Epi-Lunch-Seminar

Mediterranean Diet and Mortality in Switzerland: An Alpine Paradox?

David Fäh

Epidemiology,
Biostatistics and
Prevention Institute

Universität Zürich[UZH]

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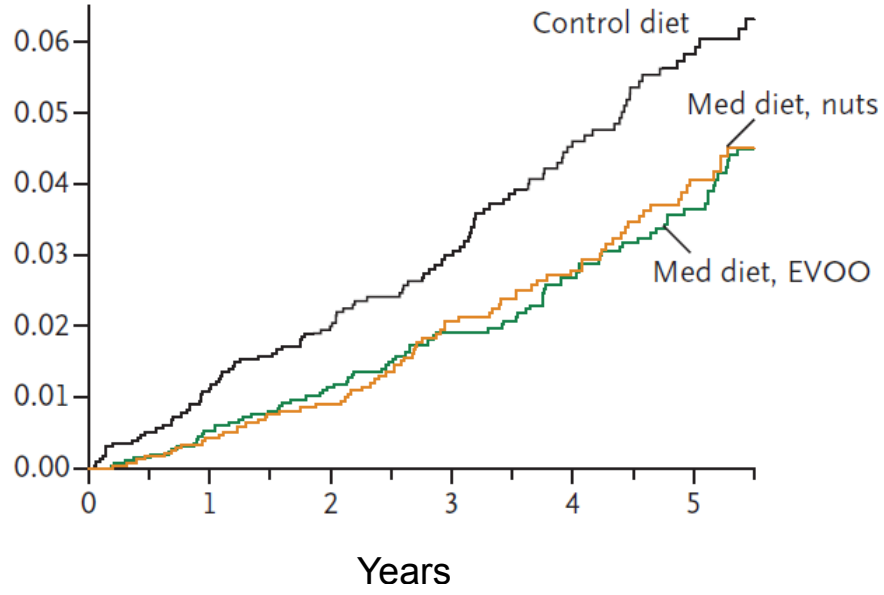
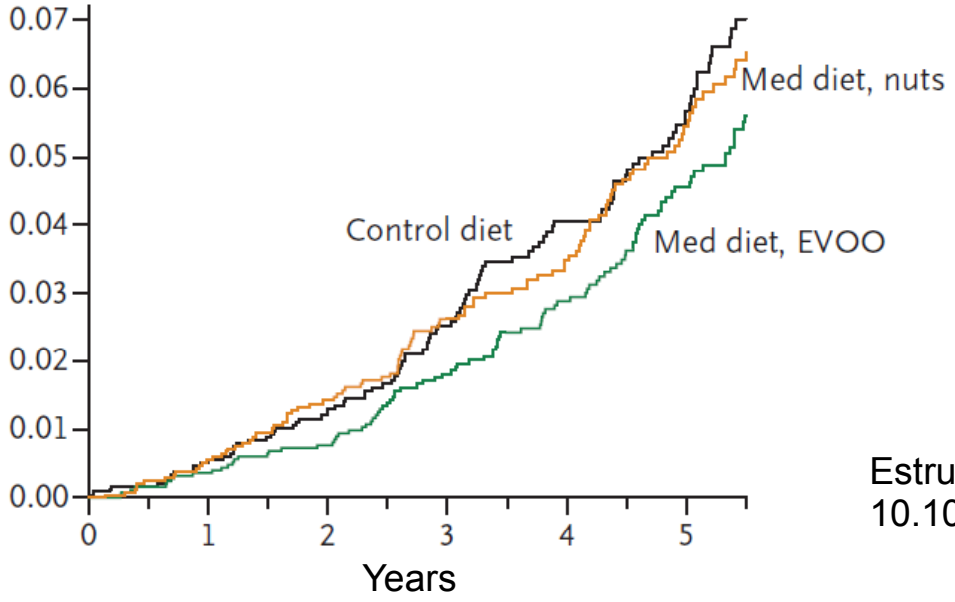


CVD incidence

(acute, myocardial infarction, stroke, or death from cardiovascular causes)



Total Mortality

Estruch R et al. N Engl J Med 2013. DOI: 10.1056/NEJMoa1200303

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Sterberisiko, das mit der Mediterranen Ernährungsweise (ME) assoziiert ist: Was bleibt nach Abzug einzelner ME-Komponenten?

Variable	Relatives Sterberisiko	P-Wert	Reduktion des Effektes (%)
ME gesamt	0.864	<0.001	0
ME minus Gemüse	0.886	0.002	16.2
ME minus Hülsenfrüchte	0.877	<0.001	9.7
ME minus Früchte und Nüsse	0.879	0.001	11.2
ME minus Nahrungsfasern	0.872	<0.001	6.1
ME minus einfach ungesättigte / gesättigte Fettsäuren (Quotient)	0.878	0.003	10.6
ME minus Verzicht auf Milchprodukte	0.870	<0.001	4.5
ME minus Verzicht auf Fleisch / -produkte	0.887	0.001	16.6
ME minus Alkohol	0.896	0.002	23.5

BMJ. 2009 Jun 23;338:b2337.

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- Ist der positive Effekt einer mediterranen Ernährungsweise auch in der Schweiz sichtbar
  - Falls ja: in allen 3 Sprachregionen?

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- Ist der positive Effekt einer mediterranen Ernährungsweise auch in der Schweiz sichtbar
  - Falls ja: in allen 3 Sprachregionen?

- Ist der Einfluss der einzelnen Komponenten der Mediterranen Ernährung gleich wie in mediterranen Ländern?

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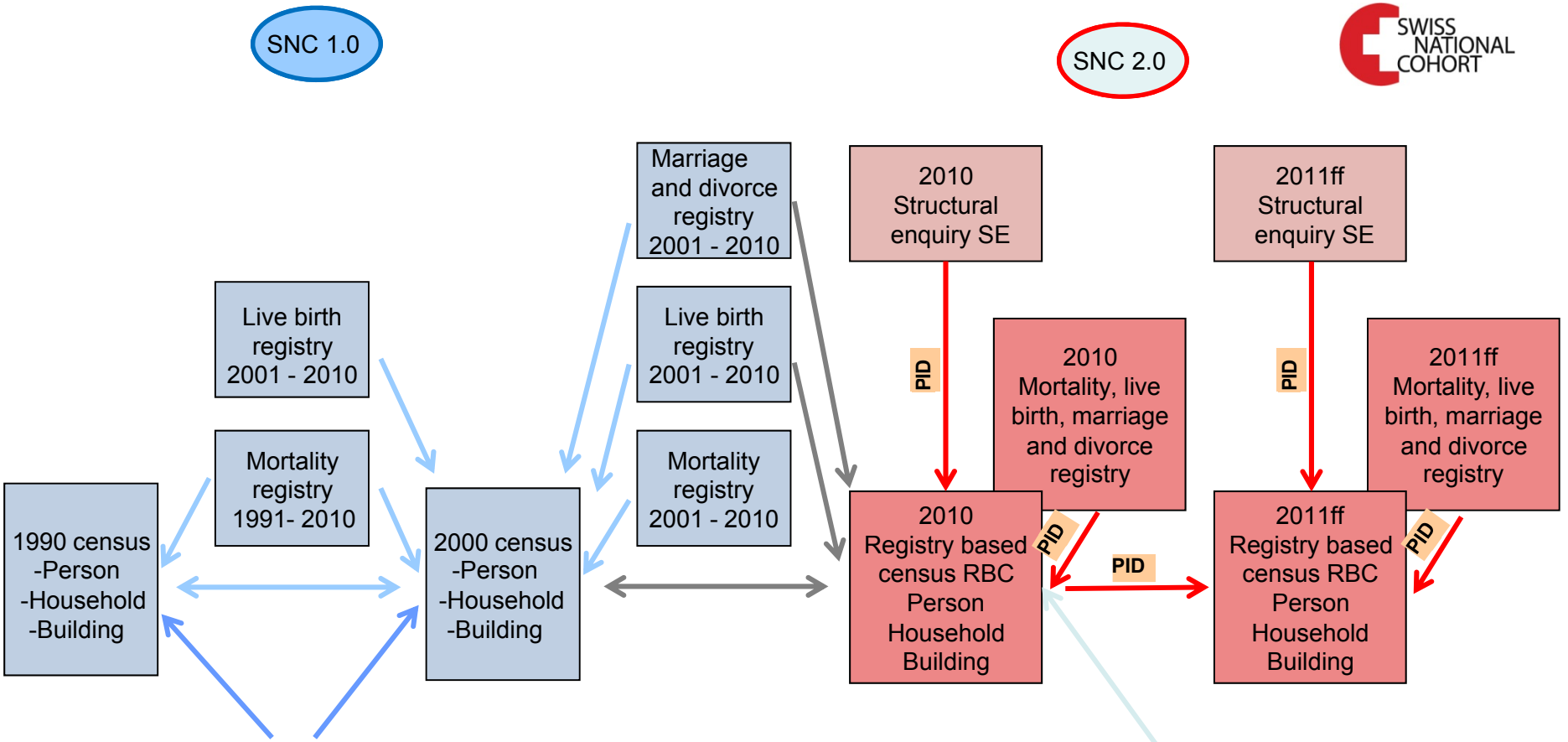
SNC 1.0
SNC 2.0
SWISS NATIONAL COHORT
1990 census -Person -Household -Building
Mortality registry 1991- 2010
Live birth registry 2001 - 2010
2000 census -Person -Household -Building
Marriage and divorce registry 2001 - 2010
Live birth registry 2001 - 2010
Mortality registry 2001 - 2010
2010 Structural enquiry SE
2011ff Structural enquiry SE
PID
2010 Mortality, live birth, marriage and divorce registry
2011ff Mortality, live birth, marriage and divorce registry
2010 Registry based census RBC Person Household Building
2011ff Registry based census RBC Person Household Building
PID
PID
PID
PID
• Swiss Childhood Cancer Registry
• Regional Cancer Registries
• Medical Statistics of Hospitals
• SAPALDIA
• MONICA, NFP 1A
• National Health Survey 92
• Swiss HIV Cohort Study
• ProAge
• Swiss Household Panel
• Environmental exposures
• Tax Revenue Data
• Lung Function Survey
• National Health Surveys 1997, 2002, 2007, 2012
• FIVNAT ART register
• Swiss Homicide Database
• Spinal Cord Injury Cohort (SwiSCI)
• Microcensus Mobility and Transport 2010

Swiss MD-Score

1. “Have you had salad or crude vegetables yesterday?”, yes (1 point)
2. “Have you had cooked vegetable (except potatoes) yesterday?” yes, (1 point);
3. “Have you had fruits yesterday?”, yes (1 point);
4. “Have you had milk, cheese, yogurt, milkdrink or skimmilk yesterday?”, yes (1 point)
5. “Have you had wholemeal bread yesterday?”, yes (1 point);
6. “Which type of meat did you eat yesterday?” No red or processed meat (1 point);
7. “Have you had fish yesterday?”, yes (1 point);
8. “Which type of fat/oil do you mainly use for the preparation of warm and cold meals?” Olive and canola oil for warm (0.5 point) and cold (additional 0.5 point) meals;
9. ”Have you had wine yesterday?”, yes (1 point);

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	Men			Women			All		
	Basic model	**Full model**	**Full model + mutually adjusted (HR (95% CI))**	**Basic model**	**Full model**	**Full model + mutually adjusted (HR (95% CI))**	**Basic model**	**Full model**	**Full model + mutually adjusted (HR (95% CI))**
All cause									
Salad	0.92	0.95	0.93 (0.84-1.03)	0.95	0.97	0.96 (0.86-1.08)	0.93	0.96	0.94 (0.88-1.02)
Vegetables	0.96	1.00	0.99 (0.90-1.10)	1.00	1.02	1.00 (0.89-1.12)	0.97	1.00	0.99 (0.92-1.07)
Fruits	**0.80**	**0.85**	**0.87 (0.78-0.96)**	**0.85**	0.90	0.91 (0.80-1.04)	**0.81**	**0.87**	**0.88 (0.81-0.95)**
Dairy products[b]	**0.82**	0.88	0.89 (0.77-1.02)	**0.84**	0.91	0.92 (0.79-1.08)	**0.82**	**0.88**	**0.89 (0.80-0.99)**
Whole grains	0.92	0.95	0.96 (0.87-1.06)	0.95	0.97	0.96 (0.86-1.07)	0.93	0.96	0.96 (0.89-1.03)
No or white meat	1.01	1.01	1.03 (0.92-1.16)	0.99	0.98	0.95 (0.84-1.08)	0.99	0.99	0.99 (0.91-1.08)
Fish	0.96	0.96	0.98 (0.83-1.14)	1.16	1.16	1.13 (0.94-1.36)	1.03	1.04	1.03 (0.91-1.16)
Monounsaturated lipids[c]	**0.88**	**0.88**	**0.89 (0.80-0.98)**	0.97	0.98	1.02 (0.91-1.15)	**0.91**	**0.91**	0.94 (0.87-1.01)
Alcohol (wine)	1.03	0.99	1.04 (0.95-1.16)	1.03	1.02	1.05 (0.94-1.18)	1.03	1.01	1.05 (0.98-1.13)
Cardiovascular disease (CVD)									
Salad	1.03	1.07	1.04 (0.87-1.25)	0.98	0.97	0.93 (0.77-1.14)	1.00	1.03	0.99 (0.87-1.13)
Vegetables	0.95	1.01	1.00 (0.84-1.19)	1.00	1.04	1.10 (0.89-1.34)	0.97	1.02	1.03 (0.90-1.17)
Fruits	**0.83**	0.87	0.87 (0.73-1.04)	0.88	0.91	0.92 (0.73-1.15)	**0.84**	0.89	0.90 (0.78-1.03)
Dairy products[b]	0.89	0.95	0.90 (0.69-1.17)	0.96	1.03	1.05 (0.79-1.41)	0.91	0.96	0.94 (0.77-1.14)
Whole grains	1.16	1.21	1.17 (0.98-1.39)	1.04	1.02	0.93 (0.76-1.12)	1.10	1.12	1.07 (0.94-1.21)
No or white meat	1.00	0.99	1.03 (0.84-1.26)	1.06	1.05	1.00 (0.82-1.23)	1.02	1.01	1.01 (0.88-1.17)
Fish	0.80	0.82	0.88 (0.66-1.18)	1.19	1.23	1.21 (0.88-1.66)	0.93	0.97	1.00 (0.81-1.24)
Monounsaturated lipids[c]	**0.75**	**0.75**	**0.80 (0.66-0.95)**	0.88	0.92	0.96 (0.78-1.19)	**0.79**	**0.80**	**0.85 (0.74-0.97)**
Alcohol (wine)	0.89	**0.85**	0.90 (0.76-1.07)	0.88	0.92	1.03 (0.85-1.24)	**0.89**	**0.89**	0.97 (0.85-1.10)
Cancer									
Salad	0.87	0.91	0.90 (0.76-1.06)	0.97	0.99	1.02 (0.84-1.24)	0.92	0.94	0.95 (0.83-1.08)
Vegetables	0.91	0.95	0.95 (0.81-1.12)	0.89	0.91	0.86 (0.71-1.04)	0.90	0.93	0.91 (0.80-1.03)
Fruits	**0.76**	**0.80**	**0.82 (0.70-0.97)**	**0.76**	**0.81**	0.83 (0.67-1.02)	**0.76**	**0.81**	**0.83 (0.73-0.95)**
Dairy products[b]	**0.78**	0.83	0.81 (0.65-1.02)	0.88	0.95	0.97 (0.74-1.28)	**0.83**	0.88	0.88 (0.74-1.05)
Whole grains	**0.84**	0.88	0.88 (0.75-1.05)	0.95	1.00	1.05 (0.87-1.27)	**0.88**	0.92	0.95 (0.84-1.07)
No or white meat	1.03	1.06	1.09 (0.90-1.31)	**0.80**	**0.80**	**0.76 (0.62-0.94)**	0.92	0.93	0.93 (0.81-1.07)
Fish	1.00	0.99	0.95 (0.73-1.23)	1.10	1.10	1.08 (0.79-1.47)	1.04	1.04	1.00 (0.82-1.23)
Monounsaturated lipids[c]	0.88	0.85	0.85 (0.72-1.01)	1.10	1.08	1.11 (0.92-1.35)	0.97	0.95	0.96 (0.85-1.09)
Alcohol (wine)	1.17	1.10	1.17 (0.99-1.39)	1.22	1.20	1.14 (0.95-1.38)	1.20	1.16	1.17 (1.04-1.33)

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	Men	Women	All
	HR (95% CI)	**HR (95% CI)**	**HR (95% CI)**
All cause			
Basic model			
Milk products in general	**0.82 (0.72-0.93)**	**0.84 (0.73-0.97)**	**0.82 (0.75-0.91)**
Whole milk products	**0.84 (0.74-0.96)**	**0.85 (0.73-0.98)**	**0.84 (0.76-0.92)**
Low-fat milk products	**0.77 (0.66-0.89)**	**0.81 (0.70-0.95)**	**0.78 (0.70-0.87)**
Full model			
Milk products in general	0.88 (0.77-1.00)	0.91 (0.79-1.04)	**0.88 (0.80-0.96)**
Whole milk products	0.90 (0.78-1.02)	0.90 (0.78-1.04)	**0.89 (0.80-0.98)**
Low-fat milk products	**0.82 (0.71-0.96)**	0.90 (0.76-1.05)	**0.84 (0.76-0.94)**
Cardiovascular disease (CVD)			
Basic model			
Milk products in general	0.89 (0.71-1.13)	0.96 (0.76-1.23)	0.91 (0.77-1.08)
Whole milk products	0.87 (0.69-1.11)	0.97 (0.75-1.25)	0.90 (0.76-1.07)
Low-fat milk products	0.92 (0.71-1.20)	0.93 (0.70-1.22)	0.91 (0.75-1.09)
Full model			
Milk products in general	0.95 (0.75-1.20)	1.03 (0.80-1.32)	0.96 (0.81-1.13)
Whole milk products	0.93 (0.73-1.19)	1.02 (0.79-1.32)	0.95 (0.79-1.23)
Low-fat milk products	0.99 (0.76-1.29)	1.01 (0.77-1.34)	0.97 (0.80-1.17)
Cancer			
Basic model			
Milk products in general	**0.78 (0.63-0.96)**	0.88 (0.69-1.13)	**0.83 (0.71-0.97)**
Whole milk products	0.82 (0.66-1.02)	0.92 (0.72-1.19)	0.87 (0.74-1.02)
Low-fat milk products	**0.67 (0.52-0.86)**	0.77 (0.58-1.02)	**0.72 (0.60-0.87)**
Full model			
Milk products in general	0.83 (0.67-1.03)	0.95 (0.74-1.21)	0.88 (0.75-1.04)
Whole milk products	0.87 (0.70-1.08)	0.98 (0.76-1.27)	0.92 (0.78-1.08)
Low-fat milk products	**0.71 (0.55-0.92)**	0.84 (0.63-1.11)	**0.77 (0.64-0.93)**

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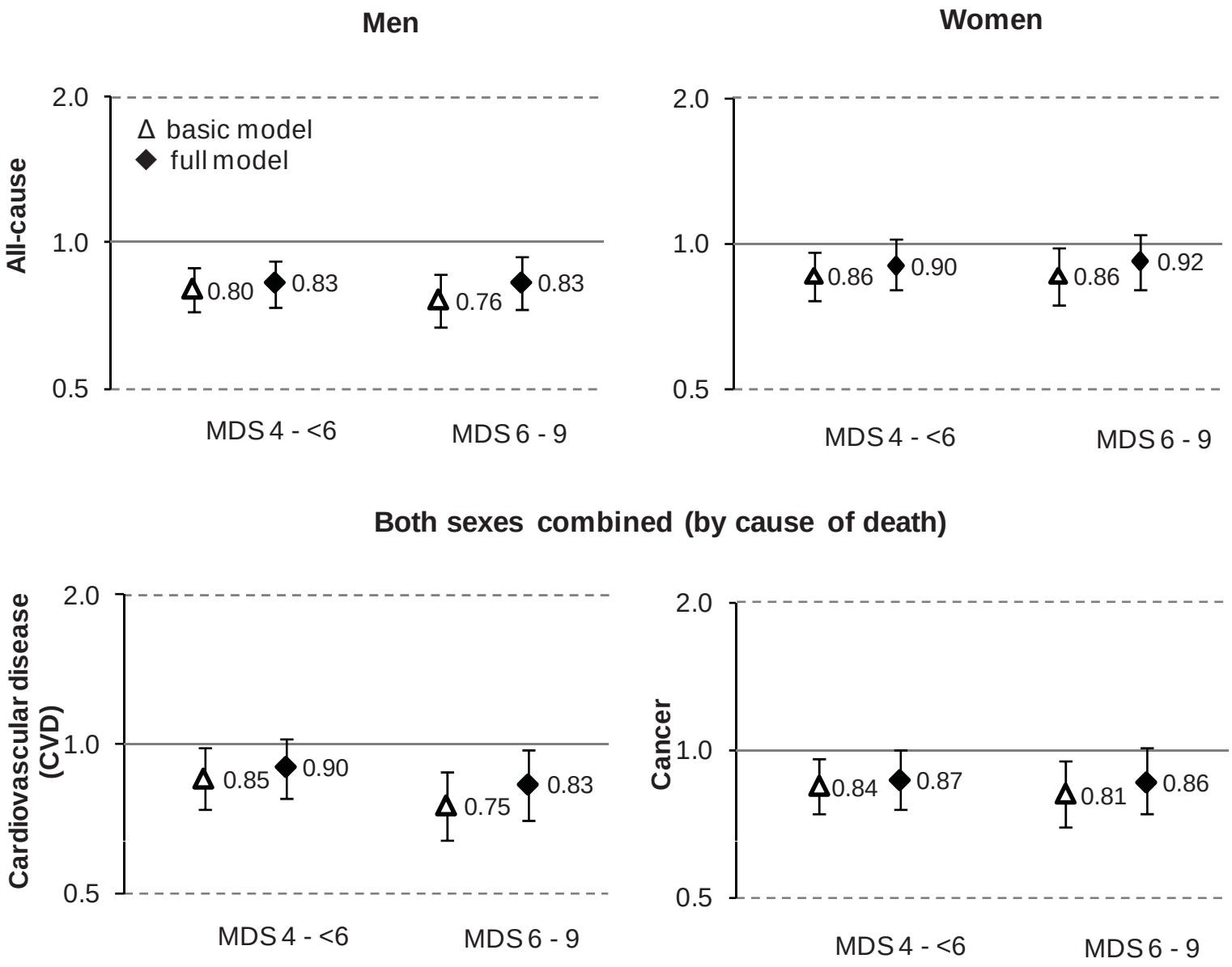

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	Nationality				
	Swiss	Italian, Spanish, French	German, Austrian, British	Others	All
Swiss region					
German	4.57 (4.52-4.61)	4.70 (4.56-4.85)	4.35 (4.13-4.56)	4.29 (4.11-4.47)	4.56 (4.51-4.60)
French	4.56 (4.53-4.59)	4.71 (4.62-4.79)	4.55 (4.41-4.69)	4.58 (4.38-4.78)	4.58 (4.55-4.61)
Italian	4.65 (4.60-4.69)	4.67 (4.58-4.76)	4.53 (4.18-4.88)	*	4.65 (4.61-4.69)
All	4.59 (4.56-4.61)	4.69 (4.64-4.75)	4.50 (4.39-4.61)	4.42 (4.28-4.55)	4.59 (4.57-4.61)

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	Nationality				
	Swiss	Italian, Spanish, French	German, Austrian, British	Others	All
Swiss region					
German	4.57 (4.52-4.61)	4.70 (4.56-4.85)	4.35 (4.13-4.56)	4.29 (4.11-4.47)	4.56 (4.51-4.60)
French	4.56 (4.53-4.59)	4.71 (4.62-4.79)	4.55 (4.41-4.69)	4.58 (4.38-4.78)	4.58 (4.55-4.61)
Italian	4.65 (4.60-4.69)	4.67 (4.58-4.76)	4.53 (4.18-4.88)	*	4.65 (4.61-4.69)
All	4.59 (4.56-4.61)	4.69 (4.64-4.75)	4.50 (4.39-4.61)	4.42 (4.28-4.55)	4.59 (4.57-4.61)

	Nationality				
	Swiss	Italian, Spanish, French	German, Austrian, British	Others	All
Swiss region					
German	0.95 (0.91-0.99)	0.87 (0.76-1.00)	0.91 (0.68-1.23)	1.07 (0.88-1.30)	0.95 (0.91-0.99)
French	0.95 (0.92-0.98)	0.92 (0.82-1.03)	0.93 (0.75-1.15)	0.96 (0.80-1.15)	0.95 (0.92-0.98)
Italian	0.91 (0.86-0.97)	0.90 (0.79-1.03)	1.38 (0.80-2.40)	*	0.92 (0.87-0.97)
All	0.94 (0.92-0.97)	0.90 (0.83-0.97)	0.98 (0.83-1.15)	1.00 (0.88-1.14)	0.94 (0.92-0.96)

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- In der Schweiz ist eine mediterrane Ernährungsweise mit einem niedrigeren Sterberisiko assoziiert, M>F
- Diese Zusammenhang existiert unabhängig vom kulturellen Hintergrund (D, F, I)
- Konsum von Milch und Milchprodukten hatte einen protektiven Einfluss

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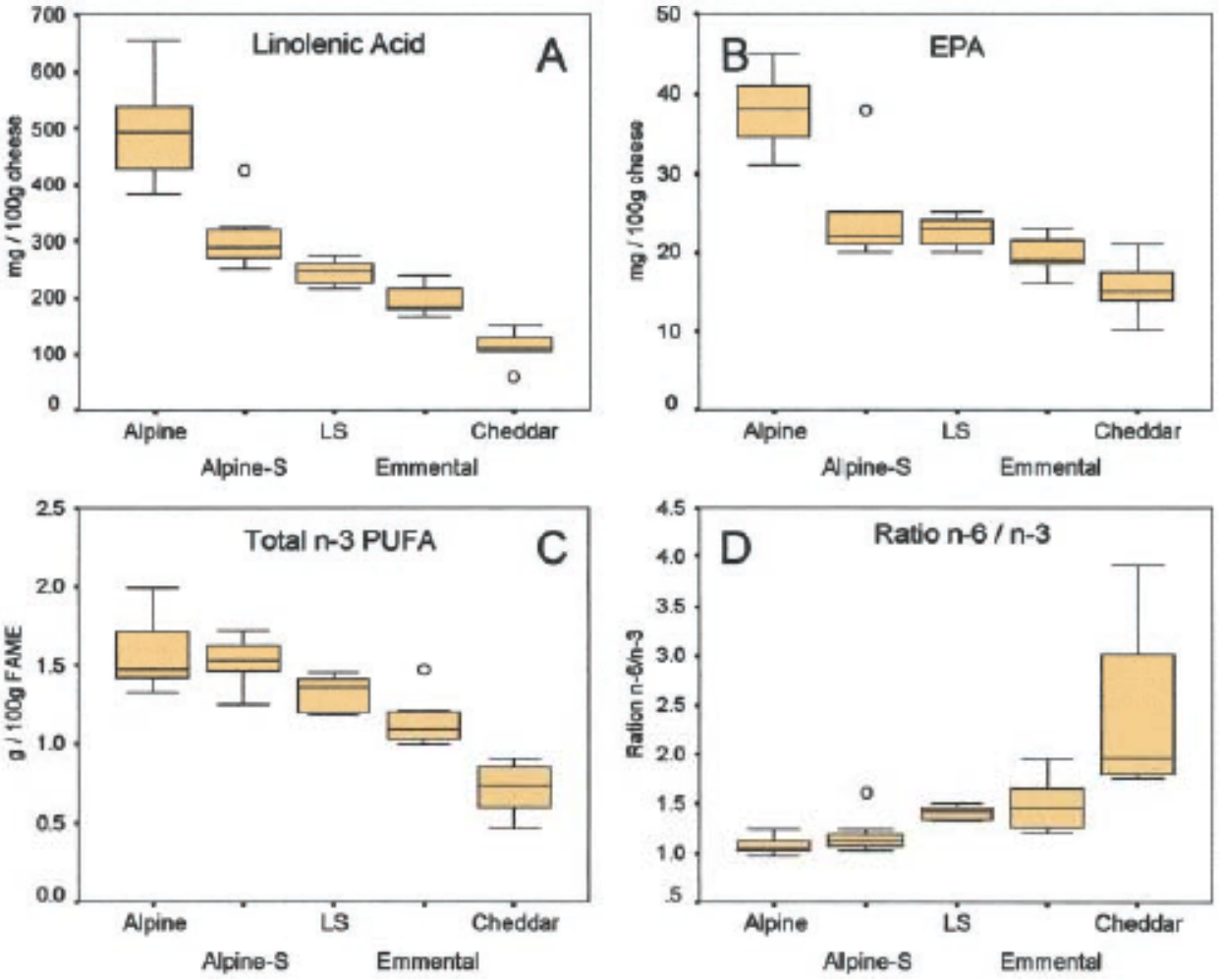

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- In nicht-mediterranen Ländern: Kulturelle Adaptation der mediterranen Ernährung (?)

- Traditionell statt mediterran (?)

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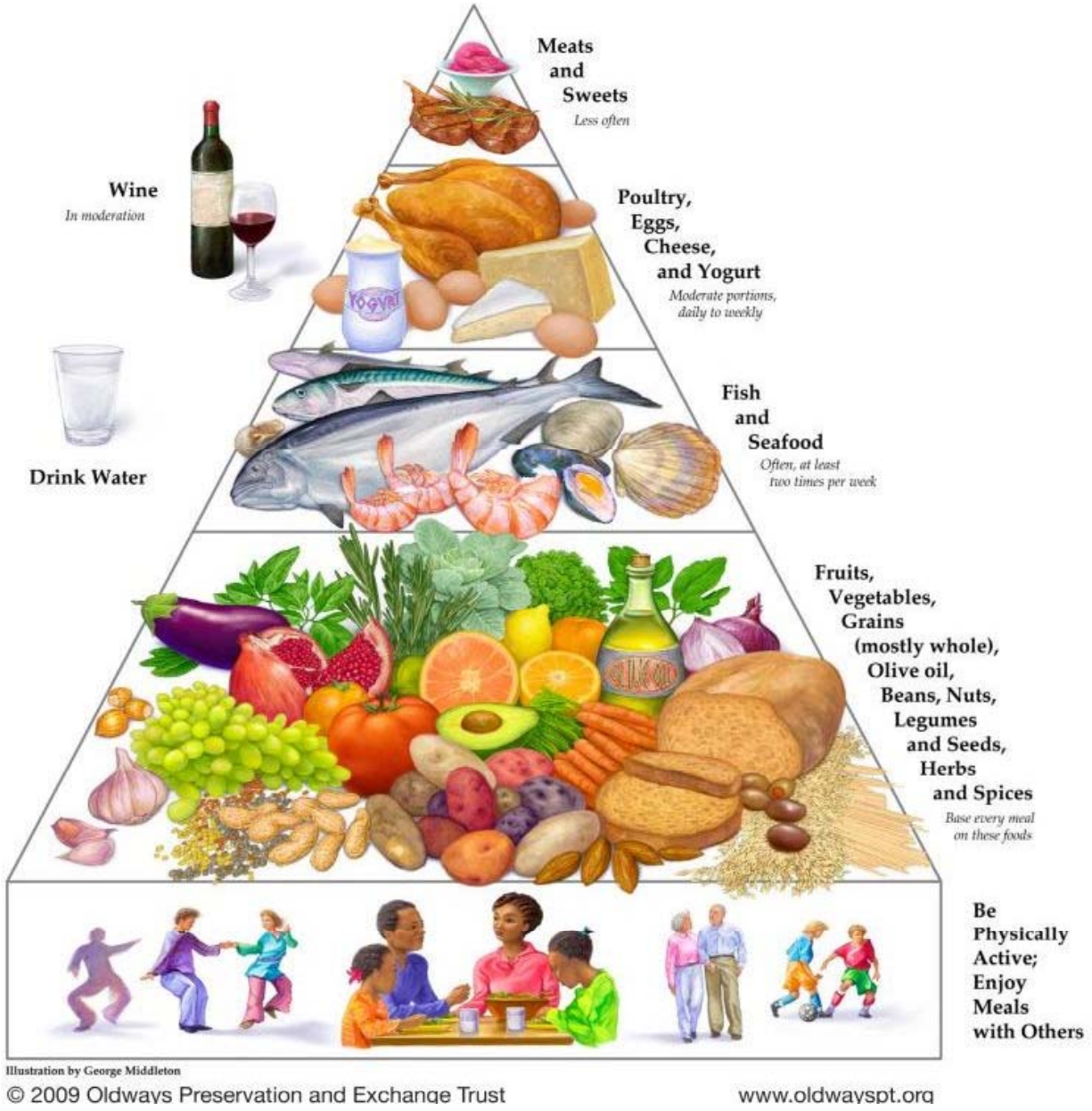

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