Approche globale de la dyslipidémie

Dre Marie-Kristelle Ross

Cardiologue

Hôte-Dieu de Lévis

29 novembre 2018

Conflit d’intérêt

- Aucun

Plan de la présentation

- L’implication des lipides dans la maladie athérosclérotique
- Impact des habitudes de vies sur la dyslipidémie
- Comment quantifier le risque cardiovasculaire
- Quand initier/intensifier un traitement pharmacologique

L’implication des lipides dans la maladie athérosclérotique

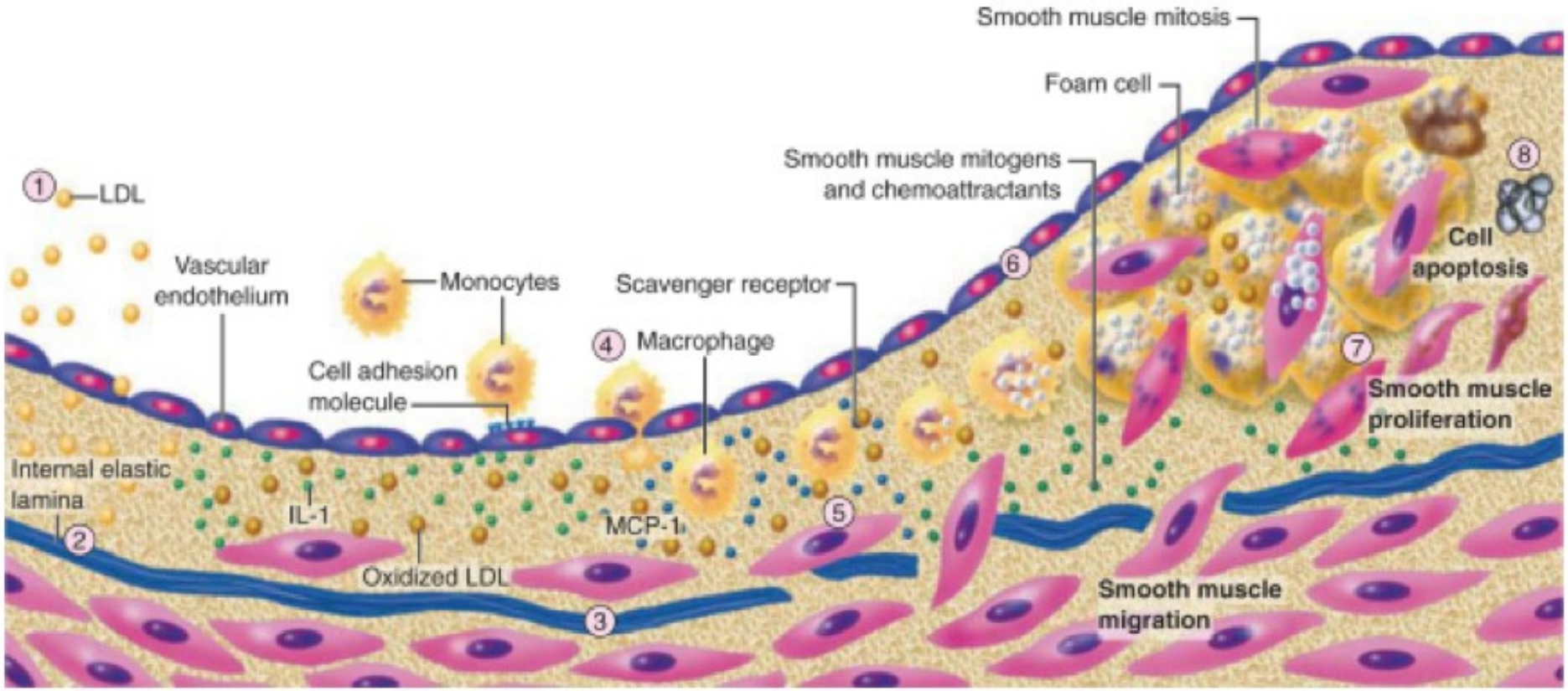
La théorie des lipides

- Nikolai Anitschkow (1885–1964)

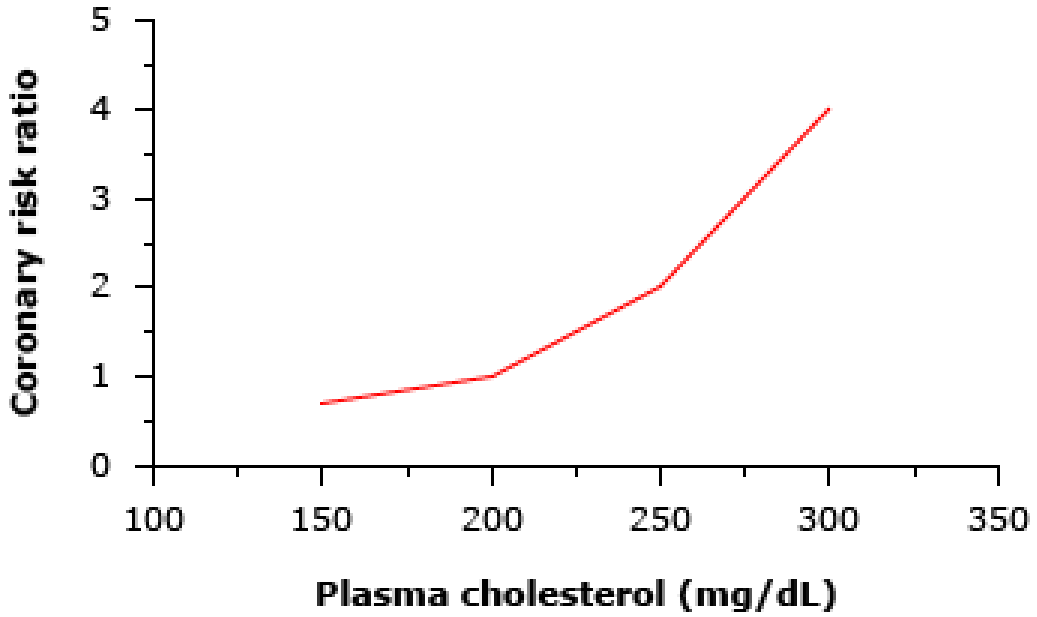
- Diète très riche en gras saturés à des lapins

- **Premier à démontrer que le cholestérol cause des changements athéromateux dans l’intima des artères**

Comment se forme l'athérosclérose?



Association of increasing plasma cholesterol and coronary risk



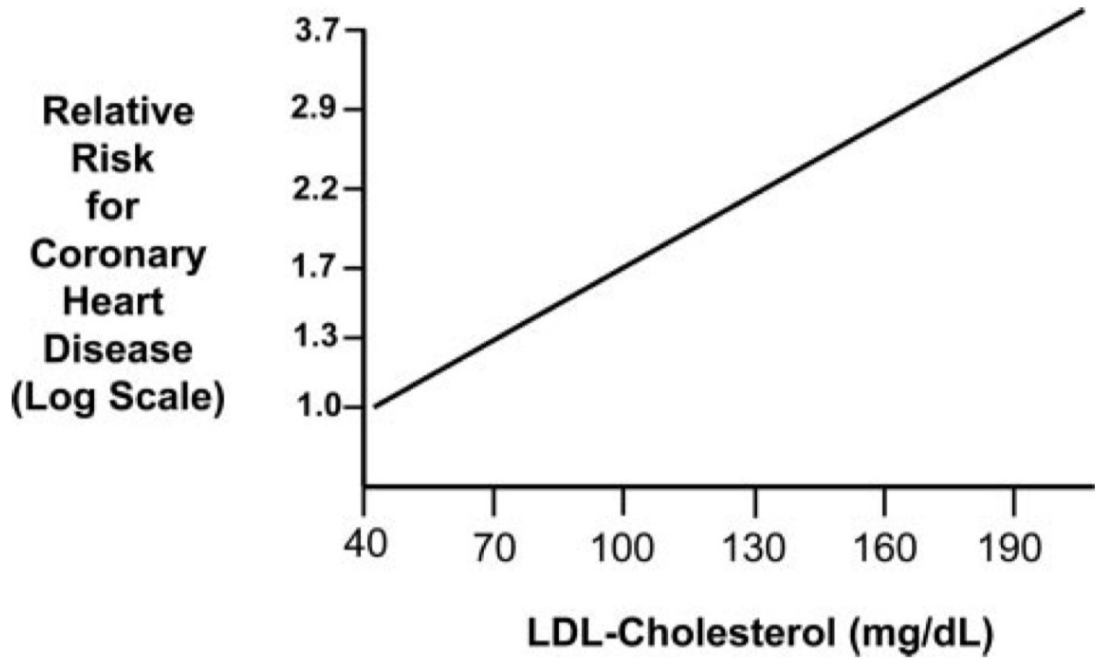
Relation between plasma cholesterol concentration and six-year coronary heart disease risk in 361,662 men (ages 35 to 57) screened during the MRFIT study. There is a continuous, positive, graded correlation between the plasma cholesterol concentration and coronary risk. To convert plasma cholesterol to mmol/L, divide by 38.5.

Data from: Stamler J, Wentworth D, Neaton JD. JAMA 1986; 256:2823.

Implications of Recent Clinical Trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines

Scott M. Grundy; James I. Cleeman; C. Noel Bairey Merz; H. Bryan Brewer, Jr; Luther T. Clark; Donald B. Hunninghake*; Richard C. Pasternak; Sidney C. Smith, Jr; Neil J. Stone; for the Coordinating Committee of the National Cholesterol Education Program

Circulation. 2004;110:227-239



They indicate that for every 1% reduction in LDL-C levels, relative risk for major CHD events is reduced by approximately 1%. HPS data suggest that this relationship holds for LDL-C levels even below 100 mg/dL (Figure). Currently

Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study

*Salim Yusuf, Steven Hawken, Stephanie Ôunpuu, Tony Dans, Alvaro Avezum, Fernando Lanas, Matthew McQueen, Andrzej Budaj, Prem Pais, John Varigos, Liu Lisheng, on behalf of the INTERHEART Study Investigators**

Lancet 2004; 364: 937–52

1. Apolipoproteins ratio (OR 3.25)
2. Smoking (OR 2.87)
3. Dietary patterns (OR 2.67)
4. Psychological factors (OR 2.67)
5. Diabetes (OR 2.37)
6. Hypertension (OR 1.91)
7. Waist/hip ratio (OR 1.12)
8. Consumption of alcool (OR 0.91)
9. Physical activity (OR 0.86)

men and women, old and young, and in all regions of the world. Collectively, these nine risk factors accounted for 90% of the PAR in men and 94% in women.

Atherosclerosis across 4000 years of human history: the Horus study of four ancient populations

Randall C Thompson, Adel H Allam, Guido P Lombardi, L Samuel Wann, M Linda Sutherland, James D Sutherland, Muhammad Al-Tohamy Soliman, Bruno Frohlich, David T Mininberg, Janet M Monge, Clide M Vallodolid, Samantha L Cox, Gomaa Abd el-Maksoud, Ibrahim Badr, Michael I Miyamoto, Abd el-Halim Nur el-din, Jagat Narula, Caleb E Finch, Gregory S Thomas

www.thelancet.com **Published online March 10, 2013 http://dx.doi.org/10.1016/S0140-6736(13)60598-X**

Prévalence de l’athérosclérose

- 2 études sur les soldats
  - Guerre de Corée (1953)
  - Guerre du Vietnam (1971)

CORONARY DISEASE AMONG UNITED STATES SOLDIERS KILLED IN ACTION IN KOREA

PRELIMINARY REPORT

Major William F. Enos, Lieut. Col. Robert H. Holmes (MC), U. S. Army
and
Capt. James Beyer (MC), Army of the U. S.

- 200 soldats américains
- Age moyen de 22.1 ans
  - 18 à 48 ans
- **77.3% avaient de l'athérosclérose**

TABLE 1.—*Percentage of Cases Showing Varying Amounts of Luminal Narrowing*

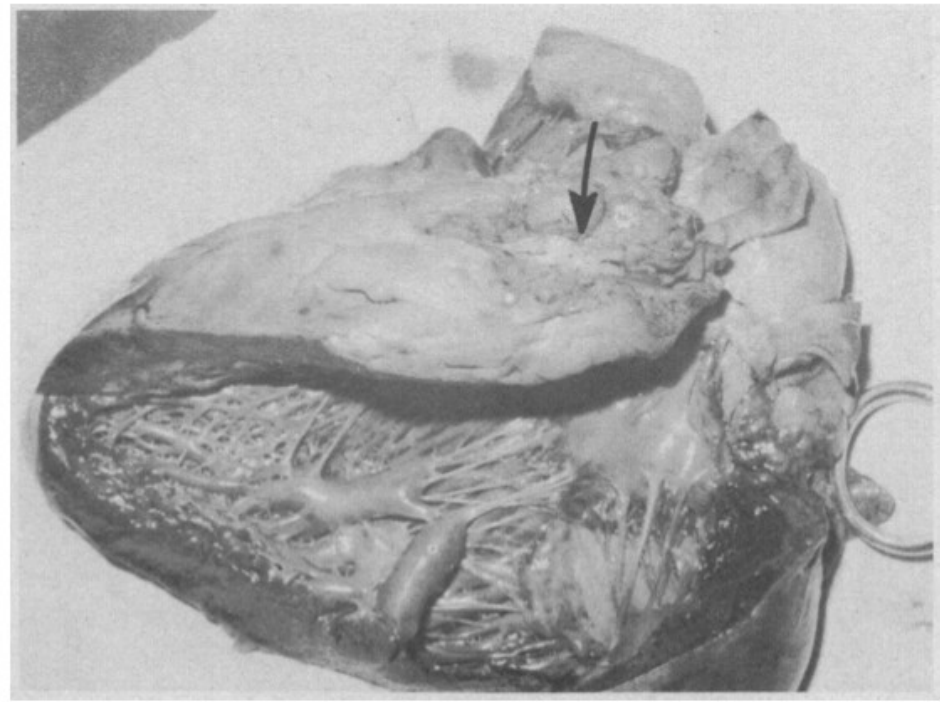
Amount of Luminal Narrowing	% of Cases
"Fibrous" thickening or streaking causing insignificant luminal narrowing	35.0
Plaques causing luminal narrowing over	
10%	13.3
20%	6.3
30%	3.7
40%	3.0
50%	3.0
60%	1.7
70%	1.0
80%	1.3
90%	5.3
Plaques causing complete occlusion of one or more vessels	3.0

Coronary Artery Disease in Combat Casualties in Vietnam

MAJ J. Judson McNamara, MC, USA; MAJ Mark A. Molot, MC, USA;
MAJ John F. Stremple, MC, USA; and COL Robert T. Cutting, MC, USA

JAMA, May 17, 1971 • Vol 216, No 7

- 105 autopsies
- Age moyen de 22.7 ans
  - 18 à 37 ans
- **45% avaient de l'athérosclérose**



2. Large plaque, involving entire arterial circumference and appearing to produce luminal narrowing, grade 3+.

Postmortem coronary angiography and dissection of hearts from 105 United States soldiers killed in Vietnam demonstrate that (1) 45% have some evidence of atherosclerosis; (2) 5% have gross evidence of severe coronary atherosclerosis; and (3) no patient had angiographic evidence of severe coronary narrowing, and in only one patient was any degree of stenosis observed.

Impact des habitudes de vies sur la dyslipidémie

Can lifestyle changes reverse coronary heart disease?

The Lifestyle Heart Trial

DEAN ORNISH SHIRLEY E. BROWN LARRY W. SCHERWITZ
JAMES H. BILLINGS WILLIAM T. ARMSTRONG THOMAS A. PORTS
SANDRA M. MCLANAHAN RICHARD L. KIRKEEIDE
RICHARD J. BRAND K. LANCE GOULD

Lancet 1990; **336**: 129-33.

quantitative coronary angiography. The average percentage diameter stenosis regressed from 40·0 (SD 16·9)% to 37·8 (16·5)% in the experimental group yet progressed from 42·7 (15·5)% to 46·1 (18·5)% in the control group. When only lesions

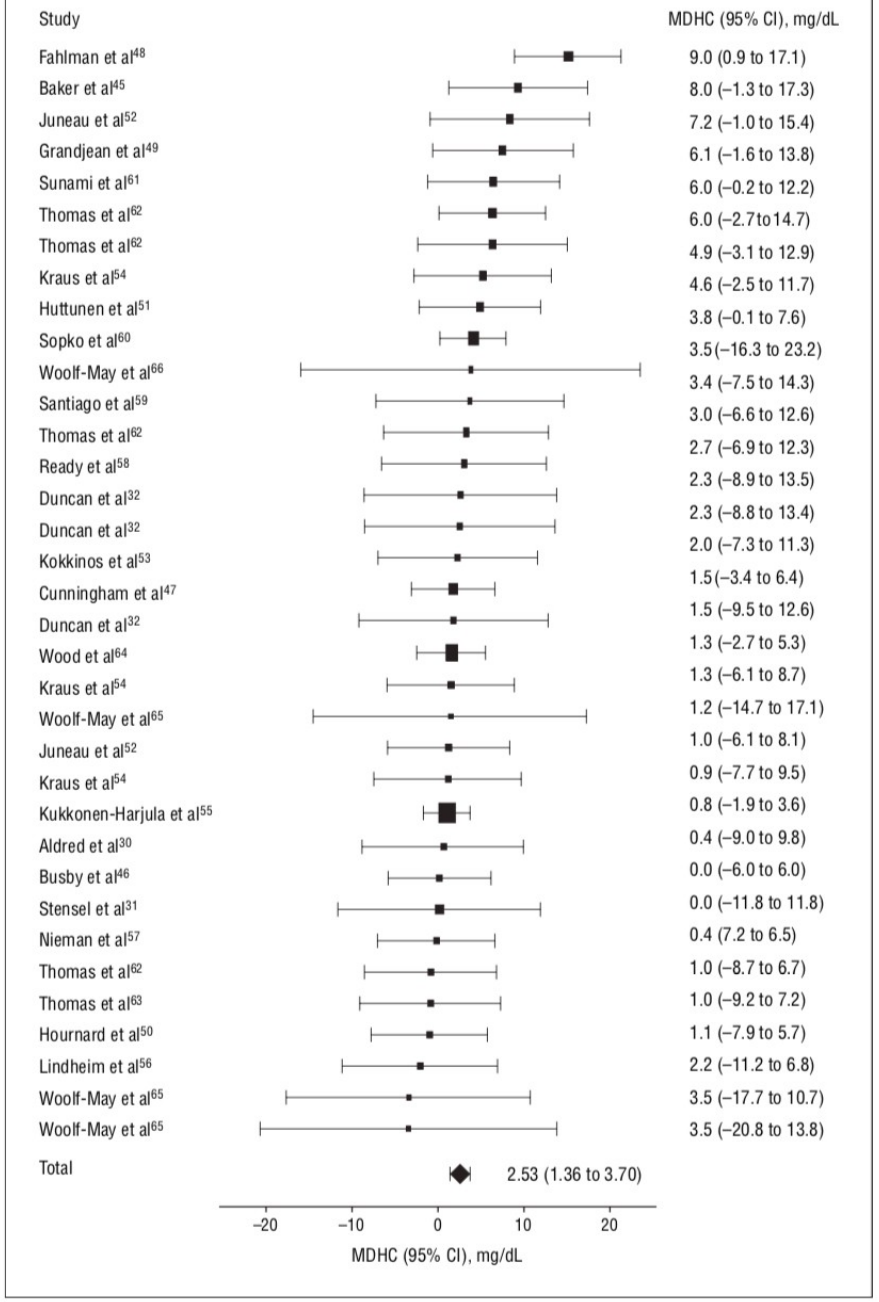


Figure 2. Mean differences in high-density lipoprotein cholesterol (HDL-C) change (MDHC) between exercise and nonexercise control groups in randomized controlled trials. The area of each square is proportional to the inverse of study variance in the analysis. Diamond indicates average net change in HDL-C level; horizontal lines indicate 95% confidence intervals (CIs). The χ^2 value for heterogeneity was 38.7 (P=.31) and the z score (ie, standardized mean difference) for overall effect was 4.23 (P<.001).

Activité physique

- Augmentation modeste, mais significative des HDL
  - ↑ 0.065 mmol/L $p < .001$
- Seuil minimal d'activité physique
  - 900 kCal par semaine ou
  - 120 minutes activité modérée par semaine

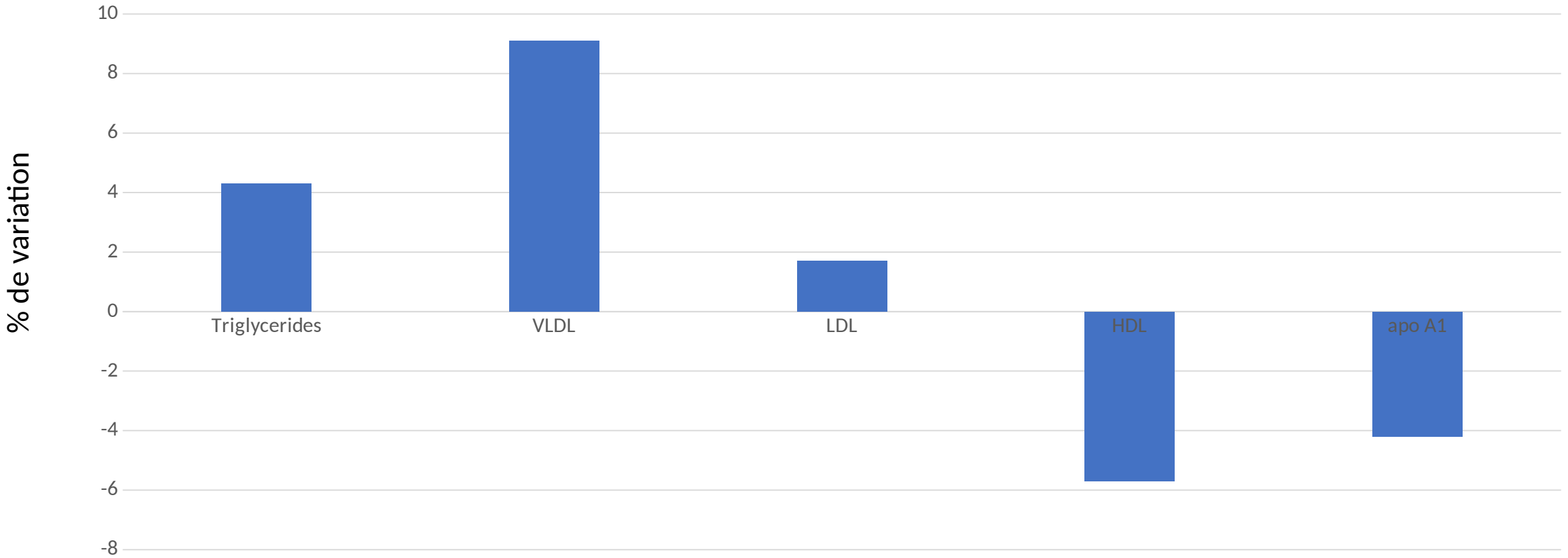
Arch Intern Med. 2007;167:999-1008

Table 3 – Prevalence of desirable levels of HLD, LDL and triglycerides according to indicators of physical activity intensity and duration of ELSA-Brasil participants aged 35 to 69 years, 2008-2010, n = 12,688

Variables	desirable HDL	altered HDL	p-value	desirable LDL	altered LDL	p-value	desirable TG	altered TG	p-value
PA (WHO) (%)			< 0.001*			0.391*			< 0.001*
< 150 min/week	61.8	71.8		63.8	62.9		62.2	66.9	
≥ 150 min/week	38.2	28.2		36.2	37.1		37.9	33.1	

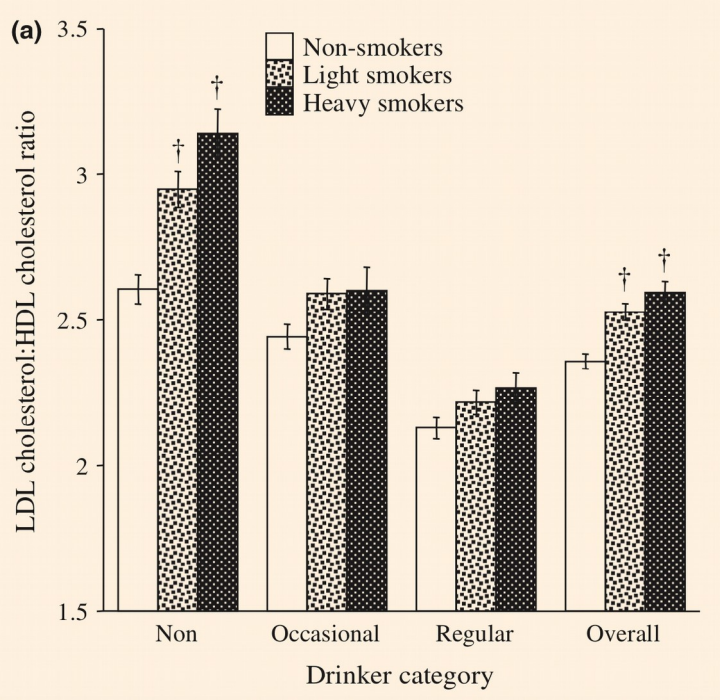
Impact positif sur les HDL et TG, mais pas sur les LDL

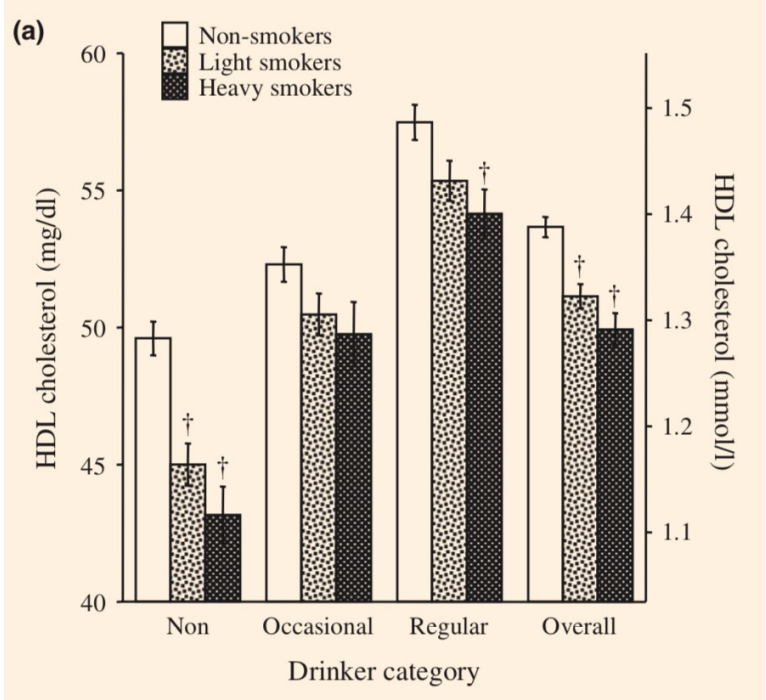
Impact du tabagisme sur les lipides

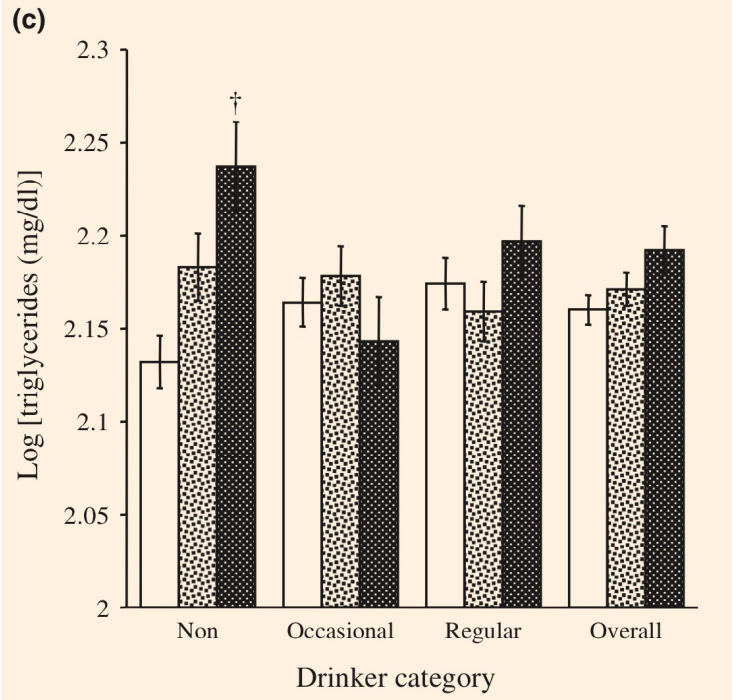


Adapté de *Br Med J* 1989;298:784-8

Impact du tabagisme sur les lipides







Diabet. Med. 31, 868–878 (2014)

FATS

✗ Trans Fats

- Hydrogenated vegetable oils
- Fast foods
- Cakes/pastries
- Chocolate
- Deep Fried Food

✗ Saturated Fats

Vegetable Fats

- Coconut
- Palm oil
- 3-in-1 & 2-in-1 beverages, creamer, condensed milk

Animal Fats

- Poultry skin
- Fatty meat
- Butter
- Ghee
- Tallow / lard
- Full cream dairy products

✓ Unsaturated Fats

Polyunsaturated

- Corn oil
- Soybean oil
- Sunflower oil
- Seeds
- Cold-water fish

Monounsaturated

- Olive oil
- Canola oil
- Peanut oil
- Sesame oil
- Avocado
- Most nuts

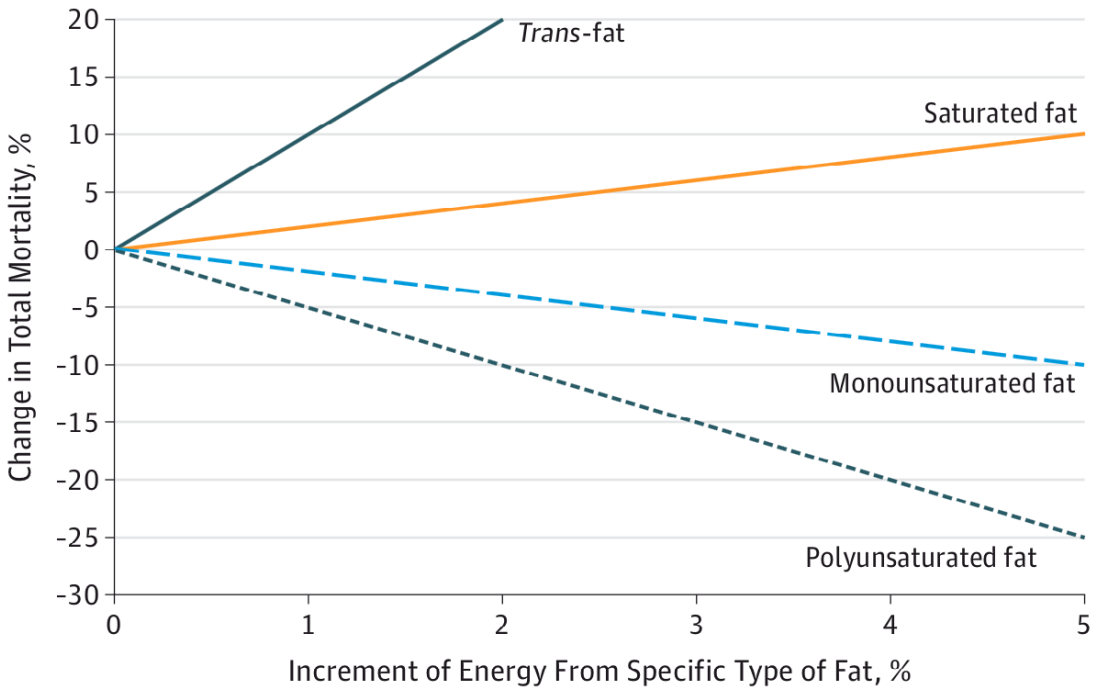
JAMA Internal Medicine | Original Investigation

Association of Specific Dietary Fats With Total and Cause-Specific Mortality

Dong D. Wang, MD, MSc; Yanping Li, PhD; Stephanie E. Chiuve, ScD; Meir J. Stampfer, MD, DrPH; JoAnn E. Manson, MD, DrPH; Eric B. Rimm, ScD; Walter C. Willett, MD, DrPH; Frank B. Hu, MD, PhD

JAMA Internal Medicine August 2016 Volume 176, Number 8

Figure 1. Change in Total Mortality Associated With Increases in the Percentage of Energy From Specific Types of Fat



Multivariable hazard ratios of total mortality associated with replacing the percentage of energy from total carbohydrates by the same energy from specific types of fat ($P < .001$ for trend for all) were used. The model was

Les Omégas

- Faible taux de mortalité cardio-vasculaire chez les Eskimos du Groenland

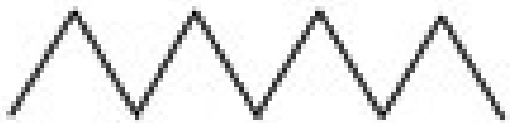
PLASMA LIPID AND LIPOPROTEIN PATTERN IN GREENLANDIC WEST-COAST ESKIMOS

H. O. BANG J. DYERBERG
AASE BRØNDUM NIELSEN

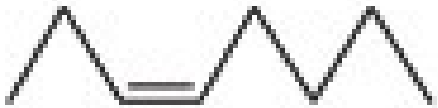
Department of Clinical Chemistry,
Aalborg Hospital North, Denmark

THE LANCET, JUNE 5, 1971

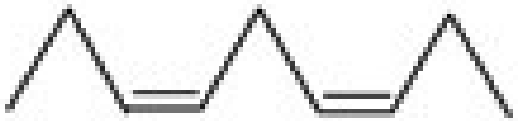
TYPES D'ACIDES GRAS
(selon le nombre de doubles liaisons)



Saturés (aucune liaison)



Mono-insaturés (une liaison)



Poly-insaturés (plus d'une liaison)

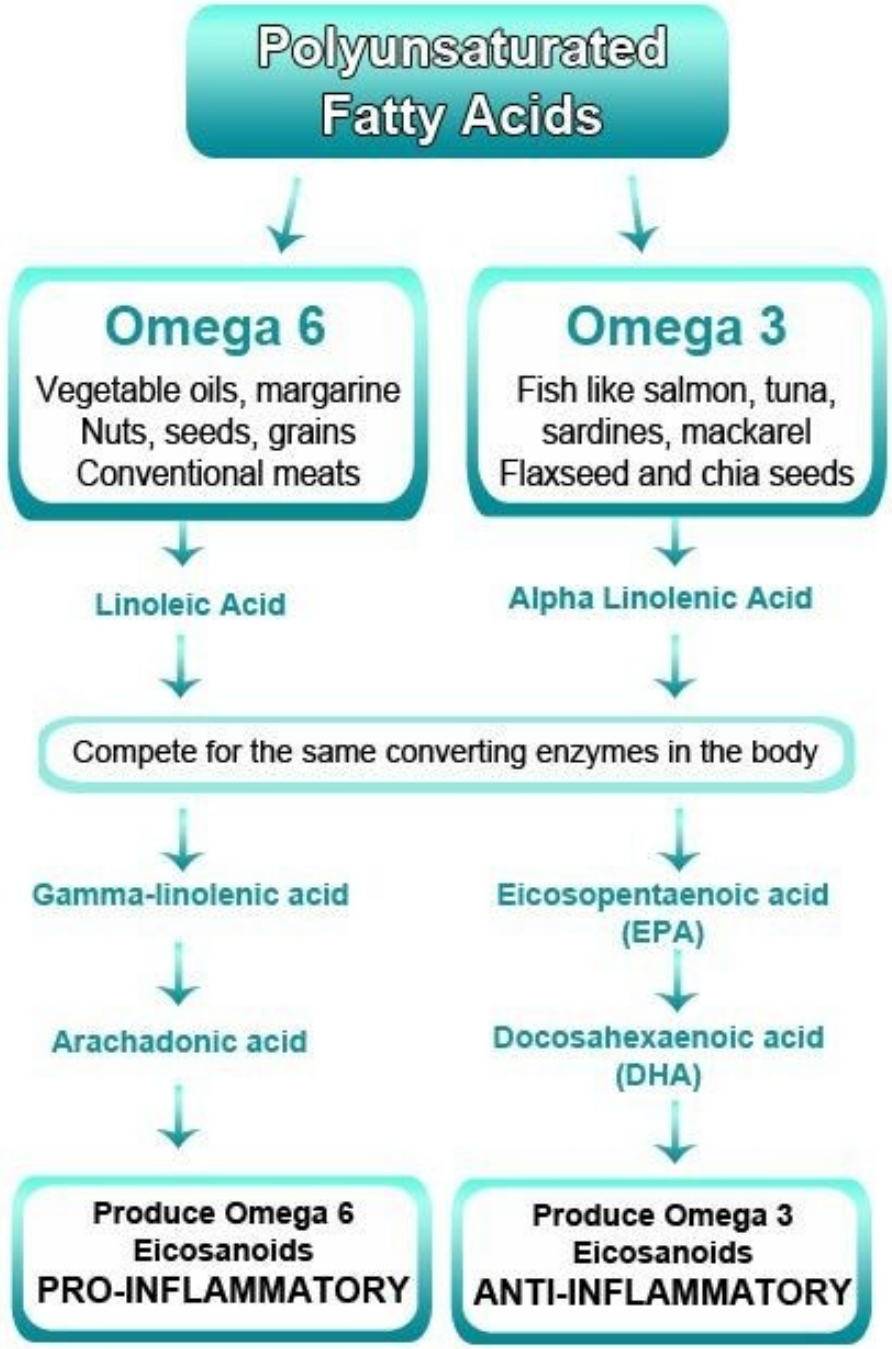


Table 1 Major Classes of Fatty Acids

Family*	Fatty Acids	Formula†	Source
I omega-9	Oleic acid	C18:1	Most vegetable oils (canola, olive); animal fats
II omega-6	Linoleic acid	C18:2	Many vegetable oils (corn, safflower, soybean)
	Arachidonic acid	C20:4	Poultry, meats
III omega-3	α-linolenic acid	C18:3	Selected vegetable oil (flaxseed, canola)
	EPA	C20:5	Marine oils and fish
	DHA	C22:6	Marine oils and fish
IV saturated fats	Palmitic acid	C16:0	Animal and vegetable fats
	Stearic acid	C18:0	Butter, palm oil, kernel oil, coconut oil, and animal fats

*The omega number refers to the position of the first double bond from the methyl end of the molecule. †The notation shows the total number of carbon atoms and total number of double bonds. Adapted with permission from Lavie et al. (2).

DHA = docosahexaenoic acid; EPA = eicosapentaenoic acid.

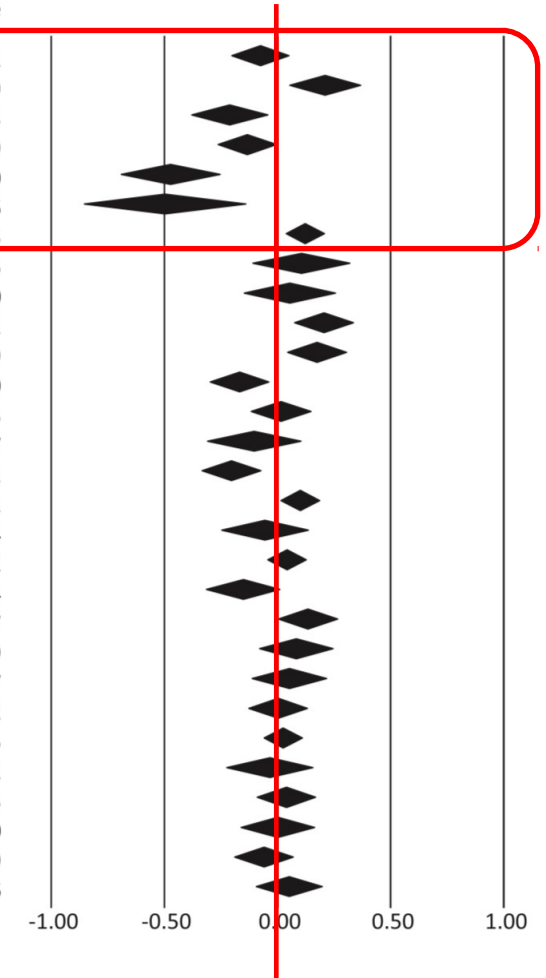
JACC Vol. 54, No. 7, 2009
August 11, 2009:585–94

Safety and tolerability of prescription omega-3 fatty acids: A systematic review and meta-analysis of randomized controlled trials

Cheng-Ho Chang[a,b,1], Ping-Tao Tseng[c,1], Nai-Yu Chen[d,e], Pei-Chin Lin[d,f], Pao-Yen Lin[g], Jane Pei- Chen Chang[i,j], Feng-Yu Kuo[h], Jenshinn Lin[b], Ming-Chang Wu[b,*], Kuan-Pin Su[j,*]

Prostaglandins, Leukotrienes and Essential Fatty Acids 129 (2018) 1–12

Outcome	Category	Continuous item	k	Hedges' g	Lower limit	Upper limit	p-Value
Lipid	Lipid profile	HDL	15	-0.077	-0.204	0.049	0.232
		LDL	13	0.208	0.052	0.364	* 0.009
		non-HDL	7	-0.214	-0.382	-0.045	* 0.013
		T-Cho	12	-0.136	-0.264	-0.007	* 0.039
		TG	11	-0.474	-0.693	-0.255	* 0.000
		VLDL	5	-0.499	-0.856	-0.143	* 0.006
Non-lipid	Metabolic	AC sugar	8	0.121	0.036	0.206	* 0.005
		HbA1c	3	0.103	-0.111	0.318	0.345
		Uric acid	3	0.052	-0.149	0.254	0.610
	Hematology	Hb	6	0.204	0.075	0.334	* 0.002
		HCT	6	0.173	0.043	0.302	* 0.009
		PLT	6	-0.170	-0.299	-0.041	* 0.010
		WBC	5	0.014	-0.118	0.147	0.833
	Biochemistry	Albumin	3	-0.105	-0.312	0.101	0.317
		ALP	5	-0.206	-0.335	-0.076	* 0.002
		ALT	8	0.099	0.014	0.184	* 0.022
		Apo-B	3	-0.058	-0.249	0.134	0.554
		AST	8	0.040	-0.044	0.125	0.352
		Bicarbonate	3	-0.154	-0.316	0.009	0.064
		BUN	5	0.132	0.002	0.263	* 0.047
		Ca	3	0.081	-0.082	0.243	0.329
		CK	5	0.050	-0.114	0.215	0.547
		Cl	5	0.001	-0.129	0.130	0.992
		Cre	8	0.024	-0.061	0.108	0.585
		K	5	-0.036	-0.226	0.154	0.712
		Na	5	0.037	-0.092	0.167	0.573
		P	3	0.000	-0.162	0.162	1.000
		T-Bil	5	-0.062	-0.191	0.068	0.349
		Total protein	5	0.050	-0.097	0.196	0.506



B

ORIGINAL ARTICLE

Cardiovascular Risk Reduction with Icosapent Ethyl for Hypertriglyceridemia

REDUCE-IT, NEJM, publié le 10 novembre 2018

- 8179 patients
  - Suivi moyen de 4.9 ans

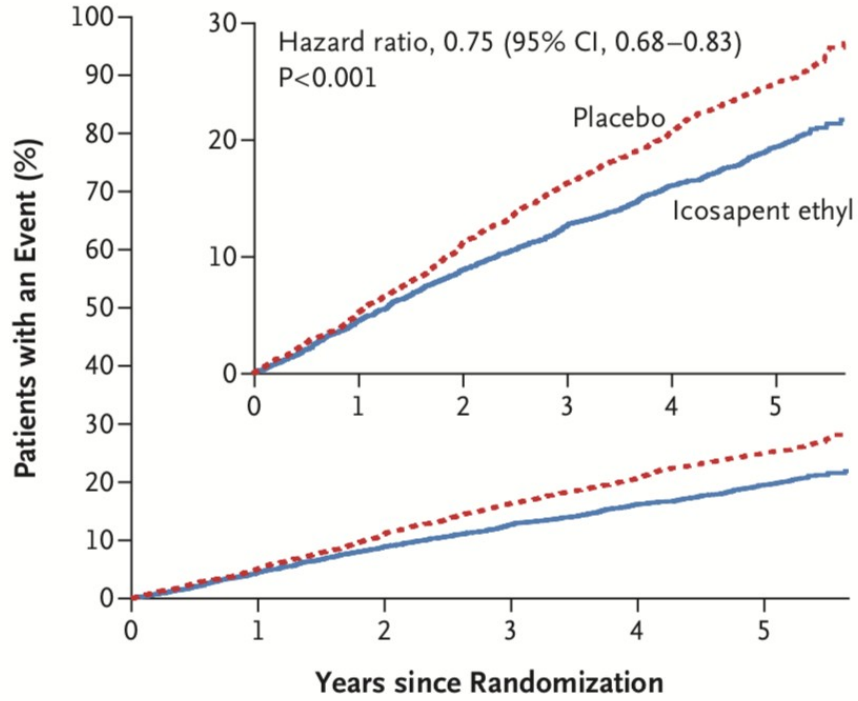
- Prévention secondaire ou diabète + FR

- Déjà sous statine
  - TG 1.52 to 5.63 mmol/l
  - LDL 1.06 to 2.59 mmol/l

- 2g ethyl icosapentate (EPA) BID

- Issue primaire: mort cardiovasculaire, infarctus non fatal, AVC non fatal, revascularisation et angine instable
- Issue secondaire: mort cardiovasculaire, infarctus non fatal, AVC non fatal

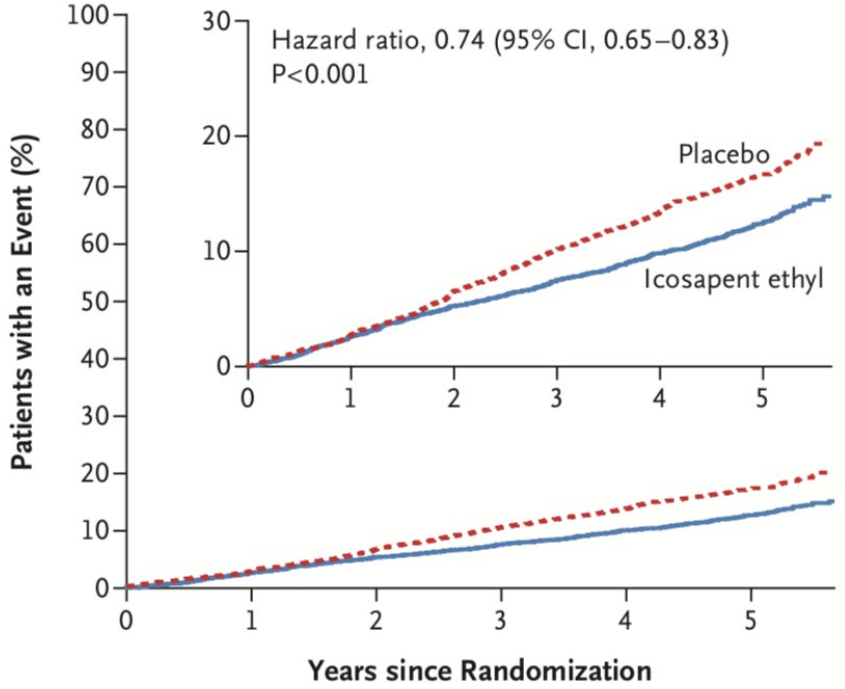
A Primary End Point



No. at Risk

Placebo	4090	3743	3327	2807	2347	1358
Icosapent ethyl	4089	3787	3431	2951	2503	1430

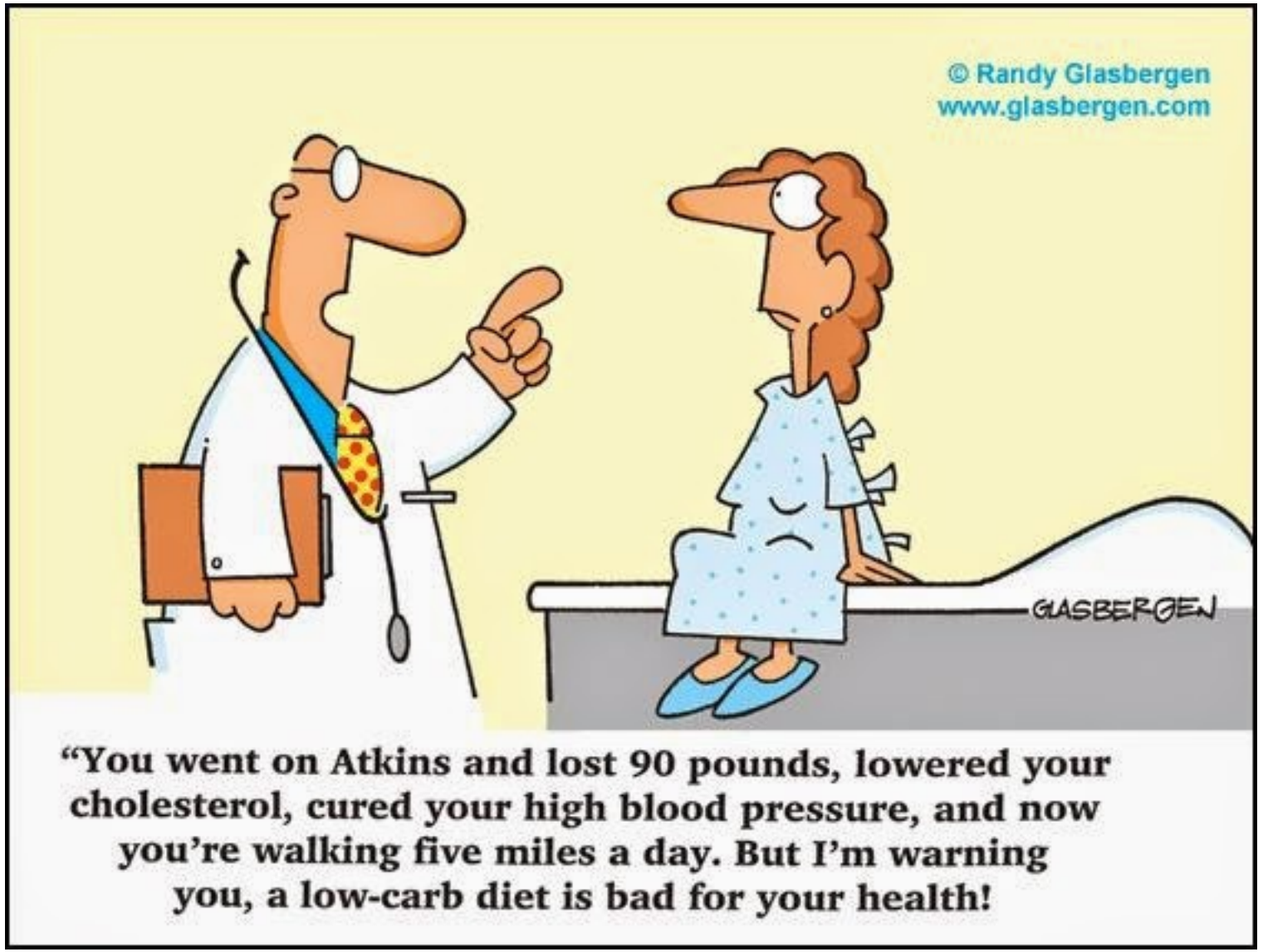
B Key Secondary End Point



No. at Risk

Placebo	4090	3837	3500	3002	2542	1487
Icosapent ethyl	4089	3861	3565	3115	2681	1562

Différence absolue de 4.5%
NNT 21

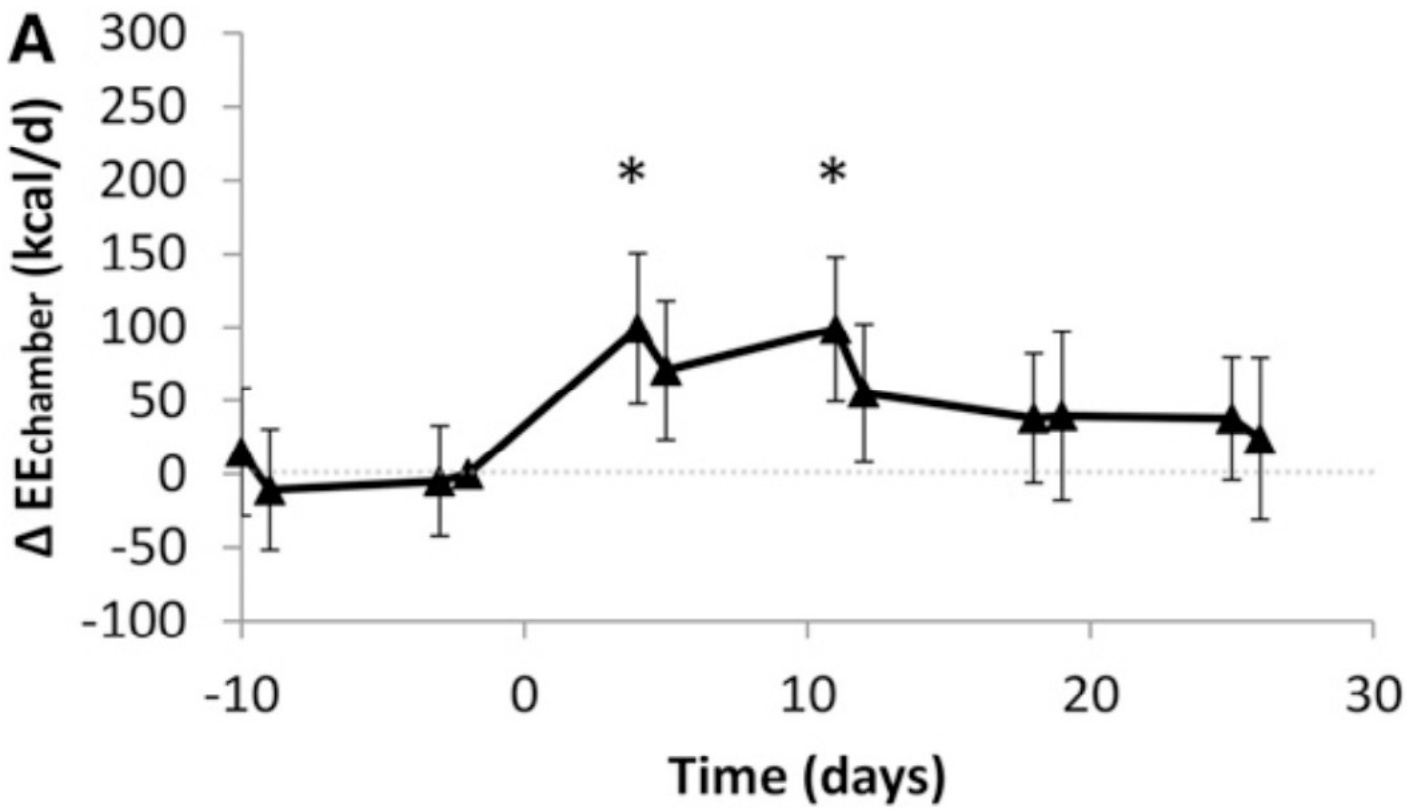

© Randy Glasbergen
www.glasbergen.com
GLASBERGEN
"You went on Atkins and lost 90 pounds, lowered your cholesterol, cured your high blood pressure, and now you're walking five miles a day. But I'm warning you, a low-carb diet is bad for your health!"

Qu’est-ce que le régime cétogène?

- Un régime cétogène (« low-carb, high fat »), contient:
  - 75-80% de gras
  - 15-20% de protéines
  - moins de 50 grammes de glucides par jour (environ 5 %)

- Une alimentation faible en glucides ↓ le taux d’insuline et permet de mobiliser les graisses emmagasinées dans le tissu adipeux et de les utiliser comme source d’énergie.
  - ↑ du métabolisme (?)

ENERGY EXPENDITURE AND KETOGENIC DIETS



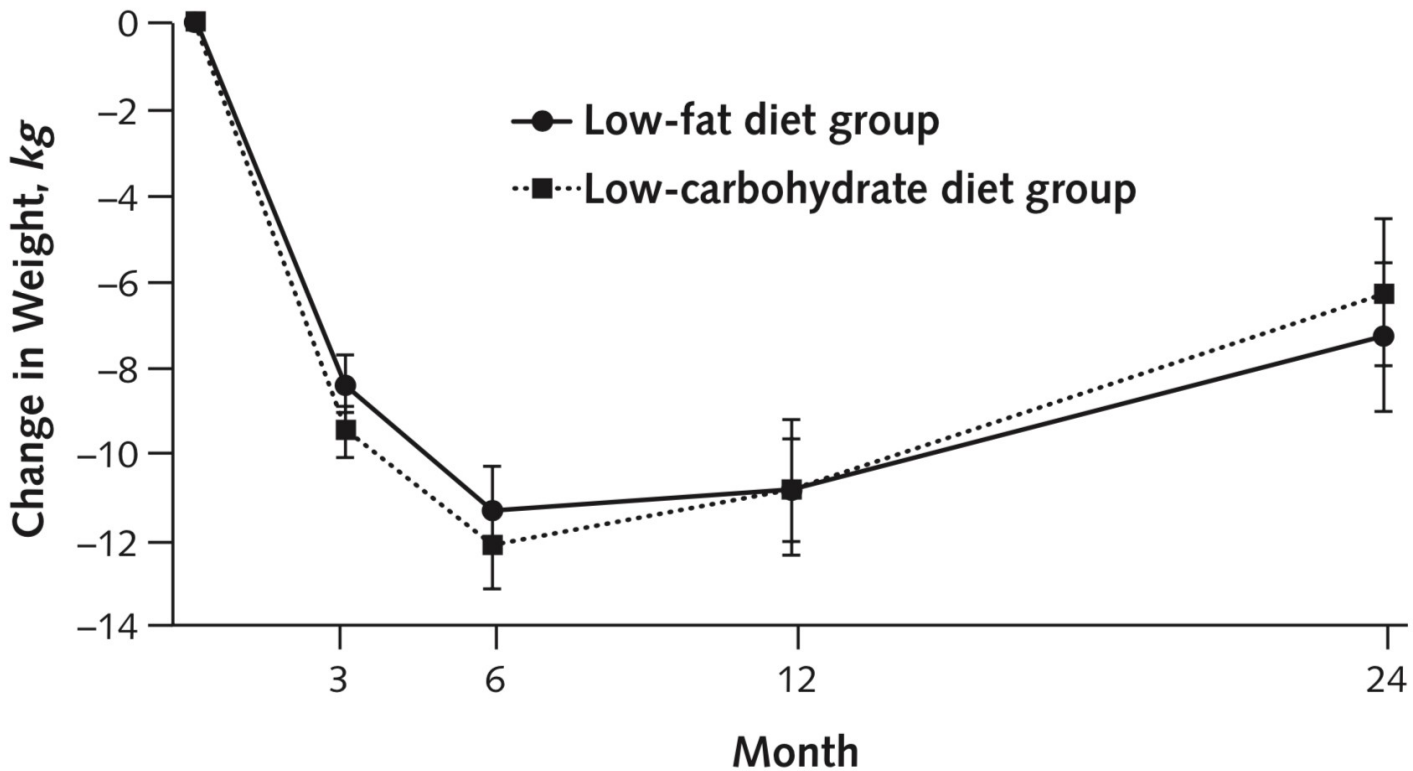
Am J Clin Nutr 2016;104:324–33

Annals of Internal Medicine | ARTICLE

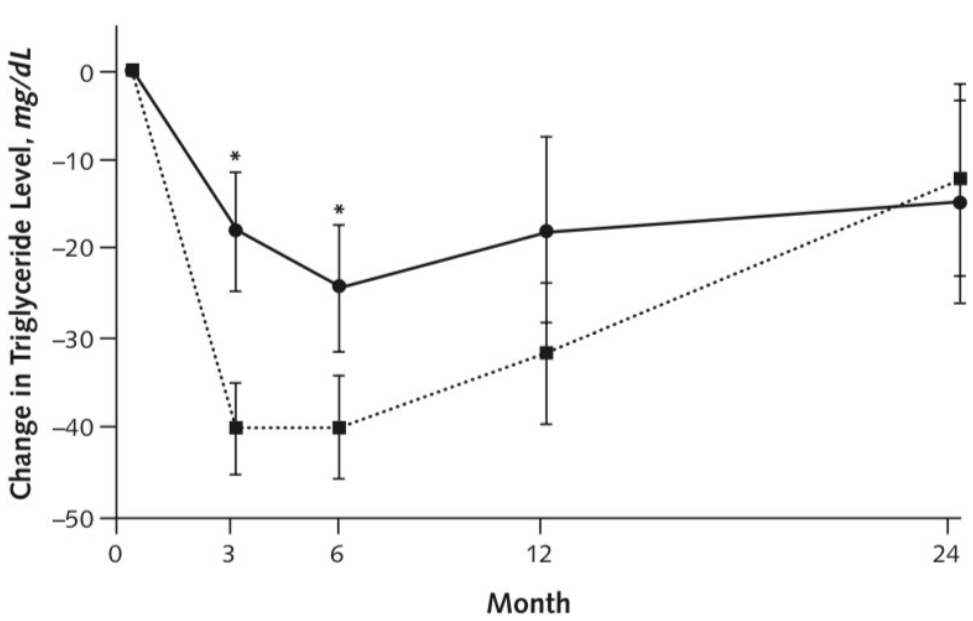
Weight and Metabolic Outcomes After 2 Years on a Low-Carbohydrate Versus Low-Fat Diet

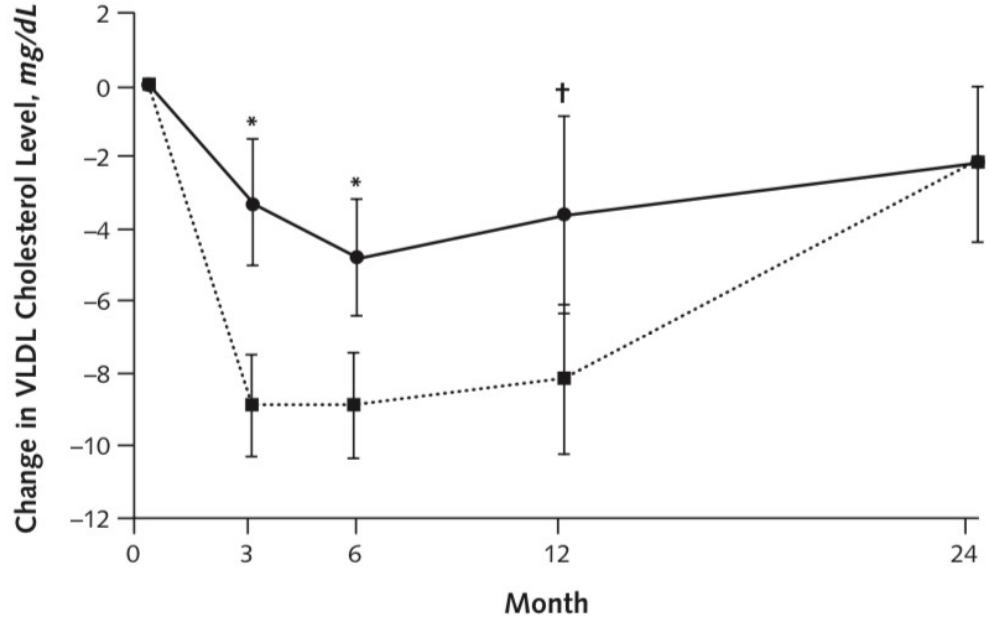
A Randomized Trial

Gary D. Foster, PhD; Holly R. Wyatt, MD; James O. Hill, PhD; Angela P. Makris, PhD, RD; Diane L. Rosenbaum, BA; Carrie Brill, BS; Richard I. Stein, PhD; B. Selma Mohammed, MD, PhD; Bernard Miller, MD; Daniel J. Rader, MD; Babette Zemel, PhD; Thomas A. Wadden, PhD; Thomas Tenhave, PhD; Craig W. Newcomb, MS; and Samuel Klein, MD

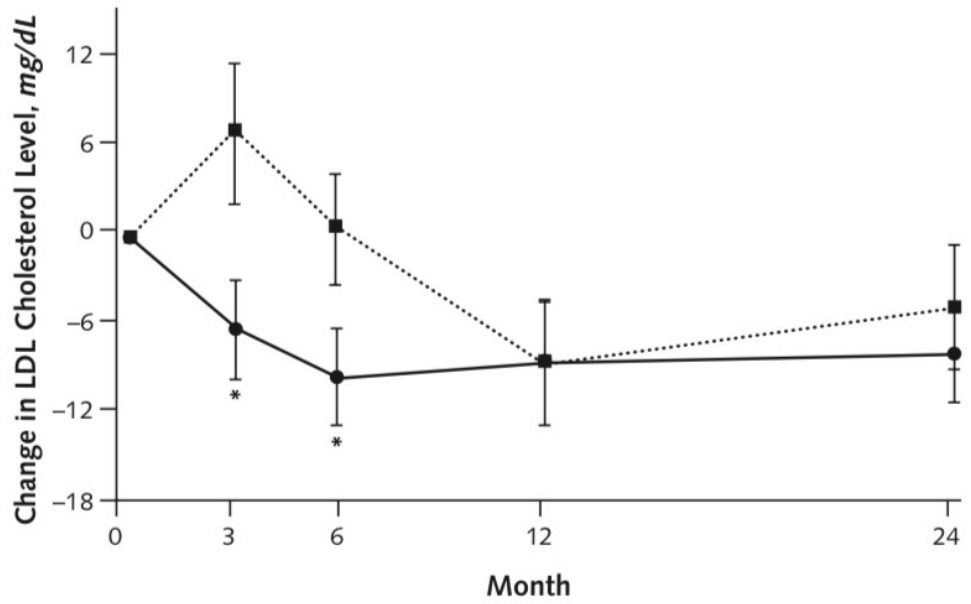


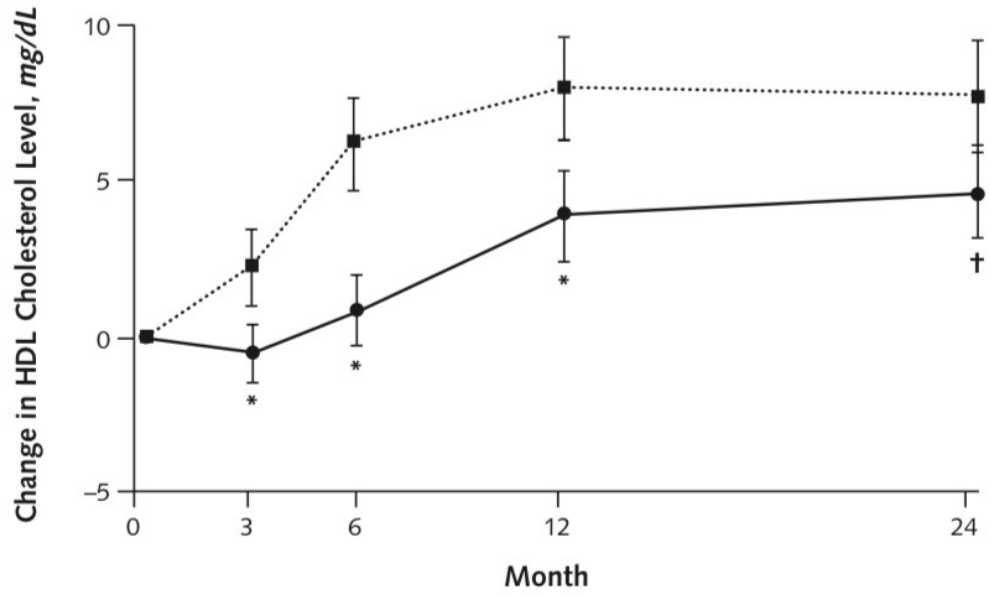
Ann Intern Med. 2010;153:147-157





Low-fat diet group
Low-carbohydrate diet group

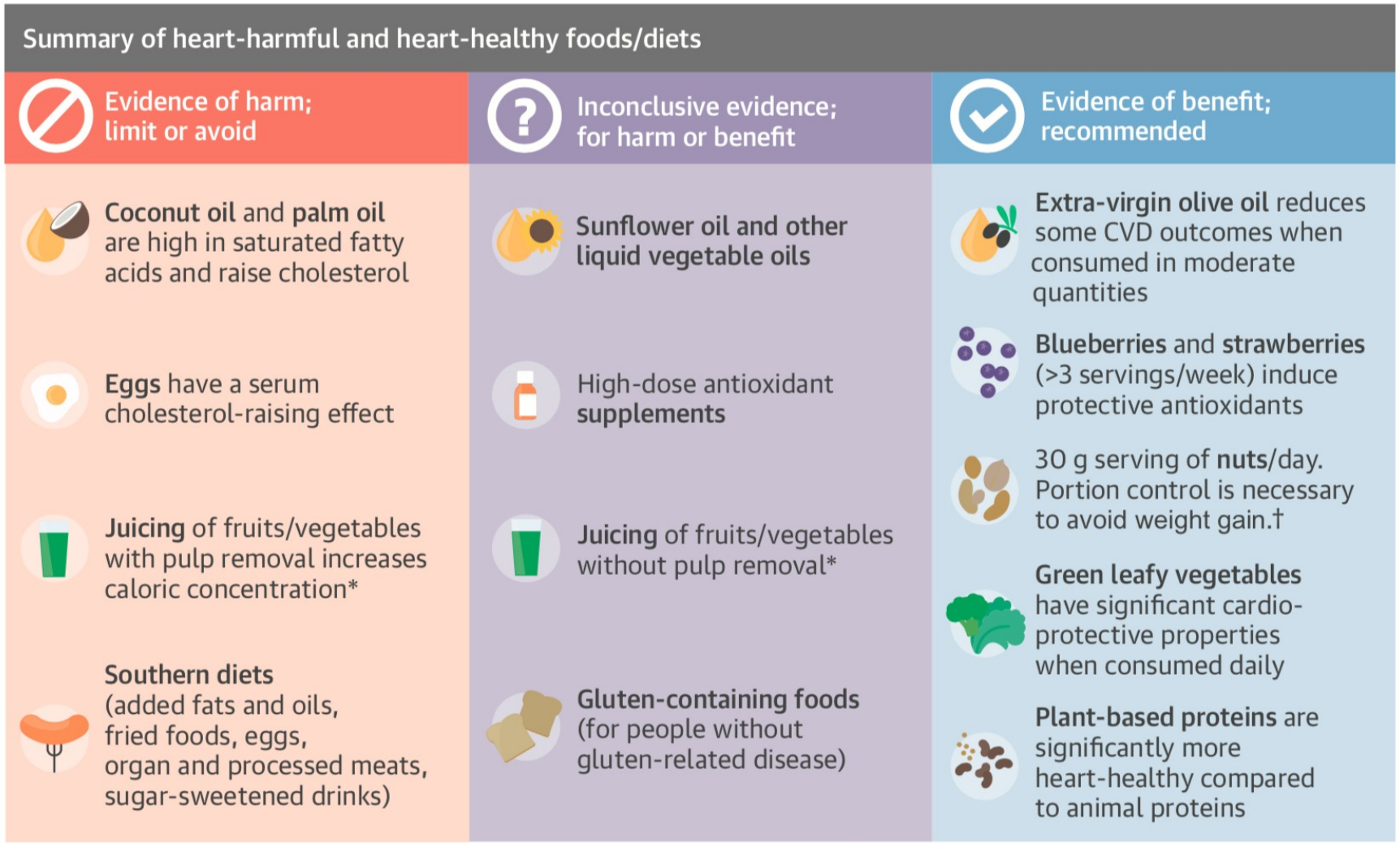




Trending Cardiovascular Nutrition Controversies

J Am Coll Cardiol 2017;69:1172–87.

CENTRAL ILLUSTRATION **Evidence for Cardiovascular Health Impact of Foods Reviewed**



Dietary carbohydrate intake and mortality: a prospective cohort study and meta-analysis

Sara B Seidelmann, Brian Claggett, Susan Cheng, Mir Henglin, Amil Shah, Lyn M Steffen, Aaron R Folsom, Eric B Rimm, Walter C Willett, Scott D Solomon

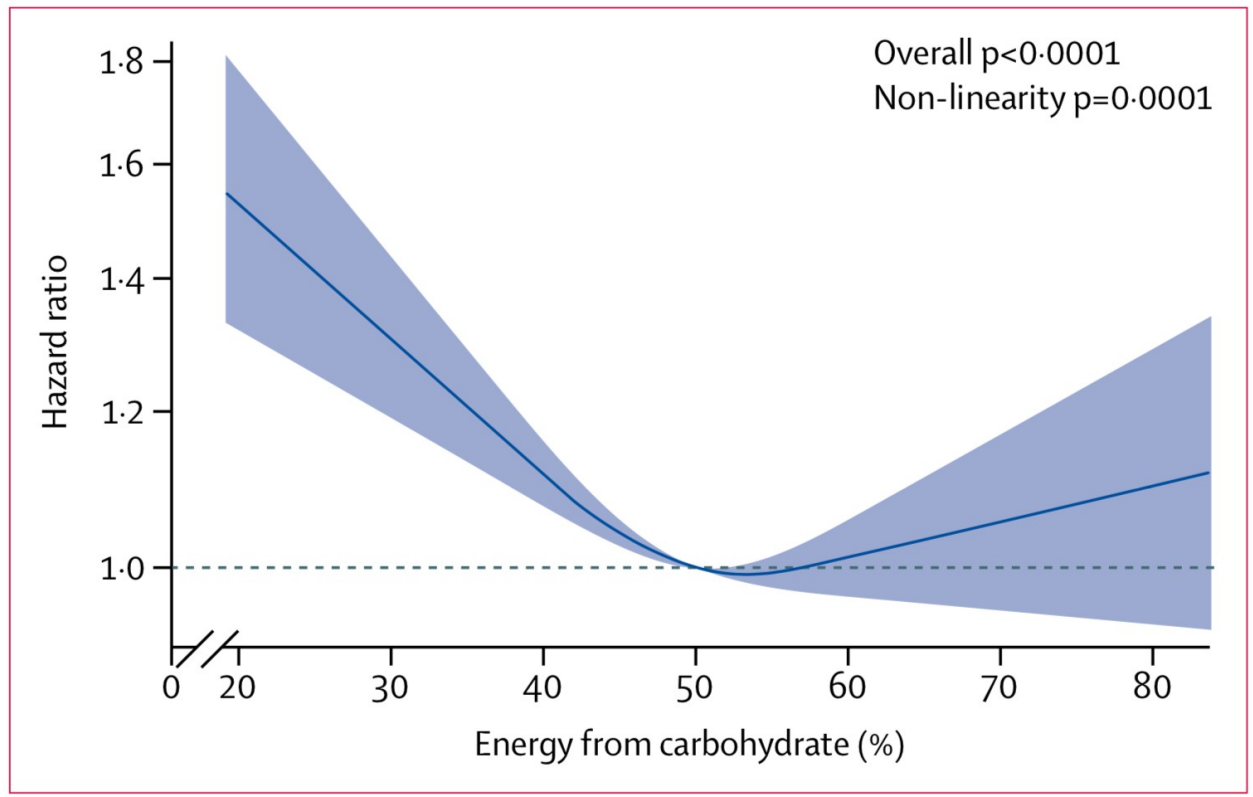
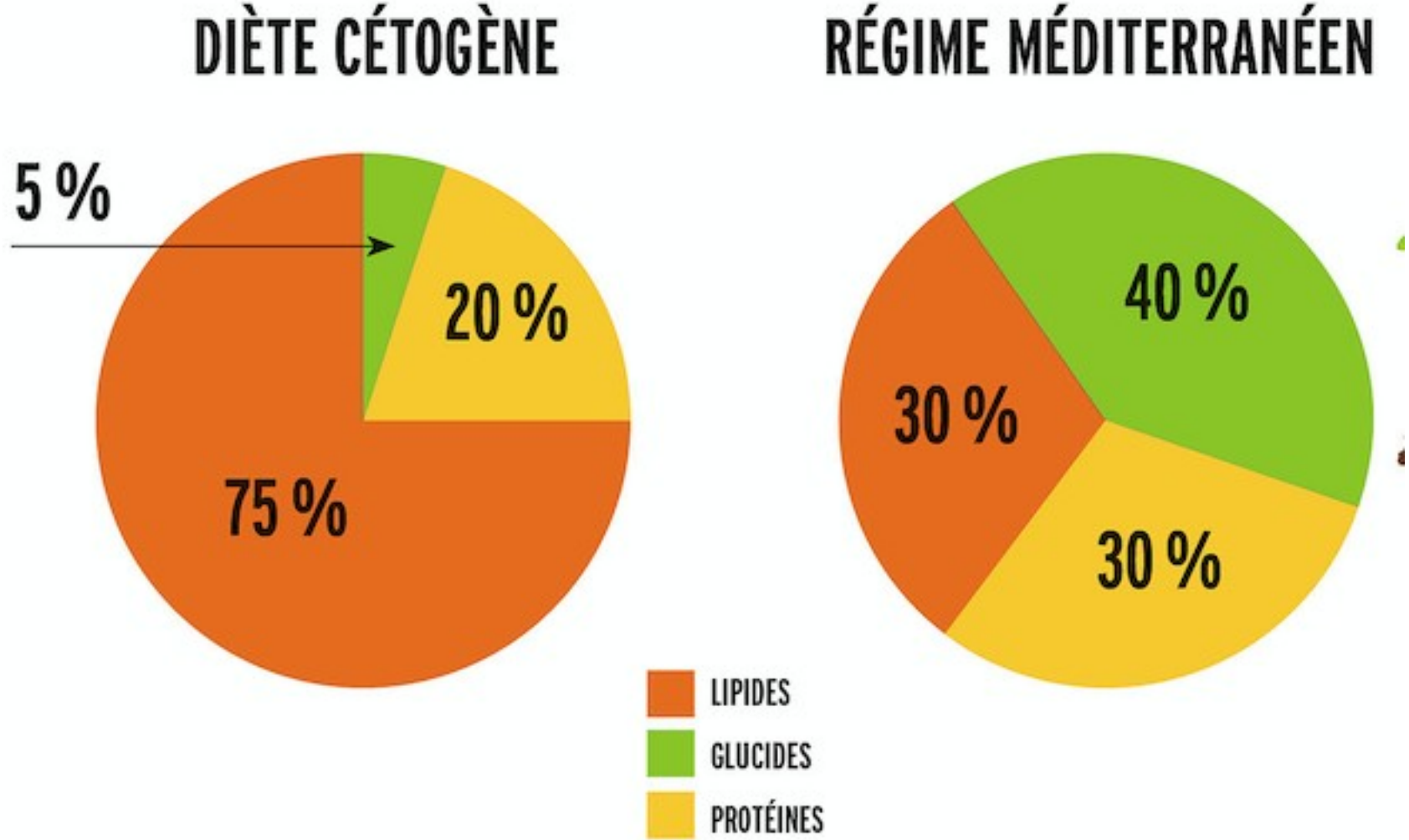


Figure 1: **U-shaped association between percentage of energy from carbohydrate and all-cause mortality in the ARIC cohort**


DIÈTE CÉTOGÈNE
5 %
20 %
75 %
RÉGIME MÉDITERRANÉEN
40 %
30 %
30 %
LIPIDES
GLUCIDES
PROTÉINES

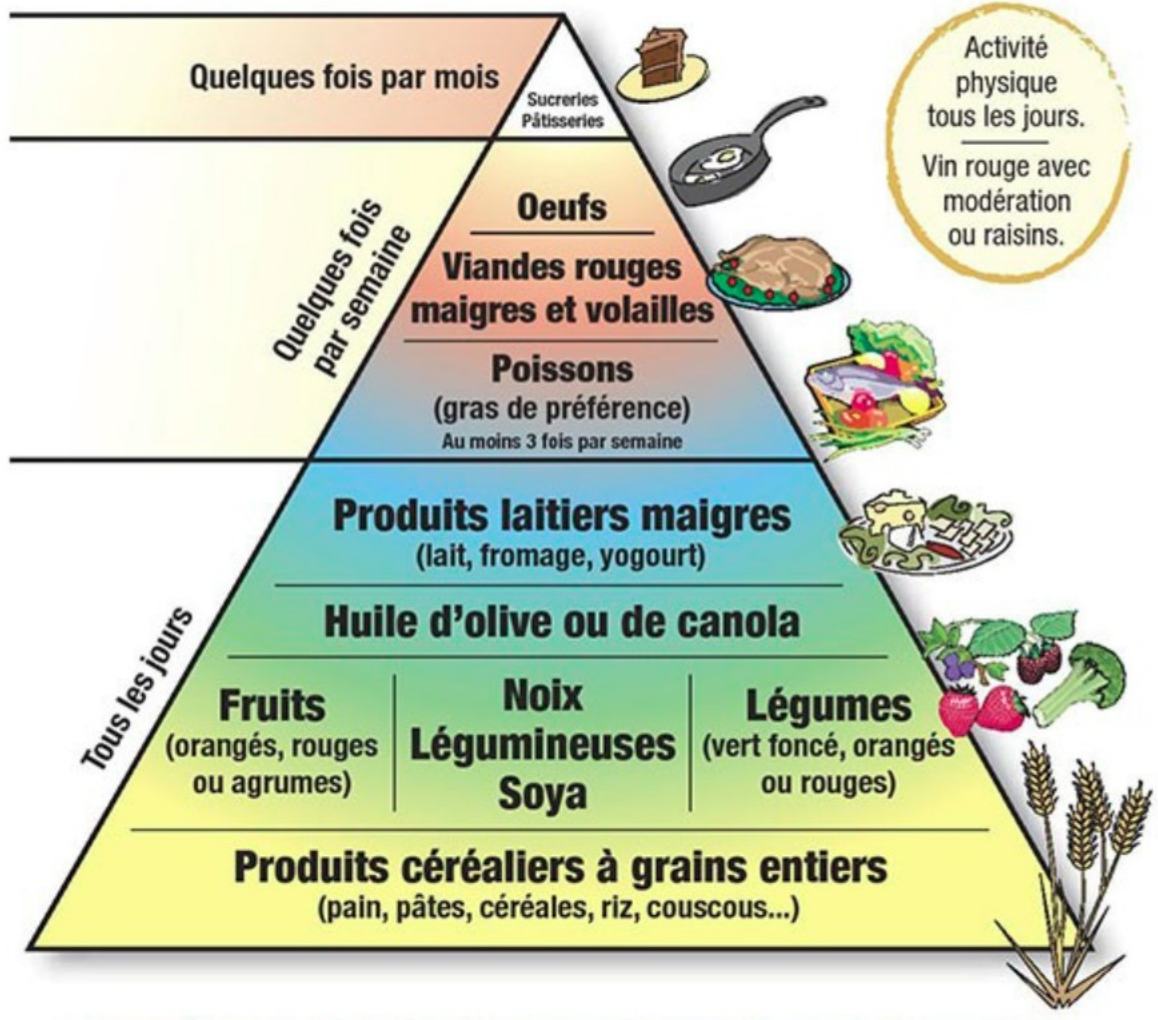
Régime méditerranéen

- Basé sur l'alimentation du sud de l'Italie et de la Crête dans les années 60
- Beaucoup de produits végétaux
  - céréales, légumes, fruits, légumineuses, noix
- Apport relativement élevé en matières grasses (surtout huile d'olive)
- Consommation modérée de poissons, produits laitiers et volaille
- Faible consommation de viandes rouges, charcuteries et sucreries
- Consommation (très) modérée d'alcool (vin rouge) pendant les repas

INSTITUT DE CARDIOLOGIE DE MONTRÉAL

ÉPIC

Alimentation de type méditerranéen



This article has been retracted: N Engl J Med 2018;378(25):2441-2.

Primary Prevention of Cardiovascular Disease with a Mediterranean Diet

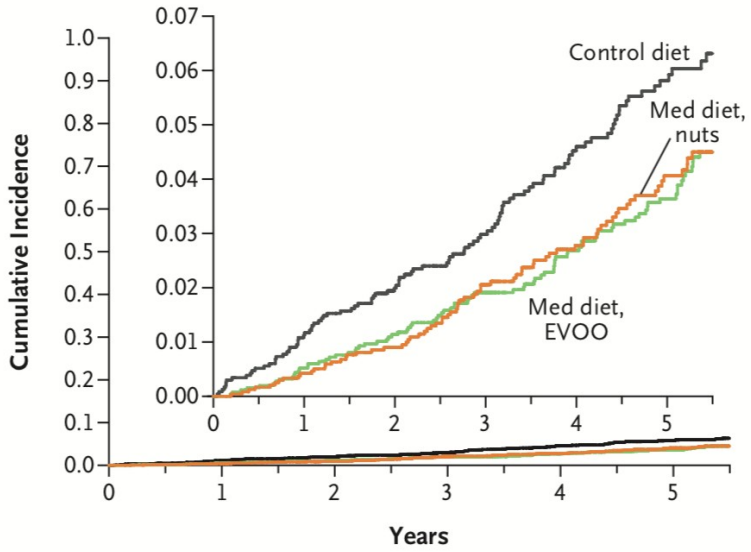
- Étude espagnole multicentrique
  - Publiée initialement en 2013, révisée en 2018

- 7447 participants 55 à 80 ans, 57% femmes
  - Patients à haut risque, mais sans maladie cardiovasculaire établie

- 3 groupes
  1. Diète méditerranéenne avec supplément d'huile olive extra-vierge
  2. Diète méditerranéenne avec supplément de noix
  3. Groupe « contrôle » avec recommandation de diminuer les gras

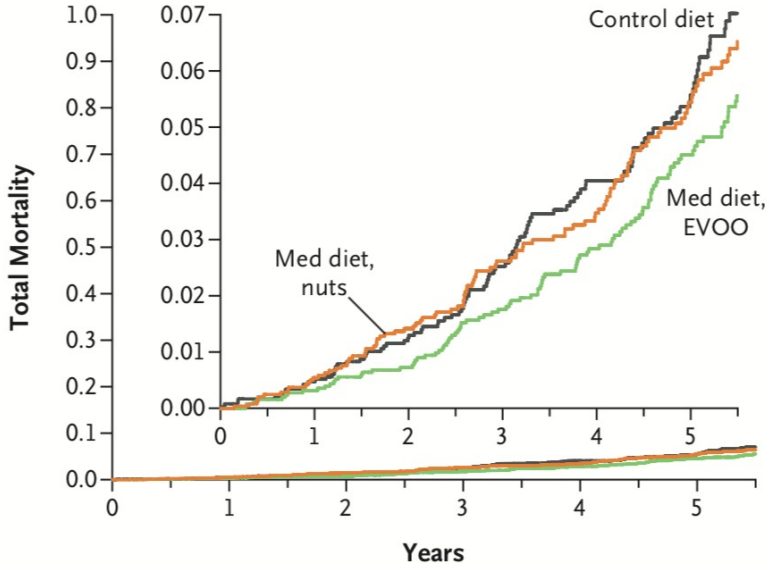
A **Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)**

Med diet, EVOO: hazard ratio, 0.69 (95% CI, 0.53–0.91)
Med diet, nuts: hazard ratio, 0.72 (95% CI, 0.54–0.95)



B **Total Mortality**

Med diet, EVOO: hazard ratio, 0.90 (95% CI, 0.69–1.18)
Med diet, nuts: hazard ratio, 1.12 (95% CI, 0.86–1.47)



7447 participants
288 événement

Comment quantifier le risque cardiovasculaire

Évaluation du risque cardiovasculaire

- Aux 3 à 5 ans
  - Entre 40 et 75 ans
  - Ou plus souvent si changement de situation

- Les options incluent
  - Score de Framingham (10 ans)
  - Age cardiovasculaire (Cardiovascular life expectancy model)

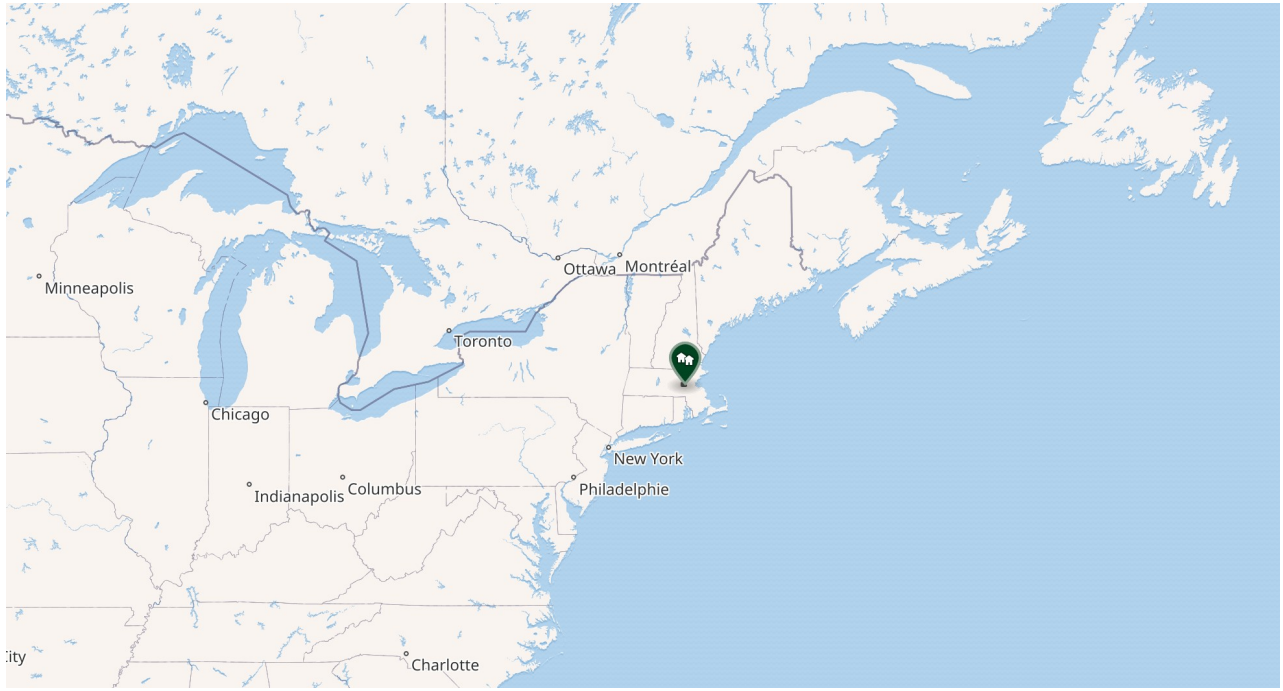
- Les résultats doivent être partagés avec le patient

(Strong Recommendation, High Quality Evidence)

Anderson T, et al., *Canadian Journal of Cardiology,* DOI: http://dx.doi.org/10.1016/j.cjca.2016.07.510

Le score de Framingham

- Dérive d’une étude débutée en 1948 à Framingham, Massachusetts



Prediction of Coronary Heart Disease Using Risk Factor Categories
Peter W. F. Wilson, Ralph B. D'Agostino, Daniel Levy, Albert M. Belanger, Halit Silbershatz and William B. Kannel

Circulation. 1998;97:1837-1847

Risk score (year)	Variables included	Key variables excluded	Endpoint assessed
Framingham risk score (1998)	▪ Age ▪ Gender ▪ Total or LDL cholesterol (mg/dL) ▪ HDL cholesterol (mg/dL) ▪ Systolic blood pressure (mmHg) ▪ Diabetes mellitus (yes or no) ▪ Current smoking (yes or no)	▪ Blood pressure treatment (yes or no) ▪ Family history of CVD (yes or no)	▪ CHD death ▪ Nonfatal MI ▪ Unstable angina ▪ Stable angina
Framingham general CVD risk score (2008)	▪ Age ▪ Gender ▪ Total cholesterol (mg/dL) ▪ HDL cholesterol (mg/dL) ▪ Systolic blood pressure (mmHg) ▪ Blood pressure treatment (yes or no) ▪ Diabetes mellitus (yes or no) ▪ Current smoking (yes or no)	▪ Family history of CVD (yes or no)	▪ CHD death ▪ Nonfatal MI ▪ Coronary insufficiency or angina ▪ Fatal or nonfatal ischemic or hemorrhagic stroke ▪ Transient ischemic attack ▪ Intermittent claudication ▪ Heart failure

FRAMINGHAM RISK SCORE (FRS)

Estimation of 10-year Cardiovascular Disease (CVD) Risk

Step 1[1]

In the "points" column enter the appropriate value according to the patient's age, HDL-C, total cholesterol, systolic blood pressure, and if they smoke or have diabetes. Calculate the total points.

Risk Factor		Risk Points				Points
		Men		Women		
Age						
30-34		0		0		
35-39		2		2		
40-44		5		4		
45-49		7		5		
50-54		8		7		
55-59		10		8		
60-64		11		9		
65-69		12		10		
70-74		14		11		
75+		15		12		
HDL-C (mmol/L)						
>1.6		-2		-2		
1.3-1.6		-1		-1		
1.2-1.29		0		0		
0.9-1.19		1		1		
<0.9		2		2		
Total Cholesterol						
<4.1		0		0		
4.1-5.19		1		1		
5.2-6.19		2		3		
6.2-7.2		3		4		
>7.2		4		5		
Systolic Blood Pressure (mmHg)		Not Treated	Treated	Not Treated	Treated	
<120		-2	0	-3	-1	
120-129		0	2	0	2	
130-139		1	3	1	3	
140-149		2	4	2	5	
150-159		2	4	4	6	
160+		3	5	5	7	
Smoker	Yes	4		3		
	No	0		0		
Diabetes	Yes	statin-indicated condition				
	No	0		0		
Total Points						

Step 2[1]

Using the total points from Step 1, determine the 10-year CVD risk (%).*

Total Points	10-Year CVD Risk (%)*	
	Men	Women
-3 or less	<1	<1
-2	1.1	<1
-1	1.4	1.0
0	1.6	1.2
1	1.9	1.5
2	2.3	1.7
3	2.8	2.0
4	3.3	2.4
5	3.9	2.8
6	4.7	3.3
7	5.6	3.9
8	6.7	4.5
9	7.9	5.3
10	9.4	6.3
11	11.2	7.3
12	13.3	8.6
13	15.6	10.0
14	18.4	11.7
15	21.6	13.7
16	25.3	15.9
17	29.4	18.51
18	>30	21.5
19	>30	24.8
20	>30	27.5
21+	>30	>30

* Double cardiovascular disease risk percentage for individuals between the ages of 30 and 59 without diabetes if the presence of a positive history of premature cardiovascular disease is present in a first-degree relative before 55 years of age for men and before 65 years of age for women. This is known as the modified Framingham Risk Score.[3]

Step 3[1]

Using the total points from Step 1, determine heart age (in years).

Heart Age, *y*	Men	Women
<30	<0	<1
30	0	
31		1
32	1	
34	2	2
36	3	3
38	4	
39		4
40	5	
42	6	5
45	7	6
48	8	7
51	9	8
54	10	
55		9
57	11	
59		10
60	12	
64	13	11
68	14	12
72	15	
73		13
76	16	
79		14
>80	≥17	15+

Age cardiovasculaire
(Cardiovascular life expectancy model)

myhealthcheckup

You are...

Female

Male

Enter your age

7	8	9
4	5	6
1	2	3
0	clear	

Back Next

INTRO ASSESSMENT RESULTS 1 of 12

myhealthcheckup

Metric
Imperial •

Indicate Your Height:

3 feet | 4 feet | 5 feet | 6 feet | 7 feet | 8 feet

Adjust

Indicate Your Weight:

80 lbs | 120 lbs | 160 lbs | 200 lbs | 240 lbs | 280 lbs | 320 lbs | 360 lbs | 400 lbs

Adjust

Indicate Your Waist Measurement:

24 in | 28 in | 32 in | 36 in | 40 in | 44 in | 48 in | 52 in | 56 in | 60 in

Adjust

Back | Next

myhealthcheckup

International • US

Total cholesterol

Please enter your Total cholesterol level:

Total [ ] mmol/L

I don't know

HDL cholesterol

Please enter your HDL cholesterol level:

HDL [ ] mmol/L

I don't know

LDL cholesterol

Please enter your LDL cholesterol level:

LDL [ ] mmol/L

I don't know

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Next

myhealthcheckup

Have you been prescribed medication for high blood cholesterol levels?

YES

NO

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Next

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Blood Pressure

Please enter your Blood Pressure reading:

Systolic (higher value) _____ mmHg

Diastolic (lower value) _____ mmHg

I don't know

Please enter a value for systolic or click "I don't know"

Have you been prescribed medication for high blood pressure?

YES NO

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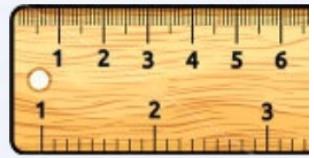
myhealthcheckup

International • US



Blood Glucose

Please enter your Blood Glucose reading:

This test measures the sugar in your blood to determine if you may be at risk for diabetes.

Glucose _____ mmol/L

I don't know

Have you been prescribed medication for high blood sugar or diabetes?

YES NO

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myhealthcheckup

Do you have heart disease?

Heart disease includes: angina, myocardial infarction or heart attack, angioplasty, or bypass surgery.

YES NO

Have you ever had a stroke or mini-stroke (a transient ischaemic attack)?

Stroke means having a blood clot or hemorrhage in the brain.

YES NO

Do you have peripheral vascular disease?

Poor circulation in the legs due to blocked arteries.

YES NO

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myhealthcheckup

Do you have diabetes?

Diabetes means having been diagnosed with diabetes by a physician or taking oral blood sugar lowering medication or insulin injections.

YES

NO

Back

Next

myhealthcheckup

Has anyone in your immediate family (parents, brothers, sisters) developed cardiovascular disease (before age 55 for a man and age 65 for a woman)?

I don't know | YES | NO

Have either of your parents developed diabetes at any age?

I don't know | YES | NO

Back | Next

myhealthcheckup

During the last month on average
how many minutes per week did you do moderate physical activity?

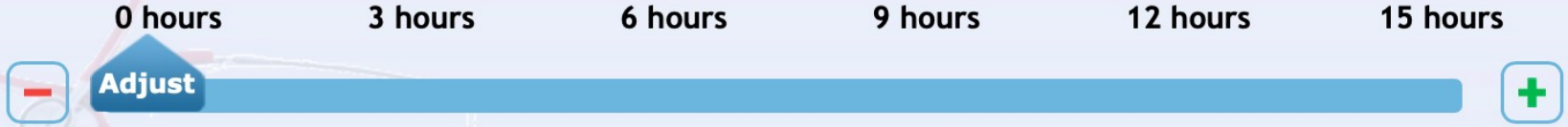
Examples of moderate physical activity include brisk walking, carrying light loads, bicycling or swimming at a regular pace, doubles tennis, raking or picking up leaves, or sweeping floors. If you do no moderate level activity indicate '0 min'.

Your Weekly Moderate Exercise: 0 hours 0 min

During the last month on average
how many minutes per week did you do vigorous physical activity?

Examples of vigorous physical activity include aerobics, fast bicycling or swimming, jogging, playing soccer, heavy lifting, or digging. If you do no vigorous activity indicate '0 min'.

Your Weekly Vigorous Exercise: 0 hours 0 min



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Do you smoke?

Being a smoker is defined as smoking one or more cigarettes daily.

YES NO

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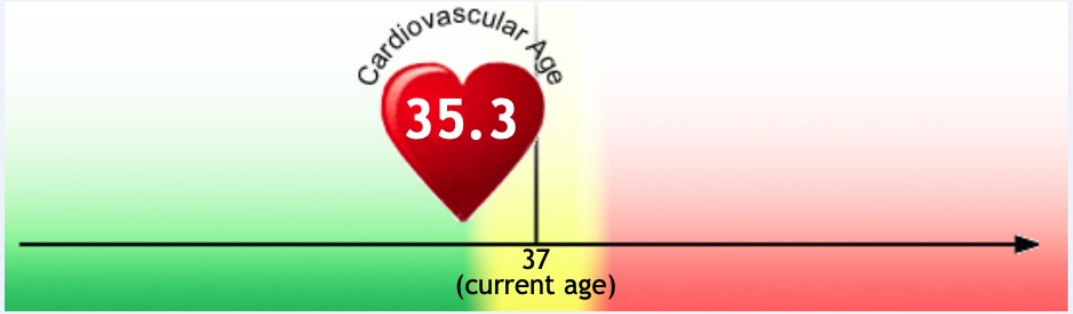
myhealthcheckup

CREATE AN ACCOUNT
It's free

My Cardiovascular Health on 28 November 2018



Your cardiovascular age of 35.3 means you have the same risk of cardiovascular disease as someone 35.3 years of age.

Knowing your cardiovascular age has been shown to help individuals better control their risk factors.

Click next to review your risk factors and learn what you can do to reduce your overall risk of cardiovascular disease.

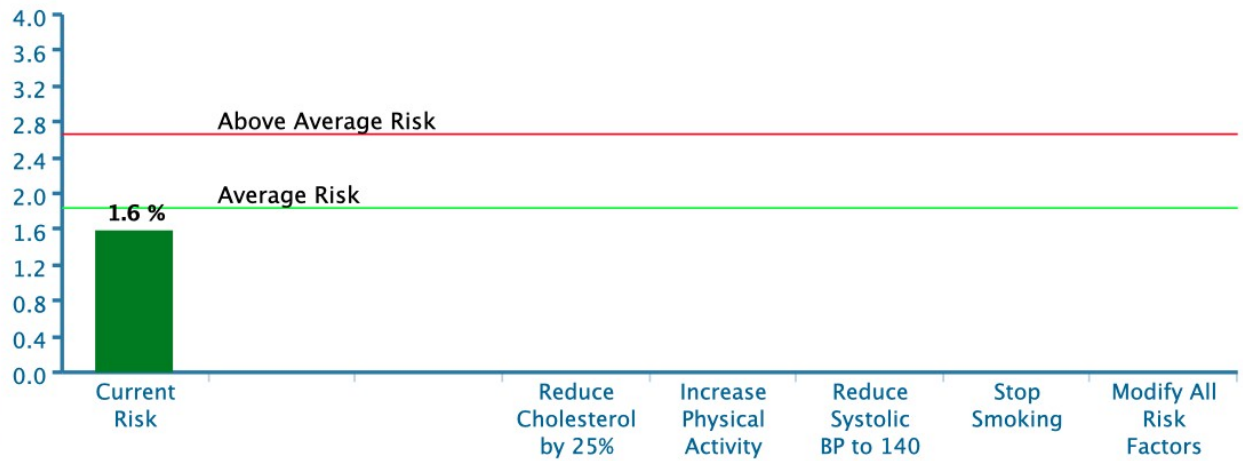
The calculations used in the myhealthcheckup cardiovascular age profile were developed by physicians and statisticians at McGill University.

Back Next

myhealthcheckup

CREATE AN ACCOUNT
It's free

10-Year Risk of Cardiovascular Disease



Your risk of cardiovascular disease (such as heart attacks or strokes) over the next ten years is 1.6%.

You have no modifiable cardiovascular risk factors.

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Quand initier un traitement pharmacologique

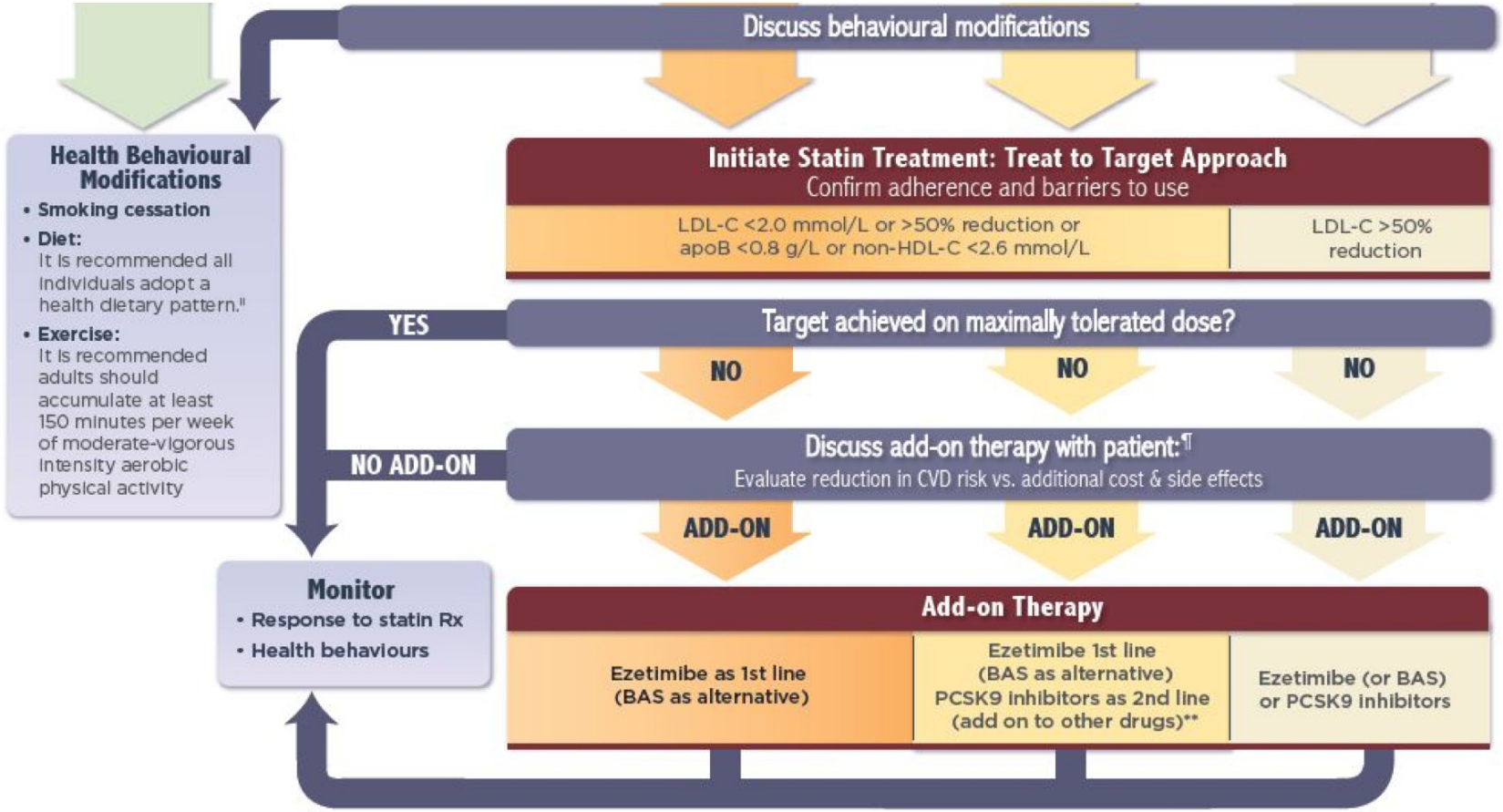
Pharmacological Treatment Indications & Targets

Category	Consider Initiating pharmacotherapy if:	Target	NNT
Primary Prevention	High (FRS ≥20%)	LDL-C <2.0 mmol/L or >50% ↓	*35*
	Intermediate (FRS 10-19%) LDL-C ≥3.5 mmol/L or Non-HDL-C ≥4.3 mmol/L or Apo B ≥1.2 g/L or Men ≥50 & women ≥60 yrs and ≥1 CV risk factor	Or Apo B <0.8 g/L	40
Statin Indicated Conditions**	*Clinical atherosclerosis** (CAD, CVD, PAD)	Or	20
	Abdominal aortic aneurysm		
	Diabetes mellitus: ≥40 yrs, or >15 yrs duration & age ≥30 yrs (DM 1), or microvascular disease	non-HDL-C <2.6 mmol/L	
	CKD (age ≥ 50 yrs): eGFR < 60 mL/min/1.73 m^2, or ACR >3 mg/mmol		
	LDL-C ≥5.0 mmol/L	>50% ↓ in LDL-C	

* consider LDL-C < 1.8 mmol/L for subjects with ACS within last 3 months;** statins indicated as initial therapy

Anderson T, et al., *Canadian Journal of Cardiology,* DOI: http://dx.doi.org/10.1016/j.cjca.2016.07.510

Approach to Risk Management



*Men <55 and women <65 yrs of age in first degree relative.
†http://ccs.ca
‡Statins are first line therapy but add-on or alternative therapy may be required as per the algorithm.
‖Anderson et al. 2016 Update of the Canadian Cardiovascular Society guidelines for the management of dyslipidemia for the prevention of cardiovascular disease in the adult (publication pending).
¶Consider more aggressive targets for recent ACS patients.
**PCSK9 inhibitors have not been adequately studied as add-on to statins for patients with diabetes and other co-morbidities.
apoB: apolipoprotein B; BAS: bile acid sequestrants; BMI: body mass index; CVD: cardiovascular disease; HDL-C: high-density lipoprotein cholesterol; HIV: human immunodeficiency virus; LDL-C: low-density lipoprotein cholesterol; PCSK9: proprotein convertase subtilisin kexin 9; TC: total cholesterol; TG: triglycerides; Rx: prescription.

Anderson T, et al., *Canadian Journal of Cardiology,* DOI: http://dx.doi.org/10.1016/j.cjca.2016.07.510

Special Report

Effect Size Estimates of Lifestyle and Dietary Changes on All-Cause Mortality in Coronary Artery Disease Patients

A Systematic Review

J.A. Iestra, RD; D. Kromhout, MPH, PhD; Y.T. van der Schouw, PhD; D.E. Grobbee, MD, PhD; H.C. Boshuizen, PhD; W.A. van Staveren, PhD

Circulation. 2005;112:924-934

TABLE 4. Approximate Mortality Reduction Potential of Lifestyle and Dietary Changes Estimated From Studies in CAD Patients and the General Population

Recommendation	Mortality Risk Reduction Estimated From Studies in CAD Patients	Mortality Risk Reduction Estimated From Cohort Studies in General Population
Smoking cessation	35%	50%
Physical activity	25%	20%–30%
Moderate alcohol	20%	15%
Combined dietary changes	45%	15%–40%

TABLE 5. Approximate Mortality Reduction Potential of Preventive Drug Interventions After MI

Intervention	Mortality Risk Reduction, Mean (95% CI)
Low-dose aspirin[111]	18% (1%–30%)
Statins[112]	21% (14%–28%)
β-Blockers[113]	23% (15%–31%)
ACE inhibitors[114]	26% (16%–35%)

Les modifications des habitudes de vie ont autant d'impact sur la mortalité après un infarctus que les médicaments

En résumé

- L’activité physique et l’alimentation ont un impact réel, mais relativement modeste, sur le bilan lipidique

- Les habitudes de vie ont toutefois un impact majeur sur le risque cardio vasculaire

marie-kristelle.ross.1@ulaval.ca

14 h 50 **Approche globale de la dyslipidémie**

Dre Marie-Kristelle Ross, cardiologue, Hôtel-Dieu de Lévis

Objectifs :
- Identifier la notion de risque cardiovasculaire et utiliser les indications de traitements hypolipémiants.
- Démontrer la place de l'activité physique et de l'alimentation dans la prise en charge des dyslipidémies.
- Initier et intensifier au besoin un traitement hypolipémiant selon le patient.

15 h 20 **Période de questions avec les Drs Deschaintre et Ross**