# Plant-based Nutrition Program: A Sound Change for Cardiovascular Risk and Food Choices in Pre-retirees?

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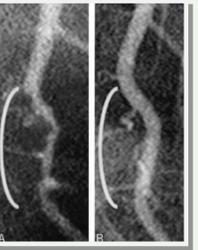
(Esselstyn et al., 2014)

Introduction

If I had a cardiovascular disease, what would my options be?

Pharmacological therapy
  EFFECTIVENESS: ↓ the risk of CV event by 20-30%
  (Chiuve, McCullough, Sacks, & Rimm, 2006)

Surgery
  EFFECTIVENESS: 40% of angioplasties are considered a failure after 6 months (Esselstyn Jr, 1998)

A better lifestyle
  EFFECTIVENESS: ↓ the risk of myocardial infarction by up to 90% (Akesson, Weismayer, Newby, & Wolk, 2007; Yusuf et al., 2004)

QUIZ!! Who am I?

Have you ever considered peas over pills?

The *Centers for Disease Control and Prevention* (2013) have found that I may be the **most important contributor** to CVD.

Objectives

1. Examine the effects of a **12-week, free-living, low-fat plant-based nutritional program** in Montreal (Quebec) on CVD risk indicators;

2. Explore key influences in participant's food choices;

3. Describe program's thematic content.

Program's summary

12 weeks, 2-3h/session
5 nutrition courses explaining the link between food choices and common chronic diseases such as cancer, cardiovascular disease and diabetes (led by RD)
1 grocery store tour
4 cooking workshops (led by two chefs)
1 course on environment and food choices (led by RD)
1 course on animal ethics and food choices (led by a specialist in animal ethics)

Methods

Inclusion criteria

Total Cholesterol > 5.2 mmol/dL
HDL-Cholesterol < 1.16 mmol/dL
LDL-Cholesterol > 3.4 mmol/dL
Triglycerides > 1.7 mmol/dL
High blood pressure diagnosis OR blood pressure > 140 mmHg (systolic) and >90 mmHg (diastolic)
Waist circumference > 102 cm (Men) and >88 cm (women)
Pre-diabete OR type II diabetes diagnosis
Currently on anti-hypertensive, lipid-lowering or hypoglycemic medication
Personal history of heart disease (myocardial infarction, stroke)

Multi-method design

QUANTITATIVE (*n*= 72)
Retrospective pre-post design with multiple groups
Paired t-test or Wilcoxon sign-ranked t-test analyses were run with pre-post measurements of standard anthropometric and physiologic CVD parameters obtained through medical files.

QUALITATIVE (*n*=15)
Case study
Interviews: 15 semi-structured interviews were conducted using grids based on the *Food Choice Process Model* (Sobal, 2009).

Observation: Participant observation with document analysis were used to gather information about the programs' thematic contents.

Results

Table I. Paired differences of anthropometric and physiologic indicators of cardiovascular health before/after intervention (*n*= 72)

	Pre-intervention	Post-intervention	n	Mean	95 % confidence interval Inferior	95 % confidence interval Superior	t	P-Value
Weight (*lbs*)	193,5 ± 35,8	185,3 ± 33,0	64	10,5	8,98	11,99	13,95	<0,001
Waist circumference (*cm*)	107,1 ± 11,4	99,9 ± 9,66	61	7,43	6,50	8,37	15,93	<0,001
BMI (*kg/m²*)	31,42 ± 5,20	29,67 ± 6,35	49	1,59	1,33	1,86	12,15	<0,001
Total Cholesterol (mmol/L)	4,87 ± 1,29	4,18 ± 0,89	49	0,87	0,57	1,17	5,87	<0,001
LDL-cholesterol (mmol/L)	2,68 ± 1,06	2,06 ± 0,78	44	0,84	0,55	1,13	5,80	<0,001
HDL-cholesterol* (mmol/L)	1,24 ± 0,40	1,12 ± 0,33	52	0,19*	-	-		<0,001
Triglycerides* (mmol/L)	1,80 ± 1,05	1,65 ± 1,11	48	-	-	-	-	,189
TC/HDL*	3,83 ± 1,41	3,49 ± 1,15	48	-	-	-	-	,568

*Wilcoxon sign-ranked t-test was used. Values presented are median.

Preliminary results from interviews (*n*=3)

Building importance to change to a more whole food plant-based diet comes from:
  The personal hook: diagnosis, medication, healthy retirement, angry medical services and food consumer (for my health, my ego safety)
  The net: for the others (altruism to same/ other species)

Building confidence to change to a more whole food plant-based diet comes from:
  Through pratice (eg. cooking) and experiences (handle situations)
  The group effect — living health improvements and seeing it in others
  The transformation into a Health Ambassador: gradual teaching, showing example, make people taste, start projects

Discussion

CVD risk indicators improved significantly (except for HDL) as found in other studies (Turner-McGrievy, Barnard, & Scialli, 2007; Barnard et al., 2009; Esselstyn et al. 2014).

The typical plant-based nutrition intervention is provided in group setting and includes a grocery store tour, cooking workshops and health education on nutrition and mainstream chronic diseases (Morin *et al.*, not published).

The present intervention particularity: included ethics education on food choices, highlighting the potential of personal food behaviors on world hunger, climate change, animal welfare and pollution.

Ethics education may supplement health motives in the challenging quest of changing food choices and help transforming a temporary change into a lifelong habit. Ethical motives can lead to positive changes in food choices for cardiovascular health, that is to say towards a more whole food plant-based dietary pattern (Haverstock & Forgays, 2012).

Conclusion

An educational nutrition approach involving lectures and workshops on thematics surrounding a whole food plant-based diet (health, animal and environment ethics) may be a useful option to prevent and treat people with heart disease and/ or with modifiable risk factors such as hyperlipidemia, hypertension, obesity and metabolic syndrome.

Main limits of the current study include retrospective data (incompleteness), the sample characteristics (volunteers) and the fact that there were no long-term follow-up. However, the main strength lies in the multi-method design, this study being, to our knowledge, the very first to combine qualitative and quantitative approaches for this kind of lifestyle modifcation program.

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