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Welcome to Issue 18 of our Bulletin, updating you on issues of importance or topical interest relating to nutrition and physical activity of older people. In this issue, we summarise a recent paper from the Journal of Nutrition in Gerontology and Geriatrics.

ASSOCIATION BETWEEN DIETARY QUALITY AND MORTALITY IN OLDER ADULTS: A REVIEW OF THE EPIDEMIOLOGICAL EVIDENCE

Dara Wheeler Ford, Gordon L Jensen, Terryl Hartman, Linda Wray, Helen Smiciklas-Wright, Department of Nutritional Science, Pennsylvania University, USA. *Journal of Nutrition in Gerontology and Geriatrics, 32:2. 85-10, 2013.*

There has been some recent debate in the media about the value of high fat, low carbohydrate diets. Currently, this dietary pattern does not appear to have much credibility in the scientific literature, and it does not line up with the Ministry of Health Food and Nutrition Guidelines. These guidelines emphasise a prudent diet of plenty of vegetables and fruit, whole grain breads and cereals, low fat options of meats and milk products and a limited intake of saturated fats.

The review in the Journal of Nutrition in Gerontology and Geriatrics has evaluated 16 international epidemiological studies to assess the association between dietary quality and mortality in older people, and have concluded that generally, dietary patterns that emphasised whole fruits and vegetables, whole grains, low-fat dairy, lean meats and legumes and nuts were associated with lower mortality. These diets cannot be said to be high fat, low carbohydrate.

Some definitions

Diet Quality: A measure of how closely intake matches dietary guidelines in terms of balance, variety and moderation. It is determined by food consumption data, such as 24-hour recall, food records, and food frequency questionnaires.

A priori methods: Determine the quality of a diet based on predetermined recommendations or dietary guidelines that may differ depending on regional variations. The quality scores are based on specific foods or food groups and/or nutrient consumption reflecting adequacy of a diet based on recommendations. Individuals' diet scores are based on a predetermined scale.

A posteriori methods: Based on actual observations of available dietary data to derive patterns through statistical methods such as cluster analysis or factor analysis. Cluster and factor analysis examine patterns of intake and take account of the intercorrelation of nutrients and interactions of foods within a diet.

***Cluster analysis*:** is subject-orientated and groups subjects based on similar dietary patterns into mutually exclusive clusters

Factor analysis: seeks to reduce the number of explanatory variables into factors that capture the primary sources of dietary variation.

Both *a priori* and *a posteriori* methods have shown that diet quality may be related to health outcomes in older adults.

Methods
A literature search to identify prospective human cohort studies of diet quality and mortality in non-institutionalised adults aged 60 years and older found 16 relevant studies with follow-up periods of 4-14 years. Nine studies characterised diet using *a priori* methods and seven used *a posteriori* methods.

Results
A priori studies: Of the nine studies in this group, the main results in eight supported the hypothesis that diets based on whole fruits and vegetables, whole grains, low-fat dairy, lean meats and legumes and nuts showed that an increased composite dietary quality score was associated with decreased mortality. These used the Mediterranean Diet Score (MDS).

In the US study reviewed, there was no association between diet quality and mortality in the *a priori* study. This study used a Healthy Eating Index (HEI) score. Two other studies, one from Britain and another from Europe each used more than one method to assess diets. While the MDS in these studies showed similar inverse associations as other studies using this method, the Healthy Diet Score method (HDS) and the Healthy Diet indicator method (HDI) did not. As with the US study, the results from HDS and HDI showed no association between diet quality and mortality. *A priori* methods appear less reliable than *a posteriori* methods in demonstrating associations between diet and mortality in older adults.
These nine studies had follow-up periods of 5-14 years.

A posteriori studies: Seven studies examined diet quality using *a posteriori* methods. Diet patterns in each of these studies were grouped into 4-6 broad categories, for example: unhealthy, high calorie, low calorie. Low 4, healthy; prudent, pasta and meat, olive oil and salad, sweet and dairy; Mediterranean, health-aware, traditional pattern, sweet & fat. The actual dietary patterns differed slightly, depending on the eating patterns in the region.

Two of the studies used cluster analysis. Both the cluster analyses found that a 'healthy diet' or 'healthy foods' significantly reduced the risk of mortality or increased the years of healthy life than unhealthy diets. 'Healthy diets' were those that were high in fibre and carbohydrates and low in fat in one of these studies, and had high intakes of low-fat dairy, fruit, whole grains, poultry, fish and vegetables with low intakes of meat, fried foods, sweets, high-energy drinks and added fat in the second study. Follow-up for these two studies was 10 years.

The factor analysis method was used in five *a posteriori* studies. Two used exploratory factor analysis and three, principal component analysis. One study looked at Britain's national diet, and this showed that a Mediterranean style of eating was associated with a lower risk of mortality, especially in participants aged 75 years or more.

The other four studies examined different subpopulations of the European Prospective Investigation into Cancer and Nutrition (EPIC). A diet pattern that indicated a high proportion of energy from total fat and protein and a low proportion of energy from carbohydrate was the only pattern that significantly and positively associated with mortality in adjusted models.
Follow-up was 4-9 years in these five final studies.

Discussion
All 16 studies in this review examined all-cause mortality as the primary outcome, with several also examining specific causes of death (CHD, CVD, cancer, diabetes). Overall, the *a posteriori* methods demonstrated that greater adherence to a healthier pattern of consumption was inversely associated with mortality. Although the results from *a priori* studies showed significant inverse associations with mortality, the results were not as decisive, especially where HEI, HDS and HDI were used in the US, Britain and Europe. The observed variations in associations between diet and mortality may have occurred for several reasons. The two methods used are innately different, and are both subject to limitations.

Conclusions
Life expectancy is trending upward and the population is ageing worldwide. In the US, the number of people 65 years and older is expected to double, and those aged 80 and over expected to treble by 2030. In New Zealand too, the fastest growing age group is the 80+ year group. It therefore becomes a priority to increase the quality years of living. Maintaining a healthy diet throughout life may increase the number of disease- and disability-free years. This review has shown that in all the studies evaluated, the diets with beneficial effects on mortality include fruits, vegetables, legumes, whole grains, and lean meats or fish. Greater understanding of the impact of diet in older adults can provide much needed information to make accurate recommendations that have the potential to increase the quality of life and not just years of living.

The full review is available through the following link: http://dx.doi.org/10.1080/21551197.2013.779622

Determination and a competitive streak keep Seniors on their toes

The 2014 World Veteran Table Tennis Championships were recently held in Auckland. The A 93 year old Christchurch competitor, Harry Taylor, is a wonderful example of an older person maintaining his interest and involvement in physical activity. He lost his game to an 85-year old Australian, whom he had beaten in a previous tournament. The Australian was 'afraid Harry was going to come back and beat me again'. These players might be old in body, but they are still incredibly determined and competitive. What role models they are for the old adage 'Use it or lose it'. (Christchurch Press, May 13, 2014).