Family studies in nutrition at Monash Medical School

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Diet, lifestyle and health status are inextricably linked. As potential advisers for the community regarding health related matters, it is vital that medical undergraduates become equipped with a thorough understanding of nutrition, including its science, theories and practice. Yet, in a modern consumer based society such as exists in Australia today, this field is inherently complex. A body of knowledge is constantly expanding and guidelines being refined. However, regardless of any beliefs about what might constitute an optimal diet, people are influenced by far more than this in their consumption of foodstuffs. Culture, tradition and habit exert strong influences. Consumers are continually exposed to the mass media and Hence the disparate and fragmented information dispatched by competing commercial interests. To have no understanding of these broader areas is essentially to restrict greatly the framework within which one may practise clinical medicine.

With this in mind, the medical faculty of Monash University in Melbourne is seeking to integrate nutrition within the training in biomedical and psychosocial sciences which students receive. Specific studies in nutrition commence in the second year of a six year course, but are built upon as the course continues.

As part of a general, ongoing study of a chosen nuclear family, each second year medical student was required to assess the overall nutritional status of family members. Some students later extended this to consider specific areas related to dietary consumption. It was interesting to note the recurring themes which arose in the essays, such as the predominant role of the mother in the overall family diet, the influence of the media and the extraordinary diversity of ethnicity (and correspondingly, food related behaviour) within a relatively restricted geographical area. (The studies were undertaken in the large city of Melbourne).

Two essay topics follow as examples of these themes.

The place of food and nutrient supplementation in a family’s health belief system

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This use of food and nutrient supplements was considered as part of a long-term, in-depth study of a family by medical students of Monash University. Questions posed were: Who makes the decisions regarding such supplementation? What are the intended outcomes/goals for the family? What does supplementation signify regarding food health beliefs in the family? How needed is it?

Being the proud owners of three successful health food shops, Sarah and Jack find themselves being exposed to a variety of information and products that the ordinary population would need to go significantly out of its way to encounter. Each time company representatives come with their pamphlets and speeches, Sarah and Jack are convinced not only to sell their products, but to take them home and use them. All this propaganda makes them fear that their busy, stressful lives leave them with deficiencies of almost every nutrient and predispositions to a whole range of diseases. Finally, the naturopaths who work in the shops are forever offering their diagnosis and warning of recent trends (such as iron deficiencies in women). Ben and Elise, four and two respectively, have been examined by naturopaths/iridologists who have recommended a series of supplements for the children to take. Even the grandmother, who watches the children during the day, is taking ochrea for her arthritis and a range of vitamin and mineral supplements. While in most families, the pantry is full of food, this family’s pantry is packed tightly with almost every supplement on the current market.

Sarah and Jack have the tendency to get very excited about a product, take it religiously for two to three weeks, and then slowly lose interest as its novelty and along with that, its importance, seem to fade. Currently, Sarah is taking Ginkgo Biloba tablets, 2500 mg twice daily with meals. These she started two weeks ago. The company that promotes Ginkgo Biloba claims that it will improve circulation to the peripheries and brain, therefore improving memory and stopping ringing in the ears. Sarah claims the ringing in her ears has ceased since she began taking the tablets, but hasn’t been taking them long enough to experience its effects of stopping her forgetfulness. She seems, however, to have strong faith that soon it will do so. In addition, she regularly drinks a vial of Royal Jelly (2000 mg) and Ginseng (300 mg) daily, believing it will supply her with energy and stamina and help her cope with stress throughout the day. She has low blood pressure and has read that Ginseng will raise it back to normal. Finally, pamphlets claim that this Royal Jelly and Ginseng complex will improve her immunity, which is important when each day sick at home is a decrease in profit from the shop. She adores this product and has been consuming it for several months already. She calls it her ‘balanced food supplement’, full of everyting her body requires.

Currently, Sarah has a case of thrush which she developed from the antibiotics she was recently taking. To battle this, she consumes a teaspoon of neophilony or bifidus powder three times per day 45 minutes before meals, varying the two bacterias every week. She was suggested to do this by a naturopath, and claims that this treatment is working. Whenever she feels ‘run down’ or as if a cold is coming on, she consumes a sizeable amount of vitamin C powder or tablets and echinacea (liquid). Claims have been made that more than 500 mg daily of vitamin C offers prevention to common colds’, while naturopaths and pamphlets claim that echinacea helps battle these colds much faster and if taken early enough, prevents them from worsening. When she feels a cold sore appearing, she takes lysine (1000 mg) two times daily with zinc. This rarely prevents the cold sore from appearing but she claims it helps immensely in shortening its persistence. For severe healing of cold sores and all wounds, she crushes lysine, zinc, and vitamin C, mixes this powder with water, then dries with a hair dryer on the sore and leaves it overnight. After a few such treatments, almost every wound has disappeared.

She tries to maintain a relatively healthy diet, not lacking in any of its components; lots of beans for protein, pruillum kunks for fibrous bulk, plenty of noodles during her pregnancy for iron, and whey with yoghurt to improve her normal gut flora counts.

Jack is a bit more adventurous than Sarah but tends to follow the same cycle of fading excitement about products. Recently he brought home deer antler powder that wouldn’t sell in the store. On its packet, it claimed to increase libido. Although Jack admits to it succeeding, Sarah claims there was no problem to begin with. The naturopaths at the shop have prescribed for him MaxEPA (1000 mg) two times daily, oil from cold water fish (Mackerel, Salmon). They claim it provides essential fatty acids to help with the porosities on his scalp. He is pleased with the results and holds high hopes that it will stop him from balding. In addition, they have placed him on Barbaris tablets to improve...
FOOD SUPPLEMENTATION AND FAMILY HEALTH

Chicken. In Russia, mints were a very rare treat. With their current availability, the grandmother has incorporated them into the family’s diet as an important daily constituent. Each member has 10g daily, which is much above the population’s 95% of 1.6g/day.

Soup. The traditional Russian diet believes that soups are essential part of every dinner. In fact, they call them “firsts” as a literal term of consumption. In Russia, the vast majority of the population consume soup as a staple. Each family member consumes 230g daily. This places Sarah at the 95% of 240g/day and Jack slightly below the 95% of 216g/day.

Milk. At 230g per serving, the children consume about 500g daily, Jack consumes about 250g daily, and Sarah consumes approximately 70g daily. This places Sarah at the consumption mean of 74g/day and Jack above the mean of 41g but below the 95% of 311g.

Sarah and Jack drink 4 cups of tea daily (92g/day). This places both parents above the population 95% of 37g for Sarah and 88g for Jack. They derive numerous benefits from many of the harmful aspects of over consumption of tea by drinking natural caffeine-free teas.

Coffee. Occasionally, Sarah and Jack may drink coffee instead of tea (32g/day). This would place them above the population mean of 46g for Sarah and 58g for Jack but below the 95% of 132g for Sarah and 135g for Jack. Again, many of the times they drink they are caffeine substitutes such as ‘Bamboo’ or Dandelion coffee substitute.

Appendix B – Crude assessment of macro/ micro-nutrient intakes

It has been assumed that the family’s meals are of standard serving sizes. This was carried out by comparing the serving sizes, as well as the lack of variety for many foods which the family eats on a regular basis (or because bukhant kasha, which has been included). Furthermore, many of the foods this family consumes are altered in composition by homemade manipulation and are thus not without additional contributions such as diabetic, gluten intolerance and may therefore possess alternative values to those presented here.

Please notice that Sarah eats Textured Vegetable Protein, which may be a very good source of protein as well as iron and her. However, values are not available for this product and may therefore cause her estimated iron and protein intake to appear lower than it really is.

Bukhant Kasha may have a greater nutritional value than its substitute and may therefore underestimate both the children’s and Jack’s apparent nutrient intakes.

Each family member consumes a serving of soup daily. Values were not available for fresh soup and have been estimated for canned vegetable soup whose nutritional value is based on assumption of that of the fresh beans and vegetable soups consumed.

The fruit juice consumed is freshly squeezed at home and contains pulp as well as the juice; without this, it may therefore have a higher fibre value than represented here.

A typical daily menu has been used to formulate the values as representatives of the dietary intake as possible.

Appendix B – Comparison of intake of various foods with the Victorian population

The values used here were obtained from the Victorian Nutrition Survey. Sarah’s values are taken from the 28-29 year old category, Jack’s are from the 30-39 year old category. Values for Sara and Jack are meant to be assumed as much as comparable to the adults’. It is important to remember that although values may match the rest of the population, this does not mean that the family is getting an adequate nutrient intakes.

Rice. On average, each family member eats 160 g rice per day, the children maybe a bit less. This is above the 95% of 155g/day for Sarah and 48g/day for Jack. This reflects the Russian traditional diet (with both Sarah and Jack were raised) where grains such as rice and buckwheat are consumed daily. There has been a trend in increased rice intake in Victoria recently that this outdated survey does not reflect.

Bread. Lumping all the breads into the ‘wholegrain category, the children consume 367-75 g/day, Jack consumes 50-125 g/day and Sarah consumes 50-125 g/day. These values are between the mean and 95% values for the population. For Sarah and Jack, the means are 42g and 11g/day; 95% is 124g and 181g respectively.

Honey. The kids consume 0g/day daily and the parents consume 30g daily. This is above the 95% which is 20g daily. This indicates that the intake is much below that of honey as a sugar substitute and therefore, there is no additional sugar consumption.

Yogurt. Each family member consumes a serving of yogurt (200g) daily. This is at the 95% for Sarah (210g) but much above the 95th percentile for Jack (84g/day). The family eats together and enjoys both clotted cream and curdled buttermilk cultures, which is especially important when the children are on antibiotics for their frequent ear infections. Furthermore, yoghurt is believed to help with dental decay, although currently there is no proof for this assumption7.

Fruit. Each family member (except Sarah) eats 1 or 2 fruits daily which is significantly below being fruit (310g). This is around the 95th percentile. For Sarah and Jack, the values for the 95th percentile for apples and pears are 129g and 125g respectively; for citrus fruits they are 8g for both.


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<th>Protein (g)</th>
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Chicken. In Russia, meats were a very rare treat. With their current availability, the grandmother has incorporated them into the family’s diet as an important daily contribution. Each member has 10g daily, which is much above the population’s 95% of 156g/day.

Soups. The traditional Russian diet believes that soups are essential part of every dinner. In fact, they call them “firsts” as a literal translation for “first meal.” This is because it is a staple in the traditional Russian cuisine. Each family member consumes 230g daily. This places Sarah at the 95% confidence interval mean of 74g/day and Jack slightly below the 95% of 116g/day.

Junk. At 230g per serving, the children consume about 500g daily, Jack consumes about 250g daily, and Sarah consumes approximately 70g daily. This places Sarah at the 95% confidence interval mean of 64g/day for Sarah and 88g for Jack. This provides a glimpse into many of the harmful aspects of over consumption of tea by drinking natural caffeine-free teas.

Coffee. Occasionally, Sarah and Jack may drink coffee instead of tea (20g/day). This would place them above the population mean of 46g for Sarah and 58g for Jack, but below the 95% of 132g for Sarah and 135g for Jack. Again, many of the times they drink they are coffee substitutes such as ‘Bamboo’ or Dandelion coffee substitute.

Appendix B - Crude assessment of macro/ micro-nutrient intakes

It has been assumed that the family’s meals are of standard serving sizes, with the exception of the serving sizes, as well as the lack of values for many foods which the family eats on a regular basis (e.g. buckwheat kasha, which has been included). Further, many of the foods this family consumes are altered in composition (e.g. bacon, where some of the fat has been removed and replaced by vegetables), adding to the challenges of getting an accurate picture. However, there is a trend in increased rice intake in Russia recently that this outdated survey does not reflect.

Bread. Lumping all the breads into the ‘wholegrain’ category, the children consume 56-75g/day, Jack consumes 150-155g/day and Sarah consumes 25-50g/day. These values are between the mean and 55% for the population. For Sarah and Jack, the means are 42g and 151g/day; 95% is 124g and 188g/day respectively.

Honey. The kids consume 6g/day daily and the parents consume 30g daily. This is above the 5% which is 20g daily. This indicates that the family consumes honey as a sugar substitute and therefore, there is no additional sugar consumption.

Yogurt. Each family member consumes a serving of yogurt (200g) daily. This is at the 95% for Sarah (210g) but much above the 95% percentile for Jack (84g/day). The family eats yogurt with 1% milk, buffer milk, and hadus baladus beverage, which is especially important when the children are on antibiotics for their frequent ear infections. Furthermore, yogurt is believed to be healthier, although currently there is no proof for this assumption.

Fruit. Each family member (except Sarah) eats 1 or 2 fruits daily. These include apples, apricots, and being fruit (330g). This is around the 95th percentile. For Sarah and Jack, the values for the 95th percentile for apricots and pears are 129g and 125g respectively; for citrus fruits they are 89 for both.

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APPENDIX A - Comparison of intake of various foods with the Victorian population

The values used here were obtained from the Victorian Nutrition Survey. Sarah’s values are taken from the 18-29 year old category, Jack’s are from the 30-39 year old category. Values for Sarah are assumed to be comparable to the adults’. It is important to remember that although values may match the rest of the population, this does not necessarily mean that the family is getting an adequate nutrient intake.

Rice. On average, each family member eats 160 g rice per day, the children may be a bit less. This is above the 95% which is 24g/day for Sarah and 48g/day for Jack. This reflects the Russian traditional diet with which both Sarah and Jack were raised where grains such as rice are consumed daily. There has been a trend in increased rice intake in Russia recently that this outdated survey does not reflect.

Honey. The kids consume 6g/day daily and the parents consume 30g daily. This is above the 5% which is 20g daily. This indicates that the family consumes honey as a sugar substitute and therefore, there is no additional sugar consumption.

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Food shopping practices and family health

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The way in which a family selects, obtains and stores food has a major impact on diet. This includes who in the family makes decisions about food and who, does the shopping and where, whether they stick to a pre-determined plan or simply look for what is good at the time, and how much influence the children's level of involvement in the family diet has on shopping practice. Ways in which shopping practices could be changed - with a high likelihood of compliance over the long term - to improve the family's diet were considered as an exercise in medical education.

Christine and Peter, (aged 35 and 37 respectively), are both children of Greek migrants. They are married and live in a suburb of Melbourne with their two children, Sophia (aged 10) and Anthony (aged 6). Both parents work, although Christine is not quite full-time. Through observing and interviewing the family, it has become possible to elucideate their normal dietary and shopping patterns, which appear to be fairly stable.

General shopping practices

To some degree, food purchases are made following a standard pattern. A shopping list is compiled by Christine according to the family's usage of the provisions at home. Certain goods are permanently stocked in their cupboard and refrigerator, while other foodstuffs there is a degree of fluctuation over time with what is bought (see Table 1 for a typical list of what would be found on any day in their kitchen stores). Their pantry is well stocked with flour, grains, sugar, pasta, nuts and seeds, condiments, tea, coffee, cereals and so on as well as herbs and spices (not listed) used in cooking. Refrigerated goods include milk, dairy produce, eggs, beverages, preserves and fresh vegetables.

As is fairly common in many families, Christine, as the mother, makes the bulk of the decisions concerning food - in terms of what is bought and eaten. On a fortnightly basis, she will purchase all of the groceries, meats and delicatessen goods that the family require at a local shopping centre. It is left up to Peter to purchase fruit and vegetables from a market near his workplace, which he does twice per week. However, this is also supplemented by produce from their own garden. An outline of the basic foodstuffs consumed and their sources is shown in Table 2.

Making food choices

It is clear that a wide range of considerations are taken into account when Christine and Peter shop for food. With regards to perishable fruit and vegetables, there are items which are regularly bought, such as potatoes, onions, carrots and the fresh fruit which the family consumes - apples, pears, bananas and oranges or mandarins. Additional purchases are made according to what is in season, the price and requirements for cooking particular dishes.

On the mornings before Peter shops for these goods, he and Christine will confer about what is required on that occasion.

In general, when buying groceries, Christine tries to have a large variety of foodstuffs available to give her and the family choice in their meals. When her husband Peter cooks - which he will quite often do, especially on the weekends - he will decide what to make. The same applies to Christine. Although she tries to accommodate everybody's tastes and occasionally asks her husband or children what they feel like for a meal, most of the decisions about what is eaten are left up to her. She is also generally responsible for making sure that the children's lunches, although Peter prepares his own.

When purchasing meat and poultry, Christine tends to make similar selections each time she buys, choosing so as to have a variety of beef, lamb, pork and chicken available. Sometimes, she may make a special purchase, for example buying a leg of lamb if Peter has recently remarked that they have not eaten roast lamb for a while). Otherwise, she bases her selection upon:

- Cuts which are appropriate for the meals which the family likes and normally eats;
- The quality of the cut, balanced with
- The price.

Christine does not usually worry about choosing the cuts with the lowest fat content, although she does buy "slim" mince steak. For other meats which have a "visible" fat content, most of the fat (but not always all) will be removed by family members at the table. Generally speaking, Christine has a preconceived idea of what she will purchase. However, if something looks very nice, and especially if it is at a good price, she will buy it.

The same holds in the delicatessen, where Christine generally purchases champagne ham, tyrolet (continental Strasbourg), Italian salami, mortadella (sometimes) and "pizza topping" (offcuts of all meats). Occasionally she will buy a small block of home feta or ricotta cheese. The meats are mostly for use in sandwiches, though not all family members show the same propensity to eat them. Anthony would eat them "every day if he could", Peter is partial to them, Sophie won't touch them and Christine herself eats them moderately. However, while most cuts may predispose with sandwich filling one week the family usually tends to run out after that time and so will have different fillings each alternate week (such as cheese and salad, ham and cheese, etc.).

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