Clinical Medicine, Cambridge, United Kingdom, **2** Medical Research Council, Epidemiology Unit, Cambridge, United Kingdom, **3** Medical Research Council, Dunn Nutrition Unit, Cambridge, United Kingdom

Funding: EPIC-Norfolk is supported by programme grants from Medical Research Council and Cancer Research United Kingdom with additional support from the Stroke Association, British Heart Foundation, Research Into Ageing, and the Academy of Medical Science. The sponsors had no role in the design and conduct of the study, collection, management, analysis and interpretation of the data, and preparation, review, or approval of the manuscript.

Competing Interests: The authors have declared that no competing interests exist.

Academic Editor: Alan Lopez, The University of Queensland, Australia

ABSTRACT

Background

There is overwhelming evidence that behavioural factors influence health, but their combined impact on the general population is less well documented. We aimed to quantify the potential combined impact of four health behaviours on mortality in men and women living in the general community.

Methods and Findings

We examined the prospective relationship between lifestyle and mortality in a prospective population study of 20,244 men and women aged 45–79 y with no known cardiovascular disease or cancer at baseline survey in 1993–1997, living in the general community in the United Kingdom, and followed up to 2006. Participants scored one point for each health

Table 1. Health Behaviour Score: Score One Point for Each of the Health Behaviours Below for a Total Score of Zero to Four

Health Behaviour	How Scored
Smoking habit	Nonsmoker = 1
Fruit and vegetable intake	Five servings or more daily as indicated by blood vitamin C = ≥50 nmol/l = 1
Alcohol intake	One or more, but less than 14 units, a week = 1. One unit = approximately 8 g of alcohol; i.e., one glass of wine, one small glass of sherry, one single shot of spirits, or one half pint of beer
Physical activity	Not inactive = 1; i.e., if sedentary occupation, at least half an hour of leisure time activity a day; e.g., cycling, swimming; or else a nonsedentary occupation with or without leisure-time activity

Table 2. Distribution of Variables in 20,244 Men and Women Aged 45–79 y without Known Cardiovascular Disease or Cancer in EPIC-Norfolk at Baseline 1993–1997 and Mortality after Follow-Up to 2006 (Average 11 y)

Variable	Category	Men (n = 9,181)	Women (n = 11,063)
Age (y)[a]	—	58.4 (9.2)	57.9 (9.3)
Body mass index (kg/m^2)[a]	—	26.4 (3.2)	26.1 (4.2)
Smoking status	Never smokers	34.7 (3,182)	57.0 (6,311)
	Former smokers	53.4 (4,899)	31.7 (3,507)
	Current smokers	12.0 (1,100)	11.3 (1,245)
Physical activity	Inactive	27.5 (2,524)	27.0 (2,987)
	Moderately inactive	25.3 (2,319)	32.9 (3,628)
	Moderately active	23.6 (2,164)	23.3 (2,574)
	Active	23.7 (2,174)	16.9 (1,874)
Alcohol drinking	Nondrinker	9.3 (858)	16.8 (1,855)
	1 to <7 units a week	41.6 (3,816)	59.0 (6,527)
	7 to <14 units a week	22.0 (2,022)	16.5 (1,828)
	14 to <21 units a week	11.9 (1,096)	5.4 (599)
	21 or more units a week	15.1 (1,389)	1.2 (254)
Body mass index	<25 kg/m^2	33.7 (3,092)	45.3 (5,003)
	25 to <30 kg/m^2	53.7 (4,927)	38.7 (4,278)
	≥30kg/m^2	12.6 (1,152)	16.0 (1,765)
Plasma vitamin C level	<50 mmol/l	53.1 (4,874)	28.5 (3,148)
	≥50 mmol/l	46.9 (4,307)	71.5 (7,915)
Health behaviours[b]	0	1.2 (114)	0.7 (82)
	1	9.3 (855)	5.0 (552)
	2	27.9 (2,568)	18.1 (2,002)
	3	40.2 (3,688)	37.1 (4,100)
	4	21.3 (1,958)	39.1 (4,327)
Social class	I	7.7 (699)	6.4 (696)
	II	38.5 (3,473)	35.3 (3,812)
	III nonmanual	12.3 (1,108)	119.9 (2,145)
	III manual	25.2 (2,277)	21.2 (2,203)
	IV	13.3 (1,204)	13.3 (1,441)
	V	2.9 (266)	3.9 (416)
Mortality by 2006[c]	All cause	12.6 (1,161)	7.4 (816)
	Cardiovascular causes	4.5 (409)	2.4 (267)
	Cancer	5.2 (475)	3.3 (364)
	Non-CVD noncancer	3.0 (277)	1.7 (185)

Table 4. Mortality Rates and Relative Risk of All-Cause Mortality by Number of Health Behaviours, Adjusted by Age, Sex, and Body Mass Index, and Stratified by Cause, Sex, Age, Body Mass Index, and Social Class in 20,244 Men and Women Aged 45–79 y without Known Cardiovascular Disease or Cancer in EPIC-Norfolk 1993–2006, Cox Regression Model

Mortality	Category	No. of Events/*n*	Number of Health Behaviours				
			4 (*n* = 6,285)	3 (*n* = 7,788)	2 (*n* = 4,568)	1 (*n* = 1,407)	0 (*n* = 196)
Mortality rate (*n*)	—	—	5.1 (318)	8.8 (682)	14.3 (651)	19.7 (277)	25.0 (49)
By cause	All cause	1,977/20,244	1	1.39 (1.21–1.60)	1.95 (1.70–2.25)	2.52 (2.13–3.00)	4.04 (2.95–5.54)
	Cardiovascular	676/20,244	1	1.59 (1.23–2.06)	2.47 (1.91–3.19)	3.36 (2.49–4.51)	5.02 (2.93–8.61)
	Cancer	839/20,244	1	1.21 (0,99–1.48)	1.81 (1.48–2.22)	1.94 (1.48–2.54)	3.74 (2.34–5.98)
	Non-CVD, noncancer	462/20,244	1	1.53 (1.16–2.03)	1.66 (1.23–2.24)	2.70 (1.92–3.82)	3.56 (1.77–7.16)
By sex	Men	1,161/9,181	1	1.42 (1.26–1.61)	1.98 (1.75–2.24)	2.58 (2.22–2.99)	4.11 (3.15–5.37)
	Women	810/11,063	1	1.32 (1.09–1.60)	1.91 (1.55–2.33)	2.49 (1.91–3.25)	5.23 (3.50–7.82)
By age group	<65 y	641/14,358	1	1.32 (1.09–1.60)	1.90 (1.55–2.33)	2.49 (1.91–3.25)	5.23 (3.50–7.81)
	≥65 y	1,336/5,886	1	1.51 (1.29–1.77)	2.06 (1.75–2.41)	2.68 (2.22–3.23)	3.58 (2.51–5.11)
By body mass index	<25 kg/m^2	692/8,095	1	1.26 (1.01–1.55)	1.90 (1.53–2.36)	2.44 (1.85–3.21)	2.87 (1.62–5.08)
	25 to <30 kg/m^2	946/9,205	1	1.44 (1.18–1.76)	2.01 (1.64–2.47)	2.60 (2.03–3.34)	5.03 (3.20–7.92)
	≥30 kg/m^2	335/2,917	1	1.68 (1.12–2.52)	2.06 (1.37–3.08)	2.51 (1.58–4.01)	4.26 (2.06–8.78)
By social class	Nonmanual	1,061/11,933	1	1.29 (1.11–1.51)	1.83 (1.57–2.14)	2.48 (2.04–3.01)	4.63 (3.08–6.72)
	Manual	821/7,897	1	1.70 (1.37–2.09)	2.29 (1.86–2.84)	2.85 (2.23–3.63)	4.04 (2.74–5.96)
Excluding deaths within 2 y		1,818/20,085	1	1.45 (1.26–1.67)	2.01 (1.74–2.32)	2.83 (2.39–3.36)	4.48 (3.27–6.14)

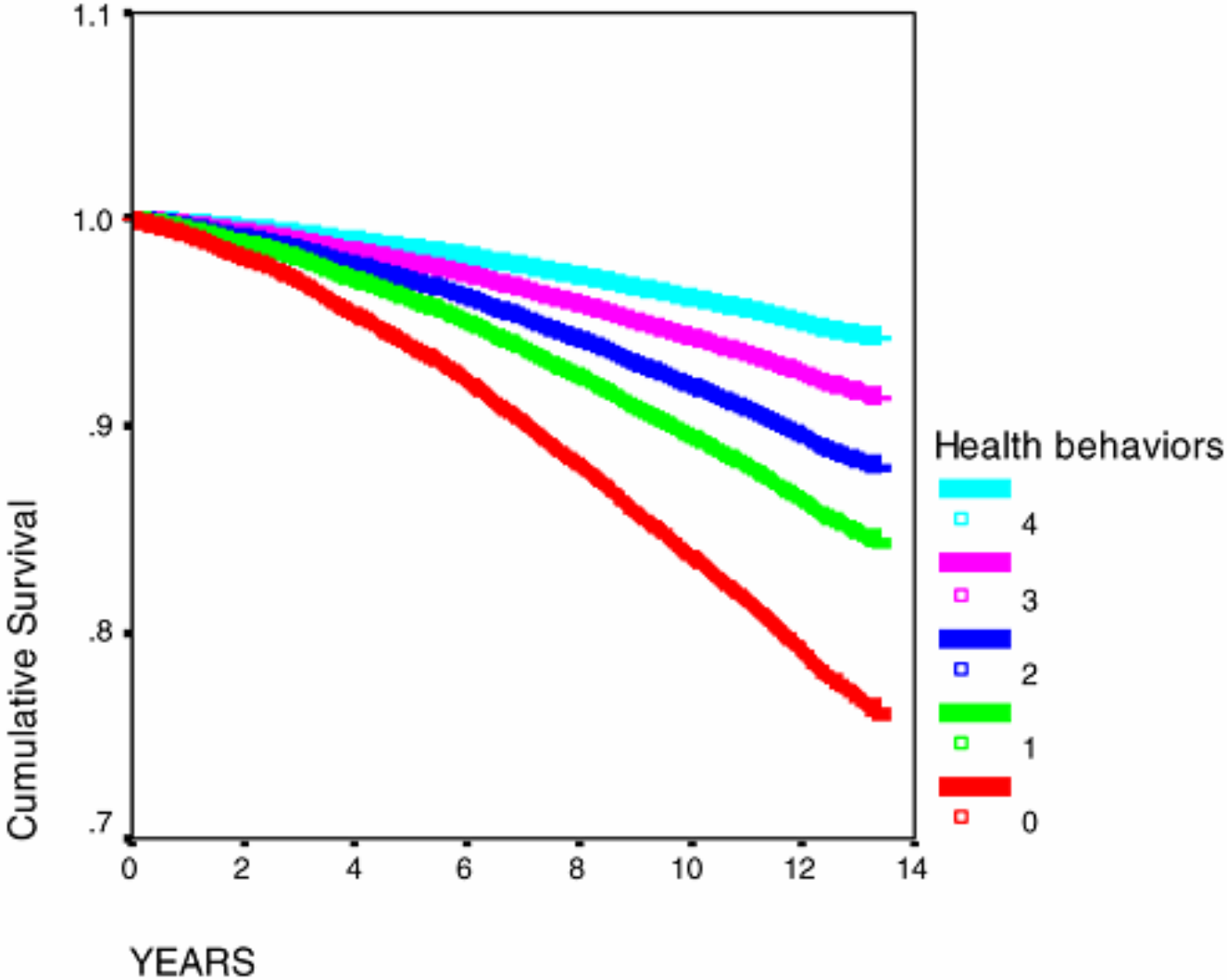


Figure 1. Survival Function According to Number of Health Behaviours in Men and Women Aged 45–79 Years without Known Cardiovascular Disease or Cancer, Adjusted for Age, Sex, Body Mass Index and Social Class, EPIC-Norfolk 1993–2006

Age and Ageing 2007; **36:** 650–655
doi:10.1093/ageing/afm120
Published electronically 28 September 2007

Healthy ageing in the Nun Study: definition and neuropathologic correlates

SUZANNE L. TYAS[1], DAVID A. SNOWDON[2], MARK F. DESROSIERS[3], KATHRYN P. RILEY[4], WILLIAM R. MARKESBERY[5]

[1]Department of Health Studies and Gerontology and Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada
[2]Department of Neurology and Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY, USA
[3]Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY, USA
[4]Department of Preventive Medicine and Environmental Health, and Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY, USA
[5]Department of Pathology, Department of Neurology, and Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY, USA

Address correspondence to: Suzanne L. Tyas. Tel: (519) 888 4567 ext 32890; Fax: (519) 746 2510. Email: styas@uwaterloo.ca

Table I. Criteria for level of healthy ageing

Level of healthy ageing	Mini-Mental State Exam[a]	Delayed Word Recall[a]	Basic activities of daily living[a]	Instrumental activities of daily living[a]	Self-rated function[a]
Excellent	≥28	≥7	5	5	Excellent
Very good	≥26	≥6	5	≥4	Excellent/very good
Good	≥24	≥5	≥4	≥3	Excellent/very good/good

[a] Mini-Mental State Exam (range 0–30), Delayed Word Recall (range 0–10), basic activities of daily living (range 0–5, items are feeding, dressing, standing, walking, toileting), instrumental activities of daily living (range 0–5, items are reading, using the telephone, telling time, taking medication, and handling money), self-rated function (response categories are poor/fair/good/very good/excellent).

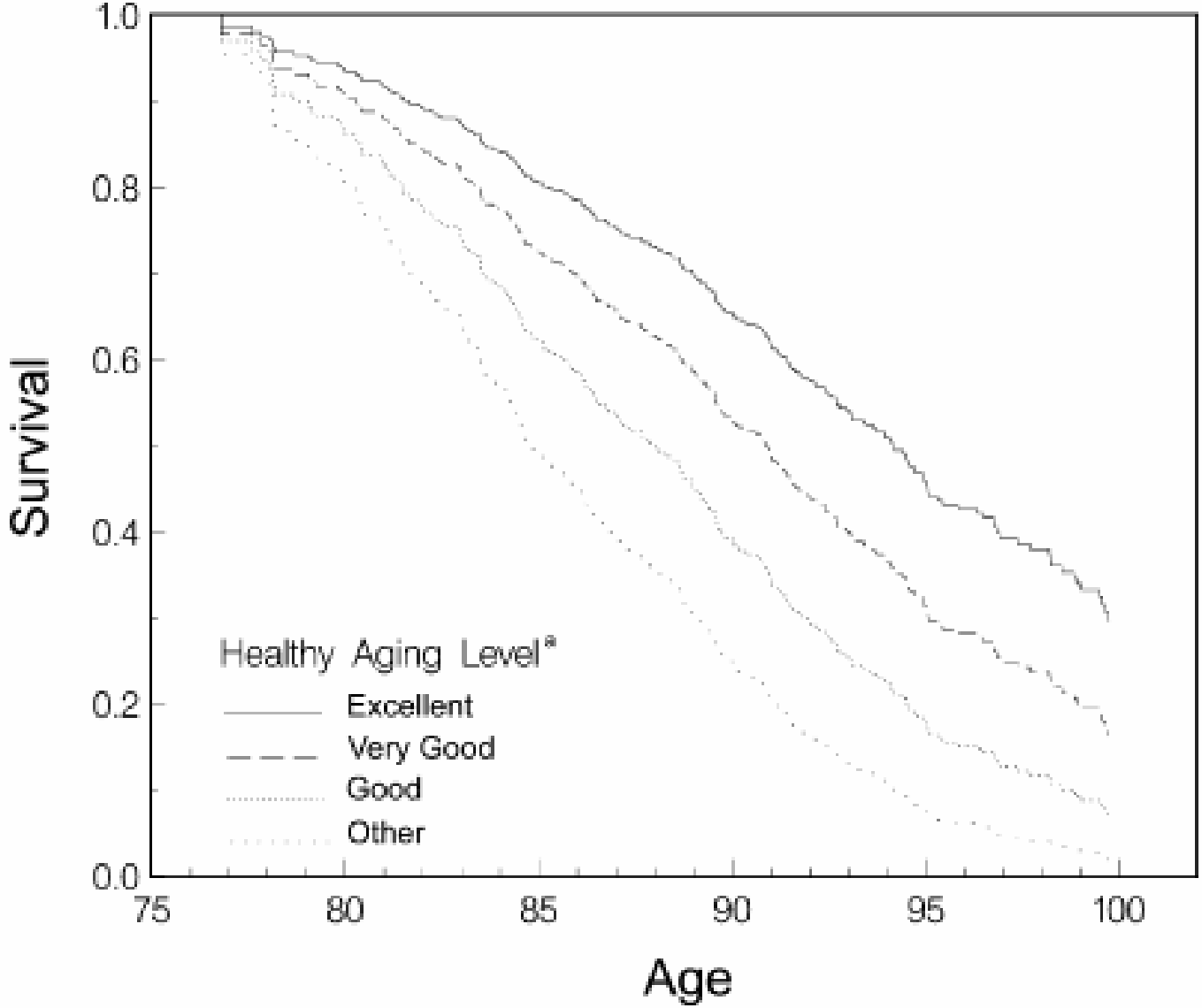


Figure 1. Survival distribution function by age and level of healthy ageing at exam 1. [a]Based on measures at exam 1 of

Table 2. Prevalence of brain infarcts and Alzheimer pathology by level of healthy ageing

Level of healthy ageing[a]		Prevalence of neuropathologic conditions							
		None[b]		Brain infarcts[c] only		Alzheimer pathology[d] only		Brain infarcts + Alzheimer pathology	
	n	%	95% CI[e]	%	95% CI	%	95% CI	%	95% CI
Excellent	7	85.7	42.13–99.64	14.3	0.36–57.87	0	—	0	—
Very good	15	60.0	32.29–83.66	6.7	0.17–31.95	20.0	4.33–48.09	13.3	1.66–40.46
Good	28	42.9	24.46–62.82	28.6	13.22–48.67	25.0	10.69–44.87	3.6	0.09–18.35
Other	171	17.5	12.16–24.09	13.5	8.72–19.50	39.8	32.37–47.52	29.2	22.55–36.67

[a] Based on measures at the last exam before death of global cognitive function (Mini-Mental State Exam), short-term memory (Delayed Word Recall), basic and instrumental activities of daily living, and self-rated function (ability to take care of oneself).

[b] No brain infarcts visible to the naked eye, did not meet neuropathologic criteria for Alzheimer's disease, and had no other conditions that could impair cognition, based on brain autopsy.

[c] One or more brain infarcts visible to the naked eye.

[d] Met neuropathologic criteria for Alzheimer's disease.

[e] Confidence interval.

Physical Activity Recommendations and Decreased Risk of Mortality

Michael F. Leitzmann, MD, DrPH; Yikyung Park, ScD; Aaron Blair, PhD; Rachel Ballard-Barbash, MD; Traci Mouw, MPH; Albert R. Hollenbeck, PhD; Arthur Schatzkin, MD, DrPH

Arch Intern Med. 2007;167(22):2453-2460

- National Institute of Health-American Association of Retired Persons (NIH-AARP) Diet and Health Study
- 252.925 Frauen / Männer – 1.265.347 Personenjahre Follow-up
- 7.900 starben

- **Gruppe 1**: körperlich inaktiv
- **Gruppe 2**: 30 min mäßige körperliche Aktivität (fast) täglich
- **Gruppe 3**: 3 x 20 min körperliches Training / Woche

- Sterblichkeit reduziert 27 % (RR 0,73, 95% CI 0,68 – 0,78) [Gruppe 1]
  bzw. 32 % (RR 0,68, 95% CI 0,64 – 0,73) [Gruppe 2]
  bzw. 50 % (RR 0,50, 95% CI 0,46 – 0,54) [Gr. 1 + 2]

The Association Between Physical Activity in Leisure Time and Leukocyte Telomere Length

Lynn F. Cherkas, PhD; Janice L. Hunkin, BSc; Bernet S. Kato, PhD; J. Brent Richards, MD; Jeffrey P. Gardner, PhD; Gabriela L. Surdulescu, MSc; Masayuki Kimura, MD, PhD; Xiaobin Lu, MD; Tim D. Spector, MD, FRCP; Abraham Aviv, MD

Arch Intern Med. 2008;168(2):154-158

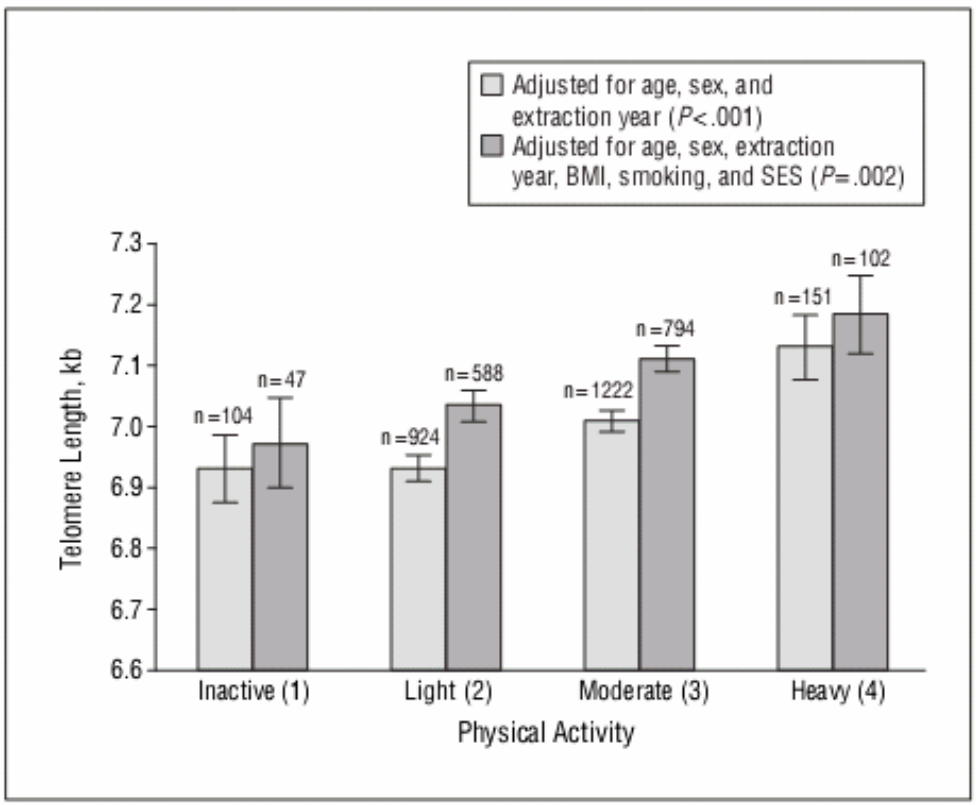


Figure 1. Mean telomere length and standard error bars by physical activity level in leisure time. See the "Methods" section for an explanation of the activity levels. BMI indicates body mass index; kb; kilobases; and SES, socioeconomic status.

2.401 Zwillingspaare
(249 Männer)
weisse Rasse

KRANKENHAUS LINDENBRUN

27.02.2008

Exceptional Longevity in Men

Modifiable Factors Associated With Survival and Function to Age 90 Years

Laurel B. Yates, MD, MPH; Luc Djoussé, MD, MPH, DSc; Tobias Kurth, MD, ScD; Julie E. Buring, ScD; J. Michael Gaziano, MD, MPH

Arch Intern Med. 2008;168(3):284-290

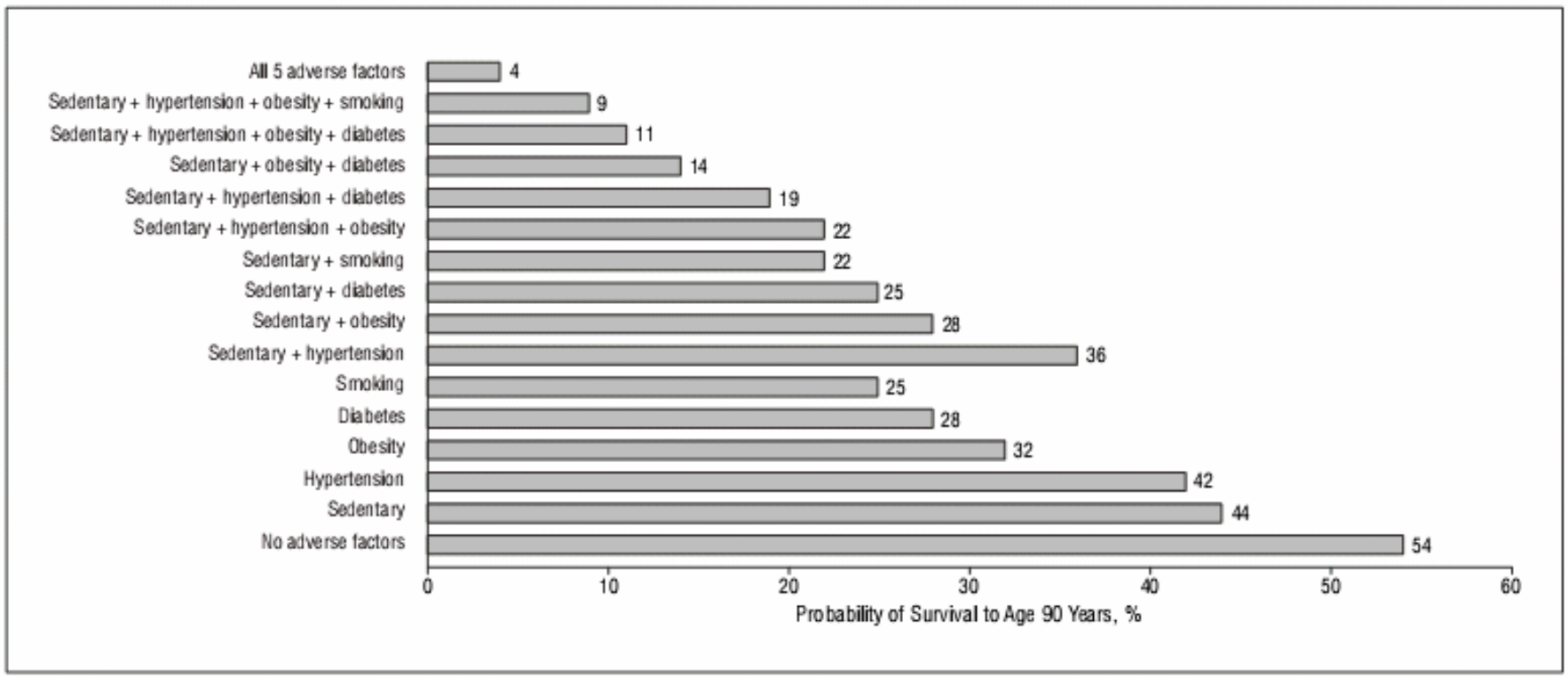


Figure. Probability of an additional 20-year survival to age 90 years for a 70-year-old man, according to the presence of 0 to 5 modifiable adverse factors at baseline, including smoking, diabetes, obesity, hypertension, and sedentary lifestyle, or their common clustering.

Körperliches Training und Demenz I

BMJ 2004;329:761

Körperliches Training und Demenz II

Exercise Is Associated with Reduced Risk for Incident Dementia among Persons 65 Years of Age and Older

Eric B. Larson, MD, MPH; Li Wang, MS; James D. Bowen, MD; Wayne C. McCormick, MD, MPH; Linda Teri, PhD; Paul Crane, MD, MPH; and Walter Kukull, PhD

Ann Intern Med. 2006;144:73-81

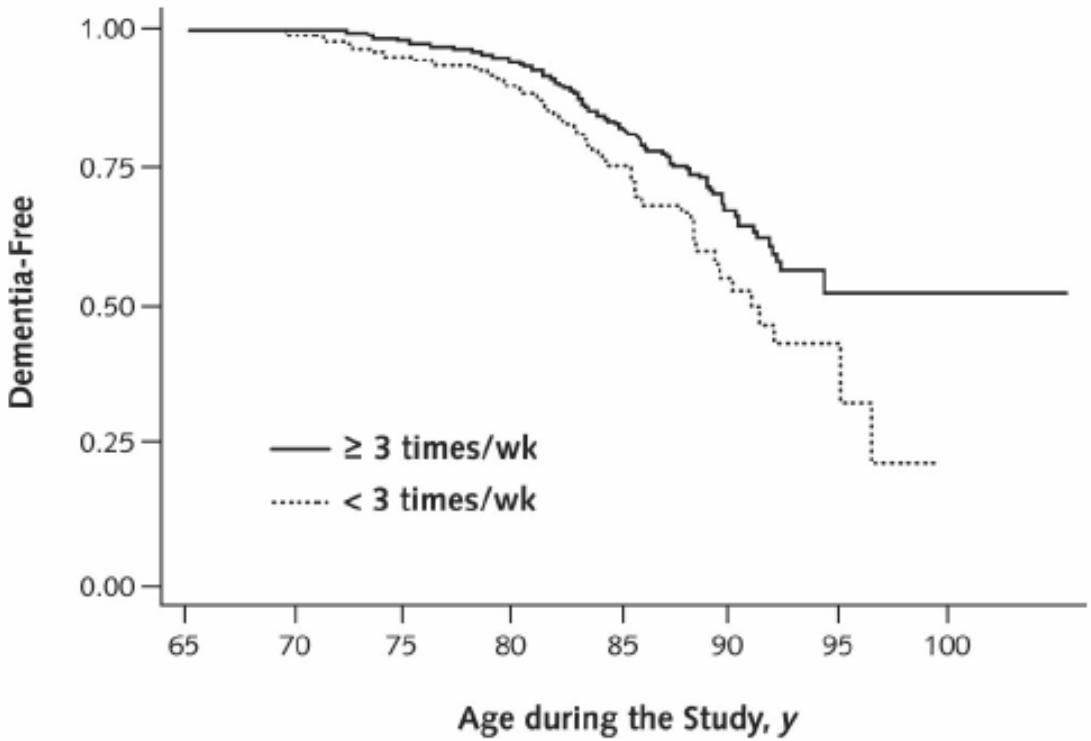
1.740 Studienteilnehmer, mittl. Alter 74 Jahre, 60 % Frauen, Follow up 6,2 Jahre

Exercise: ≥ 15 min an körperlicher (sportlicher) Aktivität

Test: PPF (Performance-based Physical Function), 4 Domänen Mit 0 bis 4 Punkte bewertet (Range 0-16)

Körperliches Training und Demenz III

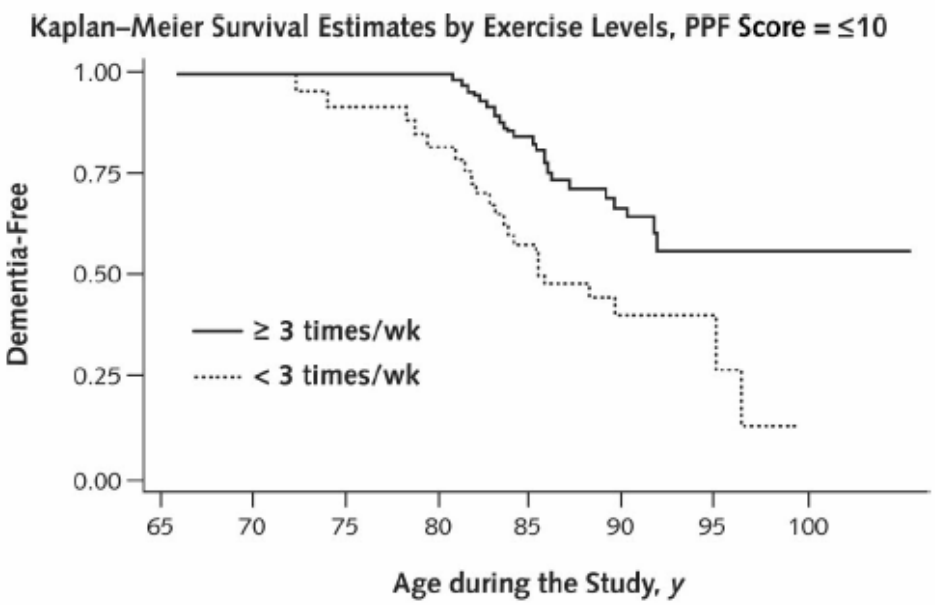
Figure 1. Kaplan–Meier survival estimates for the probabilities of being dementia-free.

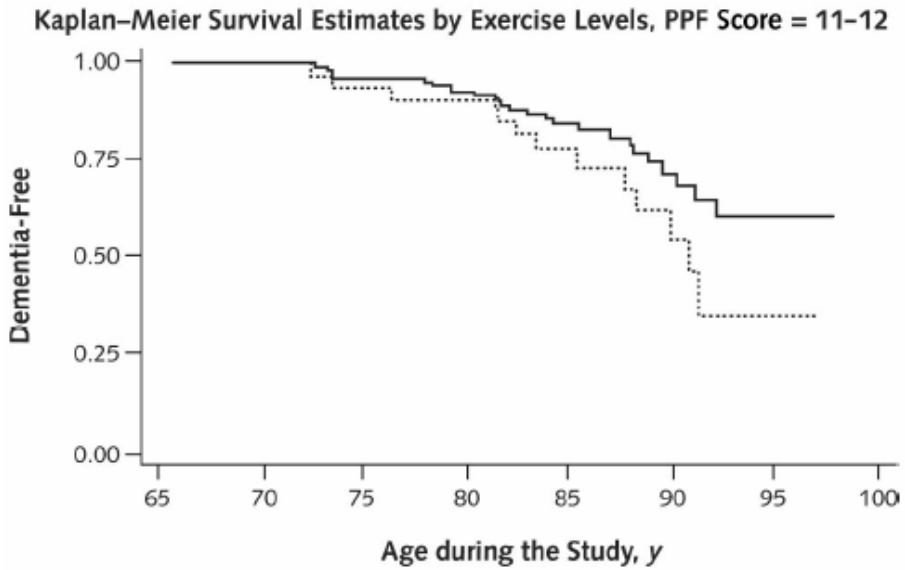


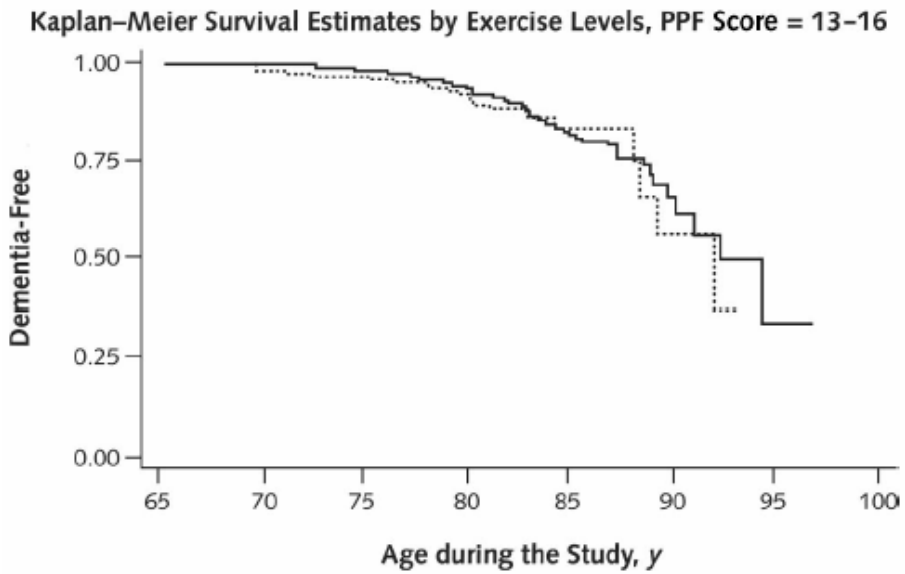
Persons who exercised 3 or more times per week were more likely to be dementia-free than those who exercised fewer than 3 times per week.

Körperliches Training und Demenz IV

Figure 2. Kaplan–Meier survival estimates by exercise and performance-based physical function (*PPF*) levels.



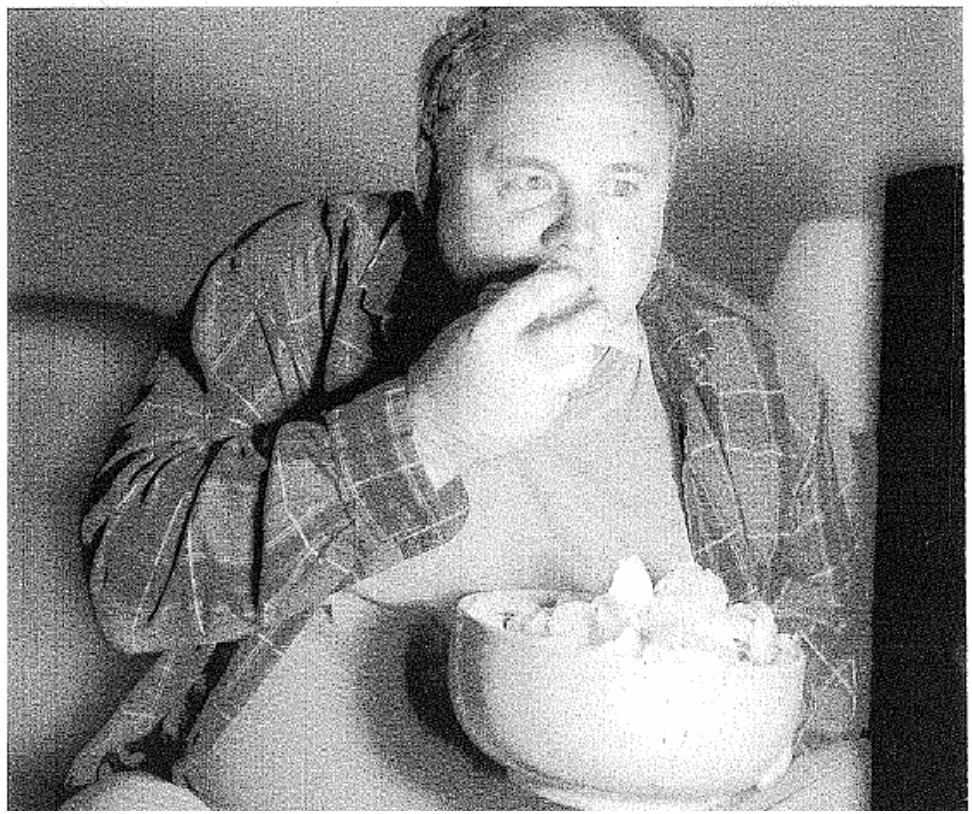




KRANKENHAUS LINDENBRUNN

Ernährung

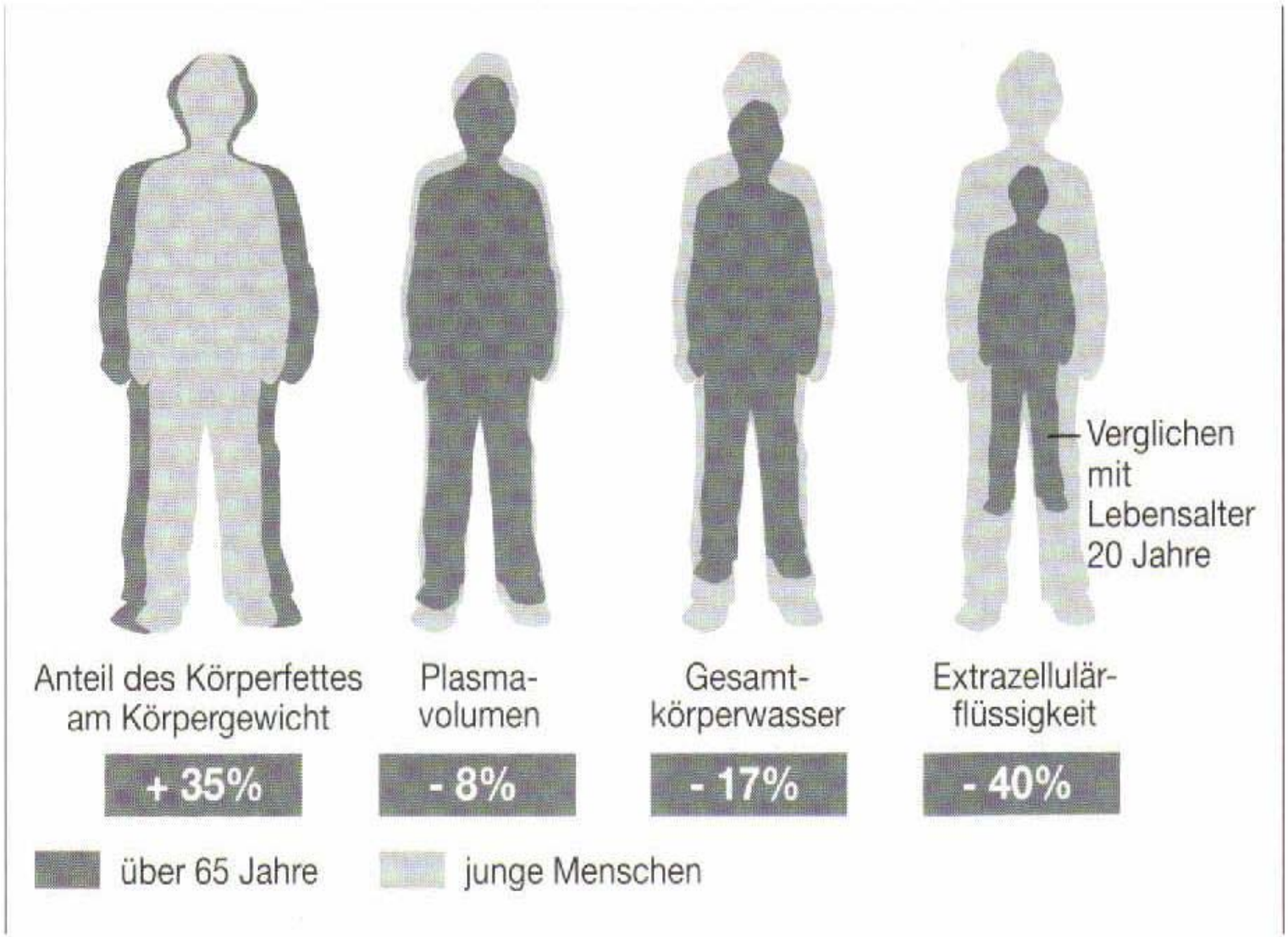
Fastfood, Fernbedienung, Fettpolster



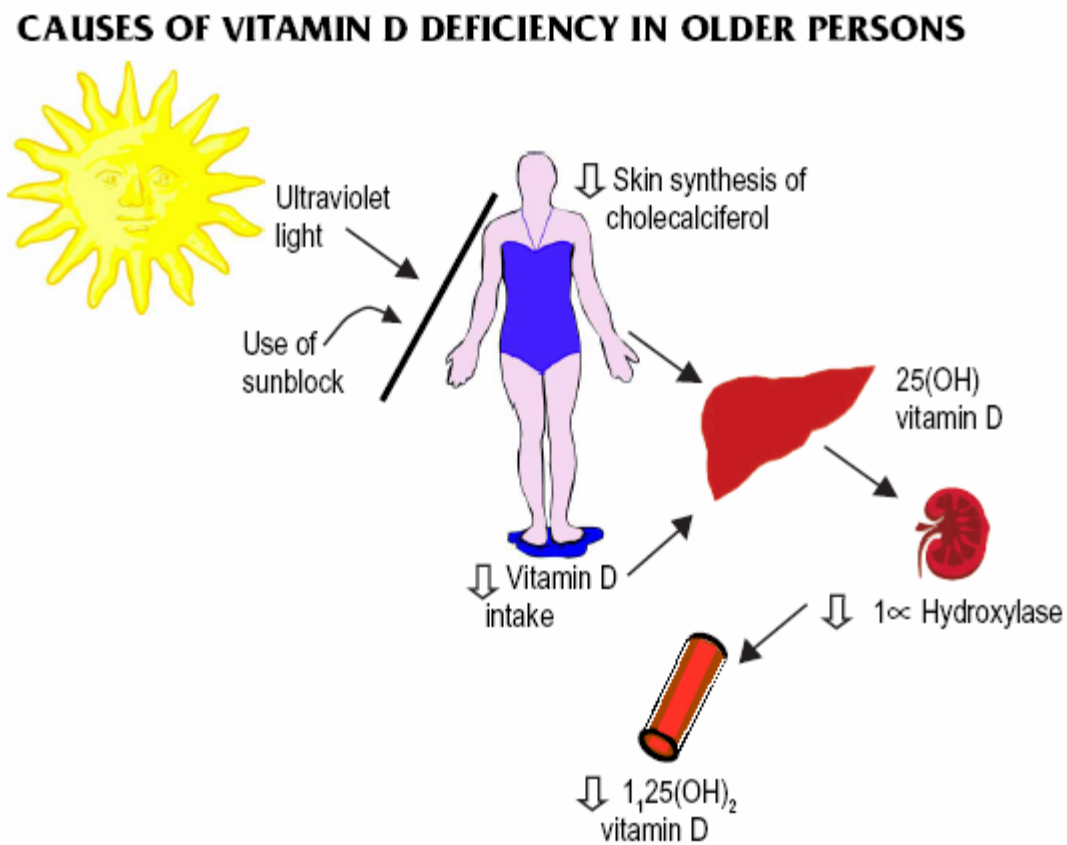
KRANKENHAUS LINDENBRUNN

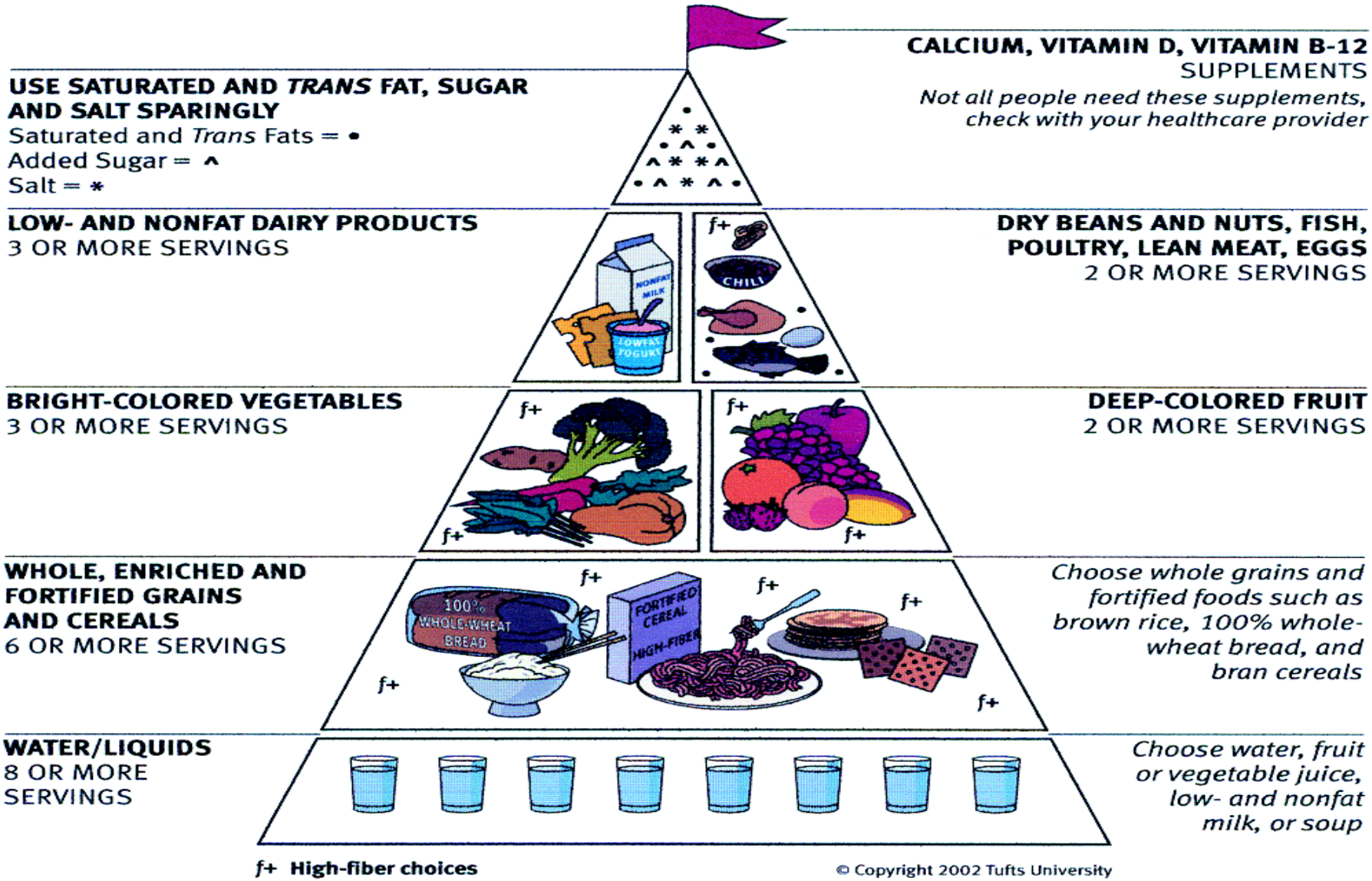
27.02.2008

Flüssigkeitshaushalt



Vitamin D


CAUSES OF VITAMIN D DEFICIENCY IN OLDER PERSONS
Ultraviolet light
Use of sunblock
⇩ Skin synthesis of cholecalciferol
25(OH) vitamin D
⇩ Vitamin D intake
⇩ 1∝ Hydroxylase
⇩ 1,25(OH)2 vitamin D



KRANKENHAUS LINDENBRUNN

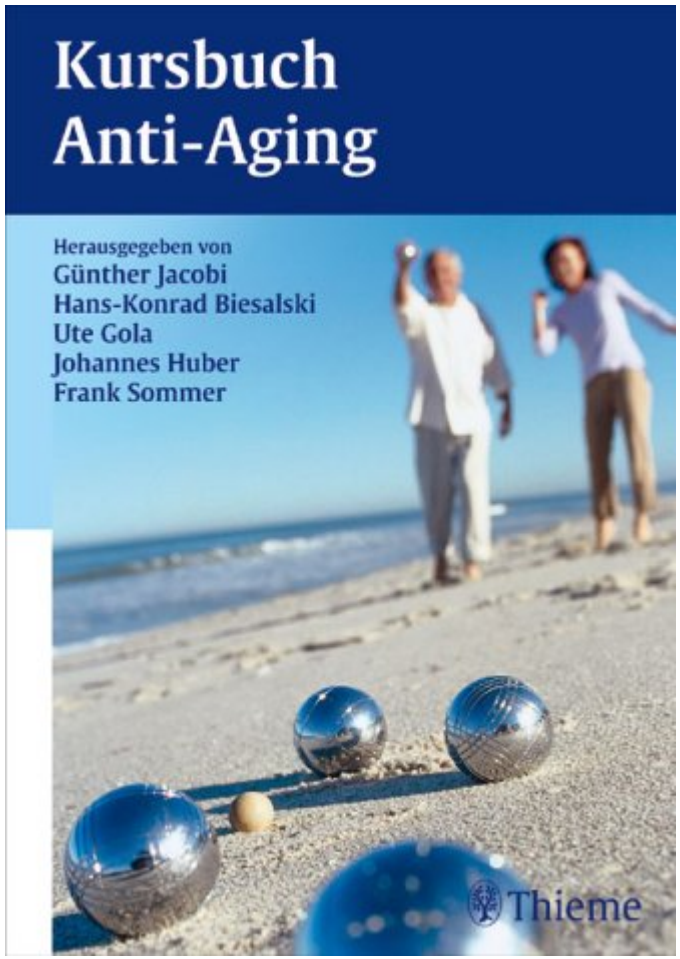
27.02.2008

Physiologische Sarkopenie

Alter	Muskelmasse (kg)	Fettmasse (kg)
20-29	24	15
40-49	20	19
60-69	17	23
70-79	13	25

„Anti-Aging“

- Ja ?
- Nein ?
- Jein ?



„Anti-Aging“

Wenig seriöse Ansätze

- Theoretische,
- Zellversuchs- und
- Tierversuchsergebnisse

auf den Menschen
zu übertragen

„Anti-Aging“

- Körperliches Training / Aktivität (Kraft, Ausdauer, Beweglichkeit)
- Richtige Ernährung
- Reduktion / Elemination von Risikofaktoren
- Soziale Beziehungen
- Geistige / Intellektuelle Aktivität


GET SOME EXERCISE
DO NOT SMOKE
WATCH YOUR WEIGHT
TO AGE SUCCESSFULLY
MANAGE CRISES WELL
DON'T ABUSE ALCOHOL
ENJOY A STABLE MARRIAGE