

Healthy Eating Club

Creating a healthier universe ...one byte @ a time.

PART I: HEC Philosophy

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TO COME

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TO COME

Part 1: HEC Philosophy

1. Vision

The Healthy Eating Club (**HEC**) aspires to provide the best available information about how to **optimise health** through eating and lifestyle activities, and to provide ways in which this might be achieved. The club's targets are: *well-being, health and longevity*.

Its Approach:

- is to improve health through small steps which may be of great consequence; these steps include food, physical activity and social activity - we have called this approach "*lifestyle synergy*".
- is not one of diet dogma and self denial but rather one of informed choices.

The Vision Includes:

- **The environment and the food supply**

The HEC is a group of individuals who wish to encourage and promote: a *universally safe, nutritious and sustainable food supply* (see section 4.1)

- **Promotion of traditional cuisines associated with long-lived populations (along with the optimal fusion of these cuisines)**

The HEC acknowledges that different "tried and tested" cuisines from around the world may lead to similarly good health e.g. the low fat/high fish Japanese diet and the high fat/high vegetable Greek diet.

The club will identify and promote the "best" of food cultures associated with longevity.

The "best" may be in the form of traditional recipes or in the form of "fusion" recipes which the HEC has access to (see section 4.1).

- **To provide club members with the resources, feedback and motivation to help them assess and improve their health, well-being, diet and lifestyle via:**

- On-line quizzes.
- On-line courses and a certificate of 'completion' signed by Prof. Mark Wahlqvist and our Accredited Practising Dietitians (APDs).
- On-line and hard copy books written by Prof. Wahlqvist and our APDs.
- On-line and workplace lifestyle programs promoting "*lifestyle synergy*" (see section 4.2).
- Chat room & bulletin boards.
- Novel behaviour change tools to monitor and encourage synergistic lifestyle changes

- To keep club members informed about the latest discoveries on healthy eating via:
 - A monthly newsletter and access to cutting edge articles on nutrition.
 - HEC commentaries on topical nutrition issues in the media.
 - Access to findings on healthy eating reported in past and present PhDs from around the world.
(PhD students will have the opportunity to make their thesis internationally accessible by publishing it on the HEC web-site)

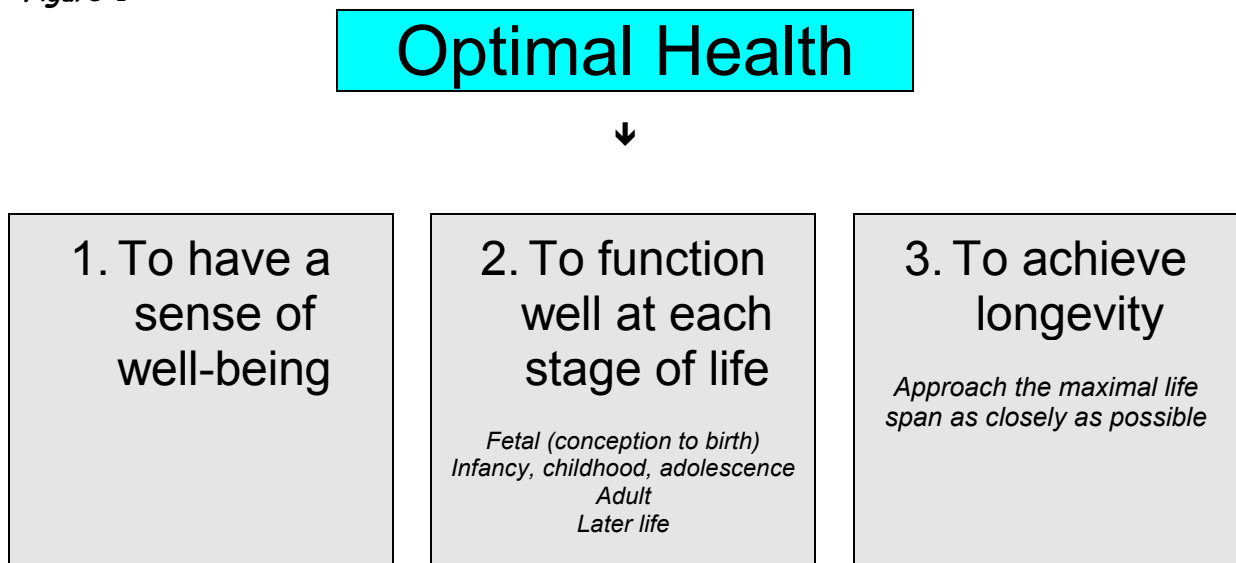
2. Background to HEC philosophy

2.1 Optimal Health

What is Optimal Health?

Optimal health includes feeling of well, being able to function well (without limitation), and living to an old age (see Figure1).

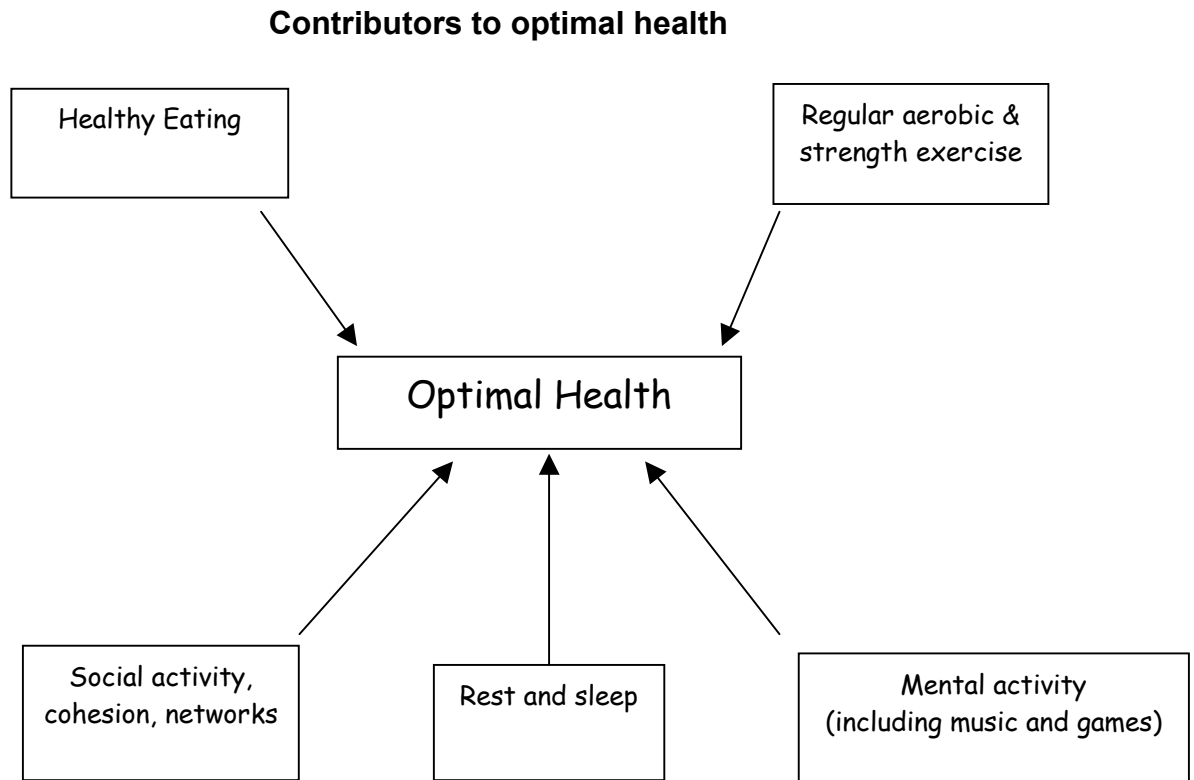
Figure 1



How can we achieve optimal health?

Several factors contribute to optimal health, shown in Figure 2.

Figure 2



The possibility for health to be optimised through food has usually, until recently, been the prerogative of the rich and powerful, since basic survival has been the overwhelming consideration for most of the world's population.

However, with current advances in the science of food and health, in biotechnology and in information technology, we ought to be able to "tune" the food supply and make individual choices which will contribute to the greatest environmental and health good. HEC wants to have a leadership role here.

We can begin by optimising health at different life stages, but the next step is to achieve this at each and every stage of life.

At the same time, optimal health (see Fig. 2), requires not only healthy eating, but also social activity and cohesion, regular physical activity and ongoing mental activity and, with these, rest and sleep.

2.2 Healthy Eating

It would be easy to imagine, as was the case with much of 20th century food and health science, that, if we have enough of the essential nutrients (energy - calories or kilojoules; macronutrients - water, protein, carbohydrates, essential fats, dietary fibre; micronutrients - vitamins and minerals) we could enjoy good nutritionally related health.

As the last century drew to a close, there was intense interest in other food components, many of them unique to plants (phytochemicals), which confer health benefit.

This was especially in relation to their anti-oxidant capacity, effects on the body's defense system and protection against tumor formation; so even the colours, smells and tastes of food were seen to be important. As a result, the food-health equation took on a new meaning, because it was more to do with food as a whole.

The WHO (World Health Organisation) and FAO (Food and Agricultural Organisation) have embraced this new knowledge and encouraged food-based approaches to health; Professor Wahlqvist and Dr Kouris-Blazos from HEC have been involved in the development of the principles for food-based dietary guidelines (<http://www.healthyeatingclub.com/research-library/archive/diet-guide/fbdg%27s.htm>). The Founders of the HEC have thus contributed to this new knowledge base and its application to global health programmes. We will be further developing this approach in the HEC.

What does Healthy Eating need to address?

- ❖ The **environment** and whether food habits can be **sustained** by the environment
- ❖ Whether food is **safe**
- ❖ Whether food is **nutritious**
- ❖ Whether food is **satisfying and enjoyable**
- ❖ Food **culture** and **cuisine**
- ❖ **Social influences** on food intake

Let's explore each one of these, to help you understand why they are an integral part of the HEC philosophy.

2.2.1 The Environment and Sustainability

The first requisite for healthy eating is that there is a secure and sustainable food supply available to each of us.

It is remarkable how, even in adverse geographic and climatic conditions, people can survive with relevant knowledge and skills, and with good governance of their food supply. Thus, governance is a first requisite for sustainability and food security.

Examples include:

1. the survival of indigenous Australians in the desert, whilst European explorers like Burke and Wills perished.
2. survival of food shortage and drought when there has been anticipation and preparation along with careful management during the event, yet with conflict as well, drought can spell nutritional disaster.

In the past, **humans have managed to live in a number of different eco-systems**, partly because

- a) they are omnivorous
- b) they have been adaptable
- c) they have taken selected food plants or animals with them when they have migrated, which has modified the environment

With increasing numbers of humans (expected to stabilise by about 2050) and increasing environmental degradation, the prospects of eco-system collapse with failure in food production increase. The need is to achieve food security at minimal environmental cost and if possible, with environmental enhancement.

Disturbing trends are the salination of agricultural lands where trees have been removed and the loss of bird predators for insects, which beset crops in similar tree-less conditions. Thus, the evolution of 'healthy eating' practices will increasingly require reference to the environmental consequences of the production of the food we eat (see box below). For example, preferring tree nuts (walnuts, almonds) to ground nuts (peanuts) some of the time would encourage retention of trees.

But excessive tree plantations, as has happened with olive trees in Spain, can lead to the loss of species and eco-systems with their own health importance.

More examples are given in a paper by our Editor-in-Chief, Professor Mark Wahlqvist, in the Food and Agriculture Organization (of the UN) web site (<http://www.fao.org/docrep/meeting/x2638e.htm>). These and a growing number of examples can be built into food choice. We expect "eco-foods" to be a growing area of interest to "healthy eaters".

Characteristics of a country with good food sustainability

- Governance well-developed (e.g. food regulation, quarantine, services, banking and finance)
- Food stocks not precarious
- Not dependent on monoculture (e.g. fields of one crop) or lot feeding of animals for human consumption
- Majority of available food is locally produced (not imported)
- Food is traded by a renewable energy source (e.g. wind power) rather than a non-renewable energy source (e.g. jet fuel)
- Post harvest management and infrastructure are in place

2.2.2 Food Culture and Cuisine

Long-standing food cultures have generally been tried and tested for their risks and benefits, through careful observation and through trial and error. They will have allowed the survival of a particular ethnic group, at least through the reproductive years and, usually, to allow the accumulation of knowledge and wisdom through longevity.

However, some groups have been isolated enough not to have appreciated that further improvements in the food-health equation were possible, so that less than optimal health was considered to be "normal". For example, people living where there has been iodine deficiency may have accepted a certain proportion of the population with iodine deficiency disorders, including goitre, low thyroid function, cretinism and mental retardation. The introduction of iodine-rich fish, algae (seaweed) or salt into the foods of such communities produces a radical change in health, especially for the next generation.

Examples showing how food culture can give us clues on how to "optimise health"

We are still learning about new ways in which food confers health and there will be more to come. For example, in the late 1980s our research group postulated that, in part, the menopause was not an inevitable physiological state in women and depended on what women ate - there were differences between food cultures, especially between those that ate soy or its products and those that did not.

Example 1: The menopause

We were the first to show in a paper, published in the British Medical Journal (Oestrogenic Effects of Plant-derived Foods in Postmenopausal Women) in 1990 that soy, linseed (flaxseed) and red clover sprouts had the capacity to offset the oestrogen deficiency of the menopause, as though food was an extension of the body's endocrine (or hormone) system. Indeed, certain factors the menopause can be considered due to food deficiency when one takes a broader eco-nutritional view. This is now, within a decade of the discovery, a widely appreciated point of view.

Example 2: Skin wrinkling

In 2001, we have shown that some of the differences in the ageing of skin, may be explained by food culture, and that certain foods appear to protect the skin against ageing (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11293471&dopt=Abstract).

We suggest that particular attention be paid to those food cultures associated with the best life expectancies, especially where they are also associated with the least disability (see Table 1).

Food cultures associated with longevity include:

Oriental

- Okinawan (Okinawan ethnicity, Japanese nationality and Okinawans in Hawaii)
- Japanese in general
- Chinese (especially in Hang Zhou and Hong Kong)

Scandinavian

- Iceland
- Sweden

Mediterranean

- Greek (in Greece and Australia)
- Italian (Neapolitan)

Indigenous

- Andean (the Sacred Valley of the Incas near Cusco and Macchu Picchu, Peru)

The HEC provides an opportunity to consider one's own food pattern alongside these benchmark cultures.

For the combination of longevity and minimal disability, the WHO (World Health Organisation) now recommends a measure referred to as DALES - disability adjusted life expectancies. The nations who perform best in this respect are:

1. Japan
2. Australia

The reasons for these two rather different nations, one culturally rather homogeneous, and the other quite culturally pluralistic, performing similarly well are not altogether clear, but important common food denominators are:

- a) an Asian dimension to the diet (including rice and green vegetables- the Fan-Tchai principle, but also legumes or lentils).
- b) great food variety (in Australia this is mainly attributable to successive waves of migration from different cultural groups).
- c) low levels of poverty-driven hunger (except amongst indigenous Australians)

These observations about average life expectancies and DALES (Disability Adjusted Life expectancies) do not deny ongoing, food-health inequality in advantaged societies and the opportunities that remain for further improvement.

2.2.3 Social Influences on food intake

The social influences on food intake are certainly instructive for healthy eating. These include how we eat, whether eating has a social role (adding to its health value), who we depend on for our food and its preparation, and whether food plays a role on special occasions (life events like birth, death and marriage, academic success or religious and spiritual events).

2.2.4 Food Safety

Food safety may be of 4 kinds (see also box below):

1. whether it is **clean or filthy** (from dirt or extraneous matter in it whose consequences on the human organism are uncertain)
2. whether it is **chemically contaminated** - especially by residues from herbicides and pesticides, but also where it has been adulterated (e.g. where mineral oil was put into olive oil in a celebrated Spanish case or where contaminated industrial oils were fed to animals in Belgium, and the animal products released for human consumption)
3. whether **microbiologically contaminated** by pathogenic viruses, bacteria or protozoa - and now even prions, a newly discovered infectious agent which causes BSE (Bovine spongiform encephalitis) and a variant of Jacob-Creutzfeldt disease of the brain in humans.

However, food does not have to be sterile (micro-organism free) to be safe to eat, because micro-organisms are a normal part of life and, indeed, populate our bowel (having been derived from food), our skin and other body orifices. Some of our more valuable foods, from a health point of view, are the product of bacterial fermentation - yoghurt, cheese, sauerkraut (in Germany), kimchi (Korea), soy tempeh (Indonesia), salami, beer and wine.

4. whether **nutritionally safe** - do the foods contain the expected nutrients; are there anti-nutrients which might decrease nutritional value (for example, uncooked legumes contain factors which might inhibit gut enzymes - trypsin - which digest protein)?

Characteristics of a country with a safe food supply

- Public and industry food safety education in place, adequate food labelling laws
- Agriculture, horticulture, and fisheries regulated
- Herbicide and pesticide usage minimised and monitored.
- Microbiological safety protocols in place throughout food chain, including, transport, manufacture and food service

2.2.5 Nutritious

The basics of nutrition are that food must provide:

* **Energy** (measured as Calories or Kilojoules)

* **Essential nutrients**

a) **macro-nutrients**

- water
- carbohydrate
- protein
- essential fats (omega - 6 and omega - 3 or n-6 and n-3)
- dietary fibre (non-starch, non-glycaemic polysaccharide; this carbohydrate, which is not digested in the small bowel, does not raise the blood sugar as glucose, but is fermented in part in the large bowel)

b) **micro-nutrients**

- vitamins
water-soluble: B1(thiamin), B2 (riboflavin), B3 (niacin), B6 (pyridoxine), folic acid, B12, biotin, pantothenic acid, vitamin C
fat-soluble: vitamins A, D, E and K.

and now we know:

c) other health-giving food components

- from plants: phytochemicals or phytonutrients
- from animals: certain peptides as in milk and meat
- from micro-organisms: products of fermentation

But, in addition, the **physical properties** (as well as the chemistry) of food are important for its health profile. For example, the structure of food - the particle size, how viscous it is.

What foods do to certain **bodily functions** has also become a way of assessing how nutritious it is:

- How satiating (satisfying/filling) it is.

	Low-fat/high-satiety	High-fat/low-satiety
Potatoes	390	
Oranges	260	
Apples	250	
Brown pasta	230	
Beef	210	
All-Bran	180	
White pasta	110	
Bananas	110	
French fries		110
Ice cream		100
Potato chips		95
Peanuts		80
Mars Bar		60
Chocolate cake		45
Croissant		20

Source: Wahlqvist ML. Food & nutrition. Australasia, Asia & the Pacific. 1997, Allen & Unwin, NSW.
Note: All values in this table are approximate values only.

- How digestible it is
- How fermentable it is
- It's effect on blood glucose - the glycemic index (see <http://www.glycemicindex.com>)

Where **physical activity** is higher or lower, the body's energy needs are correspondingly higher or lower, yet the amount of essential nutrients required or **recommended dietary intakes** (<http://www.healthyeatingclub.com/research-library/archive/rdis/rdi.htm>) are rather similar. This means that the nutritional quality (essential nutrients per calorie) of the food eaten by a physically inactive person must be greater than that of a very active person. The same is true of an older less active than a younger more active person.

We assess which food is providing its fair share of the essential nutrients per calorie by calculating the

$$\text{Nutrient density (ND)} = \frac{\text{mass of essential nutrient in food}}{\text{energy value of food}}$$

e.g. ND of vitamin C in

- An orange = 38mg/100kJ
- Full cream milk = 2mg/100kJ

Factors which lower the nutrient density of a food are notably fat (9 cal/g or 37 kJ/g), alcohol (7 cal/g or 29 kJ/g) and refined sugar (4 cal/g or 16 kJ/g), which are not accompanied by essential nutrients and which increase the value of the denominator, without any increment in the numerator.

Conversely,

$$\text{Energy density (ED)} = \frac{\text{energy value of food (in Cal or kJoules)}}{\text{mass of food (in grams)}}$$

e.g. ED of potatoes

Form of potato	Energy density		
30g boiled	80 Cal/100g	↓	Increasing energy density
15g baked	160 Cal/100g		
10g fried	250kCal/100g		
5g crisps	500k Cal/100g		

Values taken from: Briggs D, Wahlqvist M. *Food Facts*. 1984, Penguin Books, Ringwood, Australia.

The addition of fat with cooking and increasing surface area of the potato to be cooked (as it is sliced) has a major impact on the ED and, therefore, its health value (the more fat the less nutritious is a particular amount of food).

One of the most holistic ways of looking at nutritive value of the diet is to assess the **food variety score** (<http://www.healthyeatingclub.com/quizzes-games/food-variety/default.asp>), and to check your food intake against recommended weekly and daily serves of particular foods in the **HEC pyramid** (<http://www.healthyeatingclub.com/quizzes-games/HECpyramid/index.htm>).

This is because, *firstly*, an omnivore, like the human species, needs certain nutrients ready-made and there are few foods which have them all - other than breast milk for the first 4-6 months of life. There are few very nutrient dense foods - like liver, yeast, fish, eggs - which, when regularly consumed (e.g. 1-2 times per week) reduce the need for food variety.

But, *secondly*, a wide variety of plant foods are increasingly required as we grow and become adults, to protect us against damage from oxidants and mutagens and to maintain our body's defense system.

Thirdly, with variety, we dilute out potentially adverse factors in our diet - like natural toxicants and also contaminants.

To learn more about the nutrients in food, nutrition and healthy eating, you can:

- purchase the text book **"Food & Nutrition"** edited by Professor Mark Wahlqvist from our web-site: <http://vs57136.server-store.com/store/list.inetstore?id=103>

- do one of our **on-line courses** : <http://www.healthyeatingclub.com/courses/index.htm>

- purchase or access on-line version of user friendly **food composition tables "Food Facts"** by Professors Wahlqvist & Briggs

2.2.6 Satisfying and Enjoyable

Assuaging hunger is the most immediate physiological benefit of eating, but as a snack or meal progresses, so a more comprehensive sense of satiety (feeling that enough has been eaten) and satisfaction is established. If this can last well beyond a meal, for hours or **overnight**, then the "episode of eating" (EOE) has fulfilled the physiological expectations of it, provided it has been nutritious. "Satiety indices" have been developed to rate the ability of foods and meals to be satisfying (see box below).

In each successful food culture, eating is an important part of social discourse. For Orientals, Scandinavians, Mediterraneans and Andeans alike, food is part of hospitality, great care and pride is taken in its presentation, and much in the way of social cohesion is forged and conflict resolved through eating.

More than that, food is savoured and enjoyed, events are celebrated with it, and its production is the source of hope, satisfaction and merriment.

This dimension to healthy eating is one of the least measured and appreciated, but its effects on health may be at least as important as the nutritional value of food.

Satisfying

- during the meal
- immediately after eating
- 1-3 hours after eating
- during the night

Enjoyable

- Look forward to eating with others
- Appreciate the taste and smell of foods and beverages
- Celebrate with food and beverage

3. *Why a Healthy Eating "club"?*

A club is a *group of individuals* who come together with shared values, for common purposes and to enjoy each other's company. The written word and electronic means can allow a club to be "*virtual*" and exist where otherwise this might not be possible.

The HEC vision statement captures the club's values and purposes as well:

- To optimise health through healthy eating, and related activities, based on the best available information.
- To encourage a universally safe, nutritious and sustainable food supply.
- To respect and enjoy food cultural difference and to welcome food cultural advancement and fusion.

Such a club can aspire to *leadership* in its chosen field and this is what HEC seeks, whilst welcoming partnerships which are consistent with its values and purposes.

With club membership goes certain *privileges* which include access to resources and property of the club to assist members, whilst at all times individual confidentiality will be respected by the club and its members.

With privileges and rights go *responsibilities* and these are primarily to further the aims of the Club to achieve healthy eating and optimal health for the many.

4. *How will HEC help its members?*

4.1 Opportunities

The HEC provides for its members a number of important opportunities to achieve healthy eating for themselves and others.

Amongst these opportunities are:

- To provide guidance for club members on how their food habits can be made "environmentally friendly"
- To enable club members to make food choices on the basis of the best available information and with state-of-the-art science guides.
- To help club members to effect health change by incorporating the 'best' foods/dishes from long-lived food cultures
- For club members to be "health-watchers" where the nutritionally-related alerts are made earlier through our food and health indices, than they would be further down the health pathway.
- For club members to obtain feedback and monitoring of their health and diet through virtual means.

In the HEC, we can be analytic of our general health behaviours, see how this fits with our eating experience, understand what may be happening to us with food cultural or pattern change, and adopt an attractive and achievable healthy-eating strategy. We are particularly interested in non-disease end-points like improvements in well-being, "general" health and successful ageing.

For one thing, patterns of disease tend to go along with patterns of eating and these characterise

communities. For example, communities do or do not tend to have high incidences of large bowel cancer, prostate cancer or breast cancer. Being interested in what is happening in another society can help yours.

We and others have done this with breast cancer which has been an intransigent problem in many Western societies, but is uncommon in certain traditional Asian societies, especially those with a high usage of soy products like tofu, tempeh and natto. In Melbourne, Australia, we found that the exposure of European women to the kinds of compounds found in soy identified relative protection against breast cancer. As we learn these things, we can introduce them to others and so reinforce one's own health-seeking behaviour through mutual support. (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10993028&dopt=Abstract).

We think that the club's editors and researchers can engage with club members and their contacts at home and abroad through the HEC to further healthy eating.

4.2 "Lifestyle Synergy" approach

Whilst the vision of the HEC is ambitious, it may be approached in *small synergistic steps* (steps that work together) where both health and eating are considered simultaneously. They may not always be congruous, but the interest in the one will provide insight and potential resolution of the other.

HEC will progressively provide more and **more health and eating scenarios** for consideration.

Measures of success need not be the big picture to which one is working, but the steps in-between.

Example: Colon cancer

A plant-based diet, which includes wholegrain cereals, fruits and vegetables, and probably some fish, although not charred meat (and perhaps other charred foods), with little animal fat, seems the best protective food pattern candidate at the moment.

Taking a broader health view, families vary greatly in their risk for large bowel cancer, and some of this is genetic with different genes conferring susceptibility; but families are by no means certain to experience large bowel cancer, as its expression can change radically in one generation, as with migration, and a change in lifestyle.

By taking an interest in the food-related or even non-food (but not directly food anyhow) aspects of lifestyle, we find that physical inactivity is an important risk factor for large bowel cancer. So, synergistically, if we were to increase physical activity somewhat, say by walking each day, and then eat more plant food (in this way the risk of an increase in body fat is reduced), we are likely to more effectively reduce our risk of colon cancer.

To take the large bowel cancer example further, if you had colonic polyps at colonoscopy (an instrumental examination of the colon), they were successfully removed, and you were recommended to have regular follow-up colonoscopies, then taking some "small steps" between colonoscopies would count as success.

Example of 'synergistic steps' which can have a significant effect on preventing colon cancer:

- 1) walking for 45 minutes, 5 days out of 7, and
- 2) having 3 or 4 partially-ripe bananas (providing plenty of "resistant starch", to improve the health of the colonic lining) and wholegrain (for the dietary fibre and other phytochemicals) sandwiches throughout the week

would be two achievements with synergistic with each other.

These approaches will be developed with club members and incorporated in the future editions of the HEC book.