

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

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The 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/ gains 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). Benjamin and Michael, age 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 celery 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 religiously drinks a vial of Royal Jelly (2000 mg) and Ginseng (1000 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 everything 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 acidophilus or bifidus powder three times per day 45 minutes before meals, varying the two bacteria 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 tablet) and echinacea (liquid). Claims have been made that more than 500 mg daily of vitamin C offers prevention to common colds¹, 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 scarless 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, psyllium husks for fibrous bulk, plenty of molasses 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 psoriasis 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 Berberis tablets to improve

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his liver function and help him with digestion. So far, they have only made him feel sick, although the naturopaths claim that is their natural path of dealing with liver problems.

Reading fitness magazines has convinced Jack to take Enajon antioxidants, one tablet three times a day. He works out at his home gym and wants to stay younger longer. He is quite thin and attempts taking protein powders to gain weight, but he usually forgets them. For additional antioxidant action, he takes vitamin E. He was told it is believed to keep the heart healthy and strong and improve circulation via its cholesterol lowering effects. Jack claims it has helped a great deal with his usually frozen hands and feet.

Jack likes to experiment with different tissue salts including magnesium phosphate, which works wonders for his terrible muscle cramps. To help relieve stress, he drinks Avena Sativa, made from organic oats, to nourish his nervous system. He worries a great deal about his vision, and takes Eyebright capsules to help revive his tired eyes. Jack is fascinated by Dr. Walker's book, *Raw Juices*, and drinks his spinach, celery, and carrot juices religiously, in belief that it will nourish his optic nerve. Jack, like Sarah, has low blood pressure. A naturopath has recommended a course of bee pollen of which he has a teaspoon each morning with his buckwheat porridge. For a long period of time in the past, he poured lecithin granules over his breakfast oats in hope of improving his memory.

The children are under a much more strict regimen. Once they have been placed on a supplement, Grandma sees to it that they take it regularly and continuously. When Benjamin started kindergarten, he was bringing home colds quite often and infecting Michael. Furthermore, both of their appetites were waning. Sarah took them to a naturopath who placed them on vitamin C (250 mg) children's chewables four times daily, a multivitamin and mineral supplement once daily, and cod liver oil to improve their immunity; PCIP (potassium chloride and iron phosphate) and soy milk instead of cow's milk to help reduce their mucous, although preliminary studies do not uphold this belief²; acidophilus once daily and lots of yoghurt to improve their intestinal flora after the antibiotics the conventional doctors had prescribed, and MP 65 (magnesium phosphate) to relieve their tummy aches and improve their appetites. In addition, Sarah has added Echinacea (10 drops three times daily) and one teaspoon daily of odourless garlic to the regimen to improve their immunity. Results have been pleasing; neither Benjamin nor Michael seem to catch many of the common colds circulating throughout the kindergarten any more, and their appetites have improved tremendously. If either child does get sick, Sarah instructs their Grandmother to raise the PCIP and vitamin C to once every hour, as recommended by their naturopath, until symptoms disappear. Every few months, Sarah takes the children back for another visit and each time their prescription is slightly varied to suit their changing needs.

Sarah and Jack gather their information from a wide range of sources including a large personal library full of books, encyclopaedias, journals, company product handbooks, pamphlets, videos, cassette tapes, computer programs, company letters and faxes, charts and diagrams, as well as product labels. They have company representatives visit them regularly to inform them of new products and update them on the current ones. They attend conventions throughout Australia to learn about the products they sell, to hear of all their risks and benefits. They employ many naturopaths who provide free consultations and information for all the customers. Being in such an environment, Sarah and Jack listen, watch, gather, and learn. Even the customers provide knowledge in the form of feedback with which they return to the shop. Their chain of health food shops provides a monthly informative magazine for all the customers and Jack and Sarah make sure to have read it

as well. Finally, in times of need, as with the sick children, the parents will go see a private naturopath.

By no means do the parents accept blindly any information they are given. They make sure to do their own research and preread all labels before acting on any recommendations. Although they admit they enjoy experimenting with some supplements in hope of gaining various health benefits, Sarah and Jack are careful in what they give to the children.

Both parents harbour a wealth of knowledge that is not restricted to supplements. They try to keep their diet at home high in fibre (full of grains and wholemeal products), high in proteins (for the growing children), low in added salt, sugar, and fats. The family eats above the 95th percentile as compared to the rest of the Victorian population for many nutritious foods (See Appendix A). Most of the products the family eats have added nutritional benefits, since they have been brought home from the health food shop: low fat, low sugar, vitamin and mineral enriched products. These are mainly for people with special needs (diabetics) or philosophical beliefs (tofu for vegetarians), but are suitable for any health conscious individuals. Sarah buys only organically grown fruits and vegetables, free of chemicals and pesticides, believing that the environment is toxic enough. Finally, the grandmother, who watches the children throughout the day while the parents are at work, is very strict in her traditional health beliefs and is conscientious in providing the children with wholesome, nutritious, and large meals. It is relieving to find that the family has not developed a false security about its food intake from their supplementation, although this is a common hazard of vitamin usage³.

The family believes in a high correlation between diet and health. Although they seem to maintain healthy eating habits, they feel it is impossible to acquire appropriate amounts of essential nutrients from food alone, and therefore, supplement their diet with a variety of tablets. Using nutrient tables to examine the average daily menu of each family member, it seems that they are either at or above the Recommended Daily Allowance levels for many nutrients (see appendix B), even without the supplements. This evidence leads me to doubt the need for such supplementation, but it is understandable how their working environment has led to its usage.

Sarah and Jack have been pleasantly satisfied with the results of most of their supplements. They believe them to be an integral part of their diet, especially for the children. They do not seem to take these supplements in place of a healthy diet or to counteract an unhealthy lifestyle, as many people do³, but are indeed, partially driven to them by the fear of what effects their stressful, busy, careers may impose on their health. Mainly, the family turns to supplements for their medicinal properties rather than purely preventional benefits. Sarah claims that she would rather visit a naturopath/ iridologist rather than general practitioner for any condition that is not an acute emergency. She recalls numerous experiences which have lead her to believe in the effectiveness and importance of food and nutrient supplements.

During her pregnancy with Benjamin, Jack was nauseous every morning. He saw three different GPs who performed extensive testing on him, finally deciding he had a mental problem and recommending a psychiatrist. Then Jack went to see a naturopath that a customer had recommended. There, both he and Sarah were asked to drink a solution, whose taste Jack enjoyed and Sarah hated. Jack was diagnosed with a zinc deficiency. After taking his supplements and increasing his intake of zinc-rich foods, all the symptoms disappeared, along with the stress of being diagnosed with a mental condition.

Sarah's greatest success with supplements is curing herself of vaginal thrush. Initially, doctors prescribed Nystatin, but it did nothing for her condition. Finally, she created her own

treatment of douching with a solution containing a few drops of tea tree oil, and taking acidophilus and liquid garlic orally. She claims the method clears the infection completely within three days.

When Benjamin was six months old, Sarah switched him to formula feed from breast milk, and he developed severe gastroenteritis. Doctors gave him gastrolyte, but for three days, he could not eat anything and his condition worsened. Sarah became worried and decided to research the topic herself. In one of her books, she found a recipe using rice water and formula, grated apples, and goat's milk yoghurt (which is full of acidophilus). She managed to quickly and effectively cure his diarrhoea.

Since Michael's birth, he has been afflicted with recurrent and severe ear infections. Twice, he had tubes surgically implanted into his ears, but the pain and infections did not cease. When the doctors suggested inserting tubes for the third time, Sarah became annoyed. She then decided to take him to a naturopath/ iridologist who put together Michael's current regimen. After placing Michael on his current variety of supplements, the ear infections, along with the pain, discomfort, loss of appetite, and sleepless nights, have all disappeared. There hasn't been a recurrence in over a year now, and both parents are full of gratitude and faith in both the naturopath and the supplements.

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 the children were not available, but will 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 mean that the family is getting an adequate nutrient intake.

Rice. On average, each family member eats 160 g rice per day, the children maybe a bit less. This is above the 95th percentile which is 54g/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 and buckwheat are consumed daily. In addition, 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 50-75 g/day, Jack consumes 50-125 g/day and Sarah consumes 50-150g/day. These values are between the mean and 95% values for the population. For Sarah and Jack, the means are 42g and 51g/day; 95% is 124g and 180g/day respectively.

Honey. The kids consume 60g daily and the parents consume 30g daily. This is above the 95% which is 20g daily. This increased amount reflects the family's use of honey as a sugar substitute and therefore, there is no additional sugar consumption².

Yoghurt. Each family member consumes a serving of yoghurt (200g) daily. This is at the 95 percentile for Sarah (210g) but much above the 95th percentile for Jack (84g/day). The family eats yoghurts enriched with acidophilus and bifidus bacterial cultures, which is especially important when the children are on antibiotics for their frequent ear infections. Furthermore, yoghurt is believed to increase longevity, although currently there is no proof for this assumption².

Fruit. Each family member (except Sarah) eats 1 or 2 fruits daily (100-200g), usually one of them being a citrus fruit (130g). This is around the 95th percentile. For Sarah and Jack, the values for the 95th percentile for apples and pears are 129g and 126g respectively; for citrus fruits they are 80g for both.

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 constituent. Each member has 100g daily, which is much above the population's 95% of 14g/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, signifying that each dinner begins with a soup. Each family member consumes 230g daily. This places Sarah at the 95% of 240g/day and Jack slightly below the 95% of 176g/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 population mean of 74g/day and Jack above the mean of 41g but below the 95% of 311g/day.

Tea. Sarah and Jack drink 4 cups of tea daily (920g/day). The children drink 1 cup (230g/day). This places both parents above the population 95% of 738g for Sarah and 883g for Jack. They protect themselves 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 (920g/day). This would place them above the population means of 440g for Sarah and 589g for Jack, but below the 95% of 1323g for Sarah and 1353g/day for Jack. Again, many of the coffees they drink are caffeine-free 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 size. There exist many sources of error such as assuming the serving sizes, as well as the lack of values for many foods which the family eats on a regular basis (ie buckwheat kasha, which has been substituted with pumpkin kasha). Furthermore, many of the foods this family consumes are altered in composition either by nutrient enrichment or to suit certain consumers (diabetic, gluten intolerant) and may therefore possess alternative values to those presented here.

Please take notice that

Sarah eats Textured Vegetable Protein, which may be a very good source of protein as well as iron for 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.

Buckwheat 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 much below that of the fresh bean and vegetable soups consumed.

The fruit juice consumed is freshly squeezed at home and contains pulp as well as liquid. it may therefore have a higher fibre value than represented here.

A typical daily menu has been used to formulate the values as representative of the family diet as possible.

Benjamin and Michael	Iron (mg)	Vit C (mg)	Protein (g)	Fibre (g)
Rice	0.32	-	3.2	1.6
Pumpkin	0.4	5	0.6	2.2
Milk	0.23	4.6	6.9	-
Raisins	0.4	-	0.2	1.4
Nuts (almonds, peanuts, walnuts)	1.25	-	3.5	4.6

Benjamin and Michael (cont)	Iron (mg)	Vit C (mg)	Protein (g)	Fibre (g)
Wholemeal bread (2 slices)	1.5	-	4.5	3.5
Juice of 2 oranges	0.72	120	1.44	-
Butter	-	-	0.04	-
Vegetable soup	1.38	-	4.6	-
Chicken (boiled)	1	-	29	-
Apple	0.2	6	0.2	1.5
Tea (Herbal)	-	-	0.23	-
Honey	0.12	-	0.12	-
Yoghurt (natural, low-fat)	0.2	2	10	-
Banana	0.4	10	1	1.3
Cottage cheese	0.025	-	3.5	-
Total	8.145	147.6	69.03	16.1

Sarah	Iron (mg)	Vit C (mg)	Protein (g)	Fibre (g)
Wholemeal bread (3 slices)	2.25	-	6.75	5.25
Butter (2 servings)	-	-	0.08	-
Honey	0.12	-	0.12	-
Chilli: Green capsicum	0.06	15	0.135	0.15
Kidney beans	3	-	7	7.5
Rice (brown)	0.32	-	3.2	1.6
Vegetable soup	1.38	-	4.6	-
Chicken (boiled)	1	-	29	-
Tea (Herbal)	-	-	0.23	-
Total	8.13	15	51.1	14.5

Jack	Iron (mg)	Vit C (mg)	Protein (g)	Fibre (g)
Porridge	0.45	-	0.9	0.9
Milk	0.23	4.6	6.9	-
Raisins	0.4	-	0.2	1.4
Nuts (almonds, peanuts, walnuts)	1.25	-	3.5	4.6
Eggs (2, fried)	3.6	-	16.8	-
Pasta	0.75	-	6	0.75
Salad	0.3	30	7	1.5
Vegetable soup	1.38	-	4.6	-
Chicken (boiled)	1	-	29	-
Rice	0.32	-	3.2	1.6
Tea (herbal)	-	-	0.23	-
Apple	0.2	6	0.2	1.5
Juice of 2 oranges	0.72	120	1.44	-
Total	10.6	160.6	80	12.25

These figures are approximations taken from "Food Facts" (1).

Iron. Iron is an important constituent of haemoglobin and essential for oxygen transport.

The RDI for children is 5-12 mg/day; adult men 10 mg/day; adult women 12 mg/day. The children take a mineral tablet called PCIP (Potassium Chloride Iron Phosphate) which provides them with an extra 5 mg of iron three times each day, as well as a multivitamin and mineral supplement. Without the supplement, they fall into the normal recommended range. With it, they exceed the RDI. Although it is not uncommon to find values of 25-75 mg/day, there have been cases recorded where children have acquired iron poisoning by consuming adult vitamins¹. Hopefully, the values are too low for this sort of situation to occur here.

Sarah's iron value of 8.13 mg/day is below the RDI but this may not be realistic since values for certain iron containing foods are not available and cannot be included. Previously, she had been taking iron supplements as well as multivitamin and mineral supplements which provided her with an extra 5 mg daily. Jack's iron intake is on the dot of the RDI.

Vitamin C. Vitamin C is important in the prevention of Scurvy as well as general health. The RDI for children is 30-50 mg/day; for adults it is 30 mg/day. However, tissues aren't saturated until 100-130 mg per day are ingested. There are suggestions that >500 mg/day intakes may alleviate symptoms of the common cold¹. The children and Jack receive a highly adequate amount of the vitamin in their diet, 147.6 and 160.6 respectively. Sarah eats very little fruit, one of the main sources of this vitamin. Her apparent intake is an ominous half of the RDI, but it may be influenced by the fresh vegetable soup rather than canned soup values. The children take a Vitamin C supplement in addition to their diet, 250 mg four times daily (which greatly exceeds their requirements).

Protein. It is important to get protein from a variety of different resources in order to maintain a balance of all the amino acids. The RDI is 1 gram per kilogram body weight, with a higher intake suggested for growing children. The RDI allows for a safety margin thus Jack can go to the gym without requiring extra protein intake. The children's and Jack's values correspond well with the RDI, being considerably above in the former case (Jack is 60 kgs; Sarah is 58 kgs; Benjamin is 18 kgs; Michael is 15 kgs.), but Sarah is a bit low. Again, this may be due to the lack of values for her meat substitute (Textured Vegetable Protein).

Fibre. Fibre is a very important constituent in the Australian diet, especially recently since it's lack is implicated in the formation of colon cancer. There is no RDI for it, but it is suggested that diets be high in fruits, vegetables and wholegrain breads and cereals. Dietary fibre values may be underestimated due to the limitation of the food composition tables. However, a greater intake of fruit (especially Sarah), vegetables, wholegrain breads and cereals would be desirable.

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