

Vegetarian, Vegan and Flexitarian Diets for Young Children



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The way we eat and feed our children has changed significantly in recent years. An increasing number of families are opting to follow a more plant-based or flexitarian diet, and therefore the consumption of meat-alternative products is on the rise.

For many families, it's important to be able to share meals with their children and avoid preparing multiple different meals. Parents are therefore asking whether meat-alternatives are suitable for their babies (from six months of age) and young children.



The importance of nutrition during childhood

Nutrition in the early years of life is key for many reasons. The “first 1,000 days”, refer to the period from conception to a child's second birthday and have been shown to be a critical window in a child's development¹. In particular, brain development is more rapid during this period than at any other time across the lifecycle so ensuring a child receives the right nutrition at this time is crucial.

Additionally, nutrition in childhood can have a lasting impact on eating patterns throughout later life, and it's important to support the nutritional needs of children right from the start².

Is a vegetarian or vegan diet suitable for babies and young children?

A well-planned vegetarian or vegan diet can be suitable for babies and young children, provided that any nutrients which can be lacking in plant-based diets, are appropriately replaced through food or supplements³.

Key nutrients to be mindful of for children following vegetarian or vegan diets, and appropriate non-animal sources are shown in the table below.

Nutrient	Plant-based Sources	Considerations
Iron	Lentils, beans and pulses, dark green leafy vegetables, tofu and soya beans, nuts, ground linseed, chia seeds, hemp seeds, dried apricots.	Consuming a source of vitamin C alongside plant-based sources of iron is recommended to increase absorption.
Iodine	Seaweed*, some fortified alternative milks**.	*Not recommended more than once a week. **Not all are currently fortified with iodine.
Calcium	Calcium-set tofu*, dark green leafy vegetables (e.g. broccoli, spinach), pak choi, sesame seeds, calcium-fortified alternative milks, cereals, bread.	*Tofu products must be calcium-set to provide a source of calcium.
Vitamin B12	Nutritional yeast, yeast spreads, fortified cereals.	If following an entirely vegan diet, a supplement would be recommended.
Omega-3 Fatty Acids	Hemp seeds, pumpkin seeds, sunflower seeds, chia seeds, walnuts, soya spread.	Plant-based omega-3 fatty acids do not provide a direct source of EPA or DHA – an appropriate supplement may be recommended if no fish is consumed.
Zinc	Wholegrains, quinoa, beans, chickpeas, lentils, mycoprotein, tofu, cashew nuts, walnuts, seeds (chia, pumpkin, linseed).	Absorption from plant-based sources of zinc, including wholegrains and pulses, can be impacted by other compounds found within these foods, such as phytates. Children following a plant-based diet should consume a variety of foods containing zinc.
Choline	Mycoprotein, broccoli, pulses, almonds.	Plant-based sources of choline generally contain lower amounts than animal foods. If following a plant-based diet, children should aim to include plenty of sources of choline.

Quorn mycoprotein for children

Whether consumed as a substitute for animal products in a child's diet, or simply to provide variety, mycoprotein (derived from a natural fungus) can provide essential nutrients that are important for young children's growth and development, including protein - children following a plant-based diet should be offered three protein-rich foods per day.

Mycoprotein is also a source of zinc, choline, riboflavin and is high in folate, manganese and phosphorus. Unlike many plant-based sources of zinc, mycoprotein does not contain phytates.

There is currently no evidence to suggest that mycoprotein is unsuitable for babies from when they start on solid foods. However, an important element of feeding babies and young children is to ensure that they are offered plenty of energy and plenty of variety, particularly when it comes to plant-based and alternative proteins and iron rich foods, such as beans and pulses.

Whilst mycoprotein and plant-based alternatives to meat are nutritious and are suitable for babies and can be incorporated into the diet of young children, it is important to do so with moderation, as they are high in fibre and low in fat. A diet too high in fibre isn't ideal for babies and young children as it can mean they fill up before having enough variety of nutrients.

Additionally, fat is an important nutrient for babies' growth and development and it's therefore important to include plenty of fat-containing foods in their diet. More detail on nutrient considerations for children is covered below.

The table below shows a comparison of popular meat alternative products that may be offered to babies and young children.

	Energy (kcal/100g)	Carbohydrate (g/100g)	Protein (g/100g)	Fibre (g/100g)	Fat (g/100g)	Saturated Fat (g/100g)	Iron (mg/100g)	Calcium (mg/100g)	Sodium (mg/100g)
Quorn Pieces	95	1.5	14.3	6.4	2.1	0.4	0.51	160	0.24
Quorn Mince	92	2.1	14.5	7.9	1.1	0.2	0.44	170	0.08
Quorn Fillets	82	1.0	14.1	5.9	1.1	0.2	0.43	170	0.34
Chickpeas	114	14.7	7.2	4.8	2.9	0.3	1.5	43	trace
Red Lentils	98	16	7.6	4.1	0.4	trace	2.4	16	12
Kidney Beans	91	14.4	6.9	8.5	0.6	0.1	2	71	trace
Tofu	73	0.7	8.1	0.3	4.2	0.5	1.2	*	4

Source: Nutritics Analysis Software & Marlow Foods, 2022

*Not all tofu products are calcium-fortified and therefore the amount of calcium will vary by brand.

It's important to offer calcium-fortified tofu to young children, particularly if they follow a dairy-free diet.

As you can see from the table above, fungi and plant-based options offer a variety of different nutrients, in varying amounts. Some meat alternative foods are higher in fibre and carbohydrates and lower in calories and fat when compared with mycoprotein. This highlights the importance of including a variety of foods in your child's diet to ensure an appropriate balance of nutrients.



Key concerns for nutrition in the early years

Energy needs

Young children have high energy and nutrient requirements to support their growth and development. They are particularly active, are growing at fast rates and can have small appetites, therefore they should be offered energy and nutrient-dense foods to ensure they are able to meet their requirements.

Fat

As the most energy dense macronutrient, fat is an important contributor of energy for growing children. Therefore, low-fat products, including low-fat dairy, are not recommended for young children. Many plant-based/alternative protein foods, are also quite low in fat, and it's therefore important to ensure that when you're serving them to young children, you're also including foods that contain plenty of fat. These may include oily fish, avocado, nuts and seeds, olive oil, rapeseed oil and full-fat yoghurt.

Protein

Protein is essential for growth, maintenance, and repair for the body. Protein foods such as fish, meat and dairy also contain key nutrients needed for your child's health, including iron, omega-3, zinc, selenium, and calcium. Protein containing foods should ideally be offered twice a day, or three times daily to vegetarian children. Not all plant-based proteins contain all 'essential' amino acids. Amino acids are the 'building blocks' for proteins, and there are some that we can only obtain through our diet - called 'essential' amino acids. If children are following a plant-based diet, it's important to eat a variety of protein containing foods. Some alternative proteins, including tofu, quinoa and mycoprotein, are high-quality sources of protein that provide all of the nine essential amino acids required for health.



Iron

A baby's iron stores start to diminish around the age of six months, it then becomes important that plenty of iron-rich foods are introduced during weaning. NDNS data suggests that 30% of 1.5-3 year olds do not meet iron requirements⁴. Non-haem iron, found in plant-based foods, is less bioavailable than haem iron from animal sources. Children following a plant-based diet need to consume more iron rich foods, to ensure they're meeting their iron requirements. Children should also consume vitamin C containing foods alongside plant-based sources of iron, to aid absorption.



Calcium

Calcium is particularly important during childhood and adolescence, for the formation of strong, healthy bones and teeth. It can be more difficult for children who don't consume dairy to meet calcium requirements. It's therefore important to include a variety of calcium-rich foods in their diet.

Sodium

It's important for children to avoid high levels of sodium in their foods to support their health throughout childhood and later life, and to allow them to develop a taste for foods without excess levels of added sodium.

Allergens

Some Quorn mycoprotein products contain egg, milk and gluten which are known allergens. Children with any of these allergies should opt for products that do not contain these allergenic ingredients.

Take home message

Quorn mycoprotein can be consumed in moderation by babies and young children as part of a varied and balanced diet. Meat alternatives, such as mycoprotein, provide a source of protein and are increasingly being consumed as part of flexitarian, vegetarian or vegan diets. Such diets can provide all the nutrition a growing child needs if they are well planned and ensure that they include all of the nutrients which may be lacking in plant-based diets, such as iron and vitamin B12.

Where to find Quorn mycoprotein

Quorn mycoprotein is the unique whole food at the heart of every single Quorn product. There is a huge range of great tasting Quorn® products and ingredients available, all of which can easily be used to recreate your favourite recipes with a nutritious and sustainable twist.

Visit www.quornnutrition.com and www.quorn.com for more information about Quorn mycoprotein, products and recipes.

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