

# Why we should be vegetarian

## Part 2

This is a continuation of the report on what transpired at the 5th International Congress of Vegetarian Nutrition by leading nutritionist and accredited practising dietitian, Sue Radd.



### VEGETARIAN DIETS AND HEALTH OUTCOMES: WHAT DO WE KNOW AND WHERE DO WE GO FROM HERE?

Leading epidemiologist, cardiologist and principal investigator of the Adventist Health Study 2 (AHS-2), Dr Gary Fraser of Loma Linda University, provided the keynote address on the state of international research re the health outcomes of following a vegetarian diet. As well as putting into context the results of other important and ongoing studies on vegetarians, Dr Fraser shared new data from the AHS-2. This study, funded by the National Institutes of Health in the US, is the largest of its kind in the world and includes more than 97,000 Seventh-day Adventists from 50 US States (including 26,000 African Americans) with diverse dietary patterns.

Unlike most previous population studies on vegetarians, it is measuring various biomarkers of disease, which also reflect dietary status and will make interpretation of future results more meaningful. For example, as well as being asked about how often they eat meat, subjects are having their level of *1-urinary-1-methyl histadine* (an objective biomarker of meat intake) measured to confirm the truthfulness of their dietary reporting.

Confusion exists over the health effects of vegetarian diets, but this is most probably due to measurement error (can we tell who is really vegetarian?) and confounding caused by other lifestyle variables, according to Dr Fraser. Conflicting results are mainly in the area of cancer and possibly longevity, whereas the evidence for other chronic diseases is all pointing in the same direction, so "A wait for certainty will prolong confusion unnecessarily", he said.

Some vegetarians, for example, have no health motivation whatsoever – their interest is in animal welfare or ecology – and differences in dietary practices will therefore produce different health outcomes in spite of all groups being called "vegetarian". Dr Fraser questioned whether this label is now too imprecise to be used for biomedical research. For this reason, the new AHS-2 is pioneering the way

by using five definitions for dietary status. The results provided are based on comparing these groups (see table 1).

Previous studies have simply divided people into meat eaters and non-meat eaters.



### HOW VEGETARIANS FARE

#### Heart Disease

Vegetarians, in general, have significantly less coronary heart disease. The new data show that it is premature death from heart disease that is being prevented (during the productive years – not when we are 80 or 90). People who prefer wholemeal or wholegrain bread have a reduced risk, and nut consumers enjoy at least a 30% reduction in heart disease risk. Eating small amounts of fish may be preventive against "sudden death" (caused by irregular heart rhythm). And there is an increased risk for every 10 grams of saturated fat and a decreased risk for every 10 grams of the healthier mono- or polyunsaturated fat intake.

#### Cancer

The overall evidence for vegetarians is less clear in this area. While previous studies on Adventist vegetarians have shown the risk of certain cancers to be lower, the latest findings from the EPIC-Oxford study (based on vegetarians in the UK) suggest that these vegetarians may have an *increased* risk of cancer! Dr Fraser believes that the data from the EPIC study regarding meat is a strange outlier. Vegetarians in the UK may have different diets – indeed, the EPIC study shows they eat 40% more cheese than omnivores, whereas Adventist vegetarians consume much less dairy than Adventist non-vegetarians – and environmental and other non-dietary health habits can impact on our gene expression.

Dr Fraser believes that the section on vegetarian diets, as reported in the World Cancer Research Fund (WCRF) 2007 report (considered to be the Bible on diet and cancer), is also "superficial and incomplete". While very few causative factors have been identified, the WCRF have, however, deemed that there is "convincing" evidence (the highest level possible) that meat, alcohol and a high BMI (body mass index) can raise your risk of cancer.

#### Diabetes

The initial findings from the AHS-2 show that, compared to non-vegetarians, lacto-ovo vegetarians have a 45% reduced risk and vegans a 40% lower risk of type-2 diabetes, with those whose diets also include fish and/or small amounts of meat (but which are otherwise vegetarian) faring somewhere in between.

#### Blood pressure

There is a gradation of blood pressure reduction with an increase in the plant content of diets. For example, lacto-ovo-vegetarian African Americans have a 40%, and vegans a 55%, lower risk of high blood pressure, which is significant since African Americans are already well known to have higher blood pressures than Caucasians. A reduction in blood pressure has also been reported by the EPIC-Oxford study to correlate with vegetarian status.

## Body Mass Index

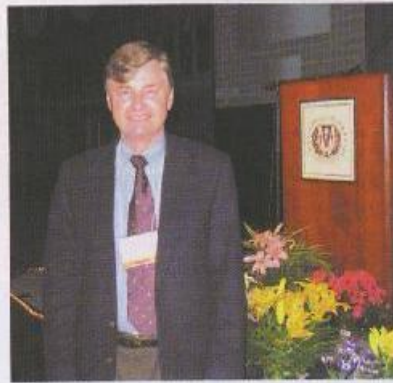
Vegetarians, especially vegans, have lower Body Mass Indexes (BMIs) than non-vegetarians. The EPIC-Oxford study found the BMI of vegans to be lower by two units, whereas the AHS-2 data found this to be 5 units lower for Adventist vegetarians compared to omnivores.

## Overall Mortality

The Adventist Health Study 1 is approximately 20 years old now but, according to Dr Fraser, "Things haven't changed that much". This study shows improved survival among Adventists, especially vegetarian Adventists, compared to the general population. Preliminary data from the AHS-2 shows lowest death rates among lacto-ovo-vegetarians and those whose diets includes fish (but which is otherwise vegetarian). The reduction in risk of premature death was not found for vegans, but Dr Fraser pointed out there were only 50 deaths in this group of 4,500 people (representing only 4.6% of the total study population) and therefore the evidence is very imprecise to draw conclusions for them. Also, this study was not adjusted in the vegan group for people who may have had previous health problems, which resulted in them adopting a vegan diet.

## WHAT ABOUT OTHER PLANT-BASED DIETS?

Further speakers, including Dr Julio Acosta-Navarro, Senior Clinical Cardiologist of the Heart Institute in Sao Paulo, Brazil, presented the findings from a range of previously conducted, but relatively unknown, smaller studies on people in Latin America following traditional vegetarian or plant-based diets. These, similarly, show lower blood pressure and lower prevalence of hypertension, lower blood cholesterol levels, no evidence of atherosclerosis, and significantly less obesity and type-2 diabetes. Dr Fraser pointed out that there is a lot of overlap with a vegetarian dietary approach and other plant-based or plant-centred diets such as the Mediterranean dietary pattern and the Prudent dietary pattern. The EPIC elderly study found that a two-unit increase in a dietary score that sums the use of ten food items (primarily plant foods) was associated with a significant 8% decrease in the risk of death. Also, a prudent dietary pattern identified from the Nurses' Health Study (Harvard research) similarly showed that the highest dietary score is associated with the best mortality statistics, and that the more adverse scores greatly increase the risk of death.



## WHAT HAPPENS IF VEGETARIANS TAKE UP EATING MEAT?

Adventist vegetarians who increased their meat intake to weekly consumption during a 17-year interval experienced a 3.6-year decrease in life expectancy. Adding meat to the diet, even at such a modest level, was found to increase their risk of stroke, diabetes and heart disease.

Source: American Journal of Clinical Nutrition 2003

## IS THERE A 'BEST' VEGETARIAN DIET FOR HEALTH?

Based on research to date, using the simple definition of avoiding meat, Dr Fraser concluded that, "Many well-informed health conscious people should avoid or minimise meat consumption because of less coronary heart disease, less colon cancer, lower blood pressure, less tendency to being overweight, a possible reduction in other cancers and a possible increase in life expectancy (but perhaps not in all settings)."

The optimum vegetarian diet is yet to be defined, but Dr Fraser suggested that it is "probably a low-dairy, high quality vegetarian diet which avoids calorie-dense processed foods and has an open mind about the occasional fish."

Future research will clarify whether in the context of a really healthy diet you need fish. If the answer turns out to be 'yes', the concern is - where will all the fish come from? ➤



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## THE PROS AND CONS OF VEGAN DIETS

To be vegan is 'cool' among today's youth and celebrities, but does a vegan diet offer additional health benefits or hazards? This was the topic addressed by Dr Winston Craig, a registered dietitian and professor at Andrews University in Michigan. He believes that "Vegan studies are too few and too small" to make final conclusions, but, compared to other vegetarians, vegans are thinner, have lower total and LDL cholesterol levels, have modestly lower blood pressure levels and are unlikely to have large advantages in disease patterns. Data on other risk factors is too sparse, and comparison about disease events in vegans is hampered by low numbers of subjects.

Dr Craig highlighted the importance of two main issues to achieve a nutritionally balanced vegan diet:

1. Knowledge
2. Accessibility

Equipped with the right nutritional knowledge and accessibility to nutritious foods, there is no reason why a vegan diet should have limitations. For example, vegans are generally not more anaemic than other people. And if calcium intake and vitamin D status are adequate in vegans, studies show that bone mineral density and bone fracture are also not a problem.

However, in reality, some vegans don't get it right. Dr Timothy Key showed

data from the EPIC-Oxford study that calcium intake (approx. 600 mg per day) is significantly lower in vegans compared to omnivores and below the Reference Nutrient Intake in the UK of 700 mg per day. The problem with this finding is that people with the lowest calcium intakes had the highest fracture rates, and vegans have much lower intakes than other dietary groups.

The EPIC-Oxford study of British vegetarians also found that vegans have vitamin B<sub>12</sub> intakes below the recommended level and plasma levels below the 200 pg/ml (148 pmol/L) limit of concern. [Note that the late Dr Victor Herbert, an international expert on vitamin B<sub>12</sub>, recommended that 221 pmol/L should be the lower limit of concern].

Studies conducted in Australia have found that even lacto-ovo-vegetarians can have low vitamin B<sub>12</sub> levels if they don't achieve an adequate dietary intake. However, this is easily rectified with professional advice. If you want to check whether your calcium or vitamin B<sub>12</sub> intake is adequate, consult an accredited practising dietitian experienced with vegetarian diets.

With regards to vitamin D, the EPIC-Oxford study shows that both vegans and vegetarians have moderately lower blood levels compared to omnivores. This is mainly due to that fact that,

unlike in the US, milk is not fortified with vitamin D in Britain. In spite of having a much sunnier climate, many Australians also have sub-optimal vitamin D levels which is of concern, as emerging evidence shows that higher levels of this vitamin (which is actually a hormone) are linked with a lower risk of many chronic diseases.

Dr Craig stated that vegans need to ensure an adequate intake of foods containing the omega-3 fatty acid, alpha-linolenic acid (ALA) (discussed in the Winter 2008 issue of *NHVL*, page 28) and an adequate DHA status. A supplement can be taken. The problem with relying on the parent compound, ALA, to meet all your omega-3 requirements is that the conversion rate is very low, although females have a better conversion of ALA to EPA (one of the longer omega-3 fats on the way to DHA) because of the effect of oestrogen on the enzyme, *delta-6 desaturase*. EPA is available from seaweed, and some companies have started to concentrate this into supplements. DHA is available from micro-algae supplements [see page 58 in this issue].

However, Dr Craig alerted the audience to the fact that the Food and Nutrition Board in the US recommends caution with high intakes of DHA and EPA by healthy people as these may impair the immune system.

## Table 1. Definition of Dietary Status in the AHS-2 Study

TYPE OF DIET	DEFINITION
<b>Vegan</b>	Animal products consumed less than once per month
<b>Lacto-ovo-vegetarian</b>	Meat and/or fish consumed less than once per month; dairy consumed more than once per month
<b>Pesco-vegetarian</b>	Meat consumed less than once per month; fish consumed more than once per month
<b>Semi-vegetarian</b>	Meat consumed from once per month up to once per week; fish consumed less than once per week
<b>Non-vegetarian</b>	Meat consumed more than monthly; fish consumed more than weekly

**Sue Radd is one of Australia's leading nutritionists, a speaker and director of the Nutrition and Wellbeing Clinic in Sydney. Recognised by her peers as an expert on plant foods and phytonutrients, she is co-author of the internationally published *Eat to Live*. See the latest information at [www.sueradd.com](http://www.sueradd.com)** ◆

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