

# Special Foods and Nutrition

Quiz Feedback

**GP Review Panel:**

Dr Janine Bailey, Motueka

Dr Neil Whittaker, Nelson

Dr Susie Lawless, Dunedin

**Expert:** Dr Lisa Houghton, Senior Lecturer, Department of Human Nutrition, University of Otago, Dunedin

**Panel discussion facilitated and summarised by:**

Rebecca Didham

Dr Sharyn Willis

**Acknowledgment:**

bpac<sup>nz</sup> would like to thank the GP review panel and Lisa Houghton for their expertise and guidance on the development of this resource.

**Email:** rebecca@bpac.org.nz

**Phone:** 03 470 5053

**Fax:** 0800 bpac nz  
(0800 27 22 69)

**Website:** www.bpac.org.nz

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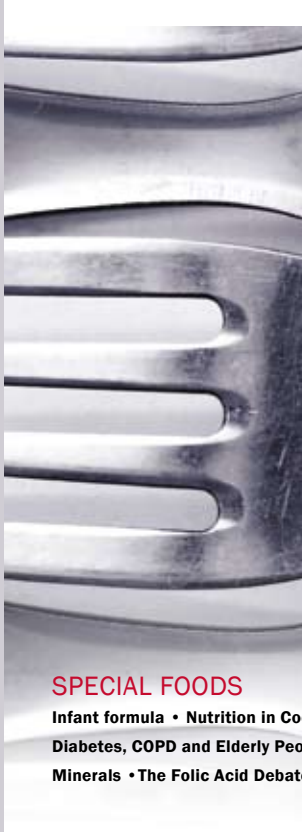
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**Contents**

**Special foods and nutrition quiz**

**Quiz feedback: Responses from colleagues, GP panel and expert**





## SPECIAL FOODS

Infant formula • Nutrition in Coe  
Diabetes, COPD and Elderly Peop  
Minerals • The Folic Acid Debate

## Nutrition and foods quiz

Due date: 10 October 2008

Select as many options as required



- For non-breastfed infants allergic to cows' milk protein, which infant formula(s) are recommended?
  - Soy formula
  - Goats' milk formula
  - Partially hydrolysed cows' milk formula
  - Extensively hydrolysed cows' milk formula
- For non-breastfed infants who are lactose intolerant, which infant formula(s) are recommended?
  - Soy formula
  - Goats' milk formula
  - Lactose free cows' milk formula
  - Reduced lactose cows' milk formula
- Soy based formula contains high levels of which substance(s)?
  - Phytate
  - Methionine
  - Aluminium
  - Phytoestrogens
- Which of the following statements about nutrition in diabetes are true?
  - People with diabetes should purchase "diabetic" foods
  - Soluble dietary fibre can improve glycaemic control
  - White bread is a low glycaemic index food
  - Watermelon is a low glycaemic load food
  - Honey is a better choice than sugar for people with diabetes
- What is the recommended approach for minimising breathing difficulties when eating, for people with COPD?
  - Eat only one large meal per day
  - Eat only pureed food
  - Eat small meals frequently
  - Drink the dietary supplement, Pulmocare
- Nutritional supplementation can be considered for people with COPD who:
  - Have a BMI less than 20kg/m<sup>2</sup>
  - Have a weight loss of greater than 10% in the last six months
  - Have a weight loss of greater than 5% in the last month
  - Are needing to lose weight
- Nutritional supplements should be offered to:
  - All elderly people
  - Elderly people who do not eat nutritious meals
  - Elderly people who do eat nutritious meals but are unable to maintain body weight
  - Elderly people who have eaten little or nothing in the past week
- Which of the following solutions can help optimise nutrition in elderly people who have lost their appetite?
  - Three large meals per day
  - Smaller but more frequent meals and snacks
  - Encourage naps just prior to mealtimes
  - Avoid exposure to unpleasant smells
  - Check medications for possible cause
- Which of the following statements about folate are true?
  - Folate is required during pregnancy to reduce the risk of neural tube defects.
  - Folate status is an important cardiovascular risk factor
  - People taking methotrexate require folate supplements
  - A good dietary source of folate is red meat
- Which of the following groups of people have a higher risk of vitamin B12 deficiency?
  - Adolescents
  - Pregnant women
  - Women taking oral contraceptives
  - Elderly people
  - People with coeliac disease

Name: .....

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# Quiz feedback: Special foods and nutrition

## Infant formula

The GP panel thought that the article on infant formula was an excellent summary and provided them with knowledge that enabled evidence based answers to be given to parents.

Additional information about the incidence of conditions such as lactose intolerance and cows' milk allergy in children would be useful when considering the likelihood of a diagnosis. The panel commented that parents often have firm views regarding food intolerance and that GPs need evidence based information and easy access to specialists for advice.

The panel would also be interested in information about food allergies and intolerance in general (e.g. constipation, with the use of cows' milk) including information on symptoms to watch for and appropriate testing.

1	For non-breastfed infants allergic to cows' milk protein, which infant formula(s) are recommended?	You	Your Peers	GP Panel
	<input type="checkbox"/> Soy formula		4%	
	<input type="checkbox"/> Goats' milk formula		2%	
	<input type="checkbox"/> Partially hydrolysed cows' milk formula		30%	
	<input type="checkbox"/> Extensively hydrolysed cows' milk formula		94%	•

### GP panel

The panel felt that their knowledge about hydrolysed formula had been limited prior to reading the article in BPJ. Many GPs may still be unclear as to when to recommend this type of formula. It appears that the use of soy-based formula has decreased, particularly over the last two years, possibly due to widespread media coverage about phytoestrogens in these products.

### Expert comment

Cows' milk protein allergy is the most common food allergy in early childhood with an incidence of approximately 2–3% in the first year of life. Symptoms typically develop before one month of age, often within one week after introduction of cows' milk-based formula. Cows' milk allergy can also occur in exclusively breastfed infants mostly due to the transfer

of cows' milk protein from the nursing mother's diet. Hydrolysed infant formulas have been designed to change the allergenic milk protein with the aim of preventing sensitisation or intolerance. They may be produced from cows' milk or soy milk, be derived from predominately whey or casein proteins and be partially or extensively hydrolysed. For non-breastfed infants, extensively hydrolysed formula (e.g. Pepti-Junior) is recommended for treating immediate cows' milk allergy (non-anaphylactic). Partially hydrolysed cows' milk based formula (e.g. Nestle NAN HA 1) contain peptides large enough to cause allergic reactions to cows' milk protein and are not suitable for treatment. These partially hydrolysed formulas have been marketed for high-risk infants before any signs of cows' milk allergy appear yet evidence regarding its prophylactic use is limited. Further large, well-designed trials are needed.

2

For non-breastfed infants who are lactose intolerant, which infant formula(s) are recommended?	You	Your Peers	GP Panel
<input type="checkbox"/> Soy formula		10%	
<input type="checkbox"/> Goats' milk formula		1%	
<input type="checkbox"/> Lactose free cows' milk formula		85%	•
<input type="checkbox"/> Reduced lactose cows' milk formula		81%	•

3

Soy based formula contains high levels of which substance(s)?	You	Your Peers	GP Panel
<input type="checkbox"/> Phytate		93%	•
<input type="checkbox"/> Methionine		3%	
<input type="checkbox"/> Aluminium		89%	•
<input type="checkbox"/> Phytoestrogens		97%	•

**GP panel**

The panel was interested to read that the cross reactivity between cows' and goats' milk was as high as 90%. Goats' milk is generally used when parents have tried everything else and are "desperate" for a solution. They were a little surprised that 10% of respondents selected soy formula for lactose intolerance and felt that perhaps this reflected the higher prominence of its use in the past. Knowledge about other substances contained in soy formula has altered perceptions about its appropriateness.

**Expert comment**

Although studies have confirmed that soy and goats' milk formula are adequate for promoting normal growth and development in full-term infants, there are few indications for their use in place of cows' milk based formula.

**Goats' milk formula** is not a suitable alternative for babies who are allergic to cows' milk protein as the

vast majority of these infants will also suffer an allergic reaction to goats' milk, as the proteins in the milks are quite similar. Goats' milk formula is also unsuitable for babies who are lactose intolerant as it contains comparable levels of lactose to cows' milk based infant formulas. Goats' milk infant formula has been available in New Zealand for routine use for over 15 years. It is available at similar cost to soy formulas, and is typically 20-50% more expensive than standard cow milk-based formulas. In New Zealand the use of goats milk formulas comprise approximately 5% of infant formula purchased.<sup>1</sup>

**Soy formula** were originally developed for infants who could not tolerate cows' milk protein or lactose. Current evidence indicates that nearly 50% of children with cows' milk allergy will also have adverse reactions to soy. Furthermore soy formula is not required for lactose intolerance as there is no need to eliminate milk protein. Lactose free and reduced lactose-containing cows' milk formula can be used for lactose intolerance.

Indications for the use of soy formulas in place of cows' milk-based formulas are as follows: (a) for infants with galactosaemia when strict dietary lactose elimination is required or primary lactase deficiency (rare), and (b) for infants of vegetarian families who may want to exclude animal proteins in their child's diet. Soy protein-based formulas with sucrose as the carbohydrate are contraindicated in sucrase-isomaltase deficiency and in hereditary fructose intolerance.

One of the most common reasons for use of soy formulas by infant care providers is for relief of perceived formula

intolerance (spitting, vomiting, fussiness) or symptoms of infantile colic. Controlled trials of cows' milk and soy protein-based formulas have not yet proven beneficial in the prevention or management of colic or fussiness. Theoretical concerns surrounding the high levels of soy phytoestrogens have prompted investigations on the possible adverse effect of these factors in soy formulas. Although very limited data suggests that soy phytoestrogens have a low affinity for human estrogen receptors, they have not demonstrated to have any adverse affect on human development, reproduction, or endocrine function.<sup>2</sup>

## The nutritional management of diabetes

Patients often ask about concepts such as glycaemic index and glycaemic load, so the GP panel found this article useful for providing a good base level of knowledge. Carbohydrate counting is a new method and its use is not yet widespread. The panel felt that this method relies on patients being motivated and well controlled.

4

Which of the following statements about nutrition in diabetes are true?	You	Your Peers	GP Panel
<input type="checkbox"/> People with diabetes should purchase “diabetic” foods		2%	
<input type="checkbox"/> Soluble dietary fibre can improve glycaemic control		93%	•
<input type="checkbox"/> White bread is a low glycaemic index food		2%	
<input type="checkbox"/> Watermelon is a low glycaemic load food		64%	•
<input type="checkbox"/> Honey is a better choice than sugar for people with diabetes		11%	

### GP panel

The fact that only 64% of GPs correctly selected that watermelon is a low glycaemic load food perhaps indicates that the concept of glycaemic index versus glycaemic load is still not well understood. The panel felt that glycaemic index may be more of a “fad” and that the concept of glycaemic load may prove to be a more useful tool for GPs. They would be interested to know more about this.

### Expert comment

**Glycemic index** (GI) was introduced nearly 30 years ago in an attempt to classify carbohydrate-rich foods on the basis of their effect on postprandial blood glucose. Since blood glucose is also influenced by the amount of carbohydrate consumed, the concept of **glycemic load** (GL) was introduced to better represent the impact of both the quality (GI) and quantity of the carbohydrate ingested. By definition, foods that have a low GI invariably

have a low GL, while foods with a medium or high GI can range from a very low to very high GL. It has been suggested that dietary GL provides little information beyond total carbohydrate intake. In contrast, dietary GI, which does not reflect total carbohydrate intake, is thought to provide limited information with regards to the overall insulin demand induced by total carbohydrate intake. Therefore, if the GI or GL is to be used, it should

be in consideration with other relevant characteristics of the food such as energy content, amount of fat and dietary fibre. Although there is disagreement in the literature concerning the use of the GI in the prevention and management of diabetes, most would agree that GI could be used as a helpful indicator of appropriate carbohydrate-containing foods to include more often in the diet.<sup>3,4</sup>

## The nutritional management of weight loss in COPD

The panel was interested to read about the use of supplements (e.g. Pulmocare) in patients with COPD as these are not commonly used. They would like more information about the influence of fat and sugar on symptoms of hypercapnia – one GP had a patient with COPD who developed worsening shortness of breath after eating food high in sugar.

5	What is the recommended approach for minimising breathing difficulties when eating, for people with COPD?	You	Your Peers	GP Panel
	<input type="checkbox"/> Eat only one large meal per day		<1%	
	<input type="checkbox"/> Eat only pureed food		<1%	
	<input type="checkbox"/> Eat small meals frequently		100%	•
	<input type="checkbox"/> Drink the dietary supplement, Pulmocare		22%	

6	Nutritional supplementation can be considered for people with COPD who:	You	Your Peers	GP Panel
	<input type="checkbox"/> Have a BMI less than 20kg/m <sup>2</sup>		89%	•
	<input type="checkbox"/> Have a weight loss of greater than 10% in the last six months		92%	•
	<input type="checkbox"/> Have a weight loss of greater than 5% in the last month		81%	•
	<input type="checkbox"/> Are needing to lose weight		1%	

### GP panel

None of the GPs on the panel had patients receiving Pulmocare and they felt that its use was not widespread, yet in Question 5, 22% of respondents selected this option. The indications for the use of Pulmocare in patients with COPD are quite limited and include patients with a low BMI, significant involuntary weight loss and those who develop hypercapnia.

Our advice would be to promote dietary changes that encourage small, frequent, high energy and high protein diets, generally with advice from a dietitian.

Indications for nutritional supplements for people with COPD were correctly identified by most respondents in Question 6.

### Expert comment

Malnutrition commonly occurs in patients with COPD. Nutritional management can be complicated as eating

may increase the respiratory quotient (RQ) (ratio of CO<sub>2</sub> produced to O<sub>2</sub> consumed) and increase the work of breathing. The RQ produced from the metabolism of carbohydrate, fat and protein is 1.0, 0.7, and 0.8, respectively. Therefore, for a given amount of oxygen consumed, more carbon dioxide is produced from the metabolism of carbohydrate than from fat or protein. The primary goal of nutritional support is to adopt a strategy that corrects the malnutrition without increasing the RQ. Pulmocare is a high-calorie, low-carbohydrate formula designed to help reduce CO<sub>2</sub> production. Fat replaces carbohydrate as the major source of calories and thus, consumption of this formula potentially decreases CO<sub>2</sub> retention. Furthermore, 20% of fat is provided as medium chain triglycerides to enhance fat absorption. One study demonstrated that consumption of Pulmocare when used as a nutritional supplement resulted in significantly lower RQ, CO<sub>2</sub> production and O<sub>2</sub> consumption as compared to a group of patients consuming a high-carbohydrate diet.<sup>5</sup>

## Nutrition in elderly people

Panel discussion of this topic highlighted the discrepancy between what should be done and the reality of what can be done. There are many interwoven reasons for poor nutrition and it can often be difficult for people to change. GPs are familiar with giving advice about reducing the energy and calorific content of meals and there are many resources available to reinforce this – a patient information leaflet for when appetite and nutrition is poor would be very useful.

7

Nutritional supplements should be offered to:	You	Your Peers	GP Panel
<input type="checkbox"/> All elderly people		1%	
<input type="checkbox"/> Elderly people who do not eat nutritious meals		19%	
<input type="checkbox"/> Elderly people who do eat nutritious meals but are unable to maintain body weight		90%	•
<input type="checkbox"/> Elderly people who have eaten little or nothing in the past week		67%	•

### GP panel

The GPs commented that the “hassle” of prescribing oral nutritional supplements meant that their use was often avoided. However in certain circumstances, such as in rest homes, there was occasionally pressure to prescribe these products. The panel commented that in their experience most people did not like drinking supplements. They also wondered if evidence shows that people actually gain weight while using supplements as often they are used as a meal replacement instead of their intended use as a supplement.

### Expert comment

Evidence for the effectiveness of nutritional supplements prescribed to improve the nutritional status of older people is limited. Recent systematic reviews of oral protein and energy supplementation in older people at risk from malnutrition suggested a small but consistent weight gain.<sup>6, 7</sup> Early screening for the risk or presence of malnutrition and implementation of early nutritional care programmes demonstrate improved outcomes.<sup>8</sup>

8	Which of the following solutions can help optimise nutrition in elderly people who have lost their appetite?	You	Your Peers	GP Panel
	<input type="checkbox"/> Three large meals per day		1%	
	<input type="checkbox"/> Smaller but more frequent meals and snacks		97%	•
	<input type="checkbox"/> Encourage naps just prior to mealtimes		1%	
	<input type="checkbox"/> Avoid exposure to unpleasant smells		67%	•
	<input type="checkbox"/> Check medications for possible cause		93%	•

### GP panel

Advocating access to day programmes, often run by rest homes or community organisations, where lunch and social contact was provided was a solution used by some GPs on the panel. Other tips for dealing with poor appetite included encouraging people to choose their favourite foods, having small attractively presented meals and promoting the value of company while eating. Anxiety should be considered as both a cause and a consequence of poor nutrition.

## Vitamins and minerals

The debate regarding mandatory fortification of bread with folic acid was well received by the panel. They felt the arguments against fortification were not as widely known as the arguments for but that they remained in favour. They agreed that the message of pre-conceptual use of folic acid is still not well known in the general population and that in the majority of cases, women tend to present when they are already pregnant rather than for pre-conceptual counselling. The panel felt that wider dissemination of information was required to encourage pre-conceptual use of folic acid. The need for iodine supplementation in pregnancy was new information for the majority of the panel. It is included in some prenatal vitamin supplements but the panel would appreciate some advice on any other available preparations.

9

Which of the following statements about folate are true	You	Your Peers	GP Panel
<input type="checkbox"/> Folate is required during pregnancy to reduce the risk of neural tube defects		99%	•
<input type="checkbox"/> Folate status is an important cardiovascular risk factor		6%	
<input type="checkbox"/> People taking methotrexate require folate supplements		93%	•
<input type="checkbox"/> A good dietary source of folate is red meat		4%	

### GP panel

There is some confusion regarding the availability of folic acid on prescription in New Zealand, however both the 0.8mg and the 5mg tablet are fully subsidised. The panel noted that recently there has been strong marketing for commercially available pregnancy supplements such as Elevit. They thought that a funded pregnancy multivitamin may be useful (particularly in view of comments in regards to iodine) and perhaps cheaper than fortifying bread.

### Expert comment

Iodine requirements increase during pregnancy to ensure maternal thyroid hormone (T4) production can be maintained at almost double that of the non-pregnant state. Studies of pregnant women conducted in New Zealand suggest ongoing, and even worsening, iodine deficiency in this group.<sup>9, 10</sup> It should be noted that not all multivitamin supplements available for pregnant and lactating women contain iodine (e.g.

Elevit). There are no oral iodine preparations available as registered medicines in New Zealand. By September 2009, mandatory fortification of bread by means of replacing non-iodised salt with iodised will serve to increase the daily iodine intakes of adults by about 30–70 micrograms. There are concerns that the current fortification programme will not provide the adequate intake levels for pregnant and lactating women (RDI of 220 and 270 micrograms, respectively).

10

Which of the following groups of people have a higher risk of vitamin B12 deficiency?	You	Your Peers	GP Panel
<input type="checkbox"/> Adolescents		2%	
<input type="checkbox"/> Pregnant women		53%	•
<input type="checkbox"/> Women taking oral contraceptives		5%	
<input type="checkbox"/> Elderly people		96%	•
<input type="checkbox"/> People with coeliac disease		89%	•

### GP panel

The increased risk of vitamin B12 deficiency in elderly people and people with gastrointestinal disorders was widely known. The question regarding whether pregnant women are deficient or have higher needs (with levels remaining in the normal range) was raised, particularly because levels of B12 take approximately two years to deplete.

### Expert comment

Beyond folate deficiency, current data suggest that maternal vitamin B12 deficiency may be associated with an increased risk for neural tube defects. A study in Canada recently revealed that about 1 in 20 women may be deficient in B12 in early pregnancy.<sup>11</sup> In the study, the rate of vitamin B12 deficiency nearly doubled after 28 days gestation, which the researchers highlight may be due to the known hemodilutional effect of pregnancy. Vitamin B12 deficiency during pregnancy may also contribute to deficiency in the foetus and infant, and lead to preterm delivery. The full implications of starting pregnancy and lactation with low vitamin B12 status have not been sufficiently researched.

The achievement of an optimal vitamin B12 status is difficult for many older people due to age-related decreases in gastric acid production, which may prevent the release of B12 from food. Long-established as a rare but serious medical condition requiring medical management, vitamin B12 deficiency is now seen to be common worldwide, albeit subclinical in nature.<sup>12</sup>

The prevalence has been dramatically increased by also including persons with “low-normal” vitamin B12 levels. One study estimated that as many as 10% and 20% of British people aged 65–74 and greater than 75 years, respectively were at high risk of vitamin B12 deficiency.<sup>13</sup> Theoretically, older people with mild vitamin B12 deficiency should be able to absorb free (crystalline) vitamin B12 found in fortified foods and supplements. The high prevalence of low vitamin B12 status among older adults, and treatment therefore is an important public health issue that requires further investigation. Studies are needed to define the still unproven health benefits of vitamin B12 fortification, the optimal levels of supplementation, interactions with other nutrients, and any possible adverse effects on healthy persons.

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**bpac<sup>nz</sup>**

10 George Street

PO Box 6032, Dunedin

phone 03 477 5418

free fax 0800 bpac nz

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