

# Milking the options

With so many milk options available to consumers, how do you know which one is best for you and your clients? **Linia Patel** guides you through the various choices.

There is an increasing number of types of milk available to consumers. Which one should you be drinking? Is organic milk the same as grass-fed milk? How does cow's milk differ from goat's milk or almond or coconut milk? How about the new A2 milk? This article aims to answer these murky (or is it milky?) questions.

## Cow's milk

The most common variety of milk consumed is cow's milk. Cow's milk is available in a number of milk fat percentages: skim (fat free), 1%, 2% and whole (where no fat has been removed). As a general rule, nutrition experts recommend low-fat milk from two years onwards. Within my clinical practice (depending on nutritional goals), if you are consuming less than one pint of milk a day, I am increasingly open to the amount of fat you choose to have in your milk. For me, the quality of the milk you consume is key.

The milk you drink will only be as healthy as the cow that produced it. Surveys suggest that people associate organic milk with superior nutrition. Organic farmers must use organic fertilizers and pesticides and must not give cows preventative antibiotics or supplemental growth hormones. Studies have shown that organic milk contains at least 60% more omega-3 fatty acids than non-organic milk.<sup>1</sup> However, your choice should not stop at organic.

Grass feeding is a practice not yet familiar to all consumers. 100% grass-fed

cow's milk comes from cows that have grazed in pasture (or eaten dry forage) all year round rather than being fed a processed diet of grains like corn and soya. Organic cows are not required to be solely grass fed; however, they must have at least 120 days per year of grazing. For the rest of the time, organic cows can be fed grains. The natural diet for ruminant animals such as cattle is plain grass. Hard-to-digest grains radically alter the bacterial balance and composition in the animal's gut. Just as for humans, poor gut health in animals promotes disease and also radically alters the nutritional composition of the milk<sup>2</sup>.

Cows that eat carotenoid-rich grass and forage, therefore, are able to incorporate significant amounts of beneficial compounds in their tissue and therefore their milk

A recent study from Couvreur *et al* showed that grass-fed cows produced milk with 15% more healthy hearty omega-3 fats and 32% more conjugated linoleic acid (CLA). CLA is a type of fatty acid that is found naturally in milk primarily from ruminants such as cows. CLA exhibits potent antioxidant activity and some research indicates that CLA might be protective against heart disease, diabetes and cancer<sup>2</sup>.

A study from Elgersma *et al* also showed that grass-fed cows produce milk that is richer in micronutrients and phytochemicals. In the study, grass-fed cow's milk had 22.9% more B12 and 18.7% more iodine than grain-fed cow's milk for example. The milk was also significantly richer in beta-carotene. Carotenoids such as beta-carotene are precursors to vitamin A that are found as pigments in plants. Cows that eat carotenoid-rich grass and forage, therefore, are able to incorporate significant amounts of these compounds in their tissue and therefore their milk<sup>1</sup>.

## Shopping tips for cow's milk

Go organic.

Ask for 100% grass fed.

Consider local farmers.

## Milks per cup compared

	Calories	Total fat/g	Protein/g	Calcium/mg
Cow's whole	147	8.1	7.9	276
Cow's skimmed	86	0	8	276
Goat	169	10	9	327
Sheep	225	17	15	408
Almond (fortified)	60	2.5	1	288
Rice (fortified)	120	2	0.4	210
Coconut (fortified)	467	50.5	4.8	288

Source: Nutritics Professional Dietary Software

## A2 milk

Milk contains many proteins, one of which is called beta-casein. A1 and A2 are two common forms of beta-casein. Recent nutrition surveys show that 20% of the UK population struggles to digest milk protein. Milk labelled as 'A2 milk' contains mainly the A2 type of beta-casein. The milk currently available in supermarkets and known as 'conventional milk' contains a mixture of A2 and A1 beta-casein (about 60% A2 and 40% A1). There is an emerging body of evidence implicating A1 beta-casein in a range of human health conditions, many of which have an auto-immune element to them (i.e., Type 1 diabetes, heart disease, mental health conditions, child development)<sup>3,4,5</sup>. If you have a diagnosed milk protein intolerance or have a family history of auto-immune diseases, you may want to consider A2 milk. However, one drawback is that the A2 on the market is not organic or 100% grass fed.

## Goat's milk

Goat's milk is more easily digested by some as it contains smaller proteins and fat globules to those found in cow's milk. It contains as much protein and calcium as cow's milk and contains more tryptophan (an essential amino acid) than cow's milk. However, goat's milk still contains lactose, which will eliminate it as a choice for some<sup>6</sup>. It also has a very distinct taste, which some may dislike.

## Sheep's milk

Like goat's milk, sheep's milk has smaller proteins, smaller fat globules and more medium-chain triglycerides (MCTs) which aid digestion. As sheep feed 100% on grass, sheep's milk has more CLA than the milk from cows or goats. Sheep's milk also contains up to twice as much calcium and B vitamins as cow's or goat's milk. However, it contains as much lactose as cow's milk, so isn't a great alternative if you're lactose

intolerant. One drawback of sheep's milk is the cost. Sheep produce much less milk than cows and goats, hence sheep's milk is likely to be more expensive<sup>7</sup>.

All milk that comes from an animal will contain some lactose sugar hence, if you are lactose intolerant, you may want to consider using a milk substitute from non-animal sources. These include almond, rice or coconut milk, for example. As the nutritional composition of these milk substitutes lacks many of the key micronutrients contained in animal milk like calcium or vitamin D, these milk substitutes are often fortified with nutrients to make them more marketable<sup>7</sup>.

## Almond milk

Almond milk is a popular vegetarian alternative for those allergic to dairy or soy. Almond milk also has a naturally sweet taste. In terms of calcium content, it is comparable to cow's milk. On the downside, despite containing only 60 calories per cup, almond milk is not a great protein source (1g per cup vs 9g per cup in cow's milk). It is also high in sugars. It is also not suitable for those with nut allergies and lacks the B vitamins in cow's milk. If you

do choose almond milk, go for one that is unsweetened and fortified with vitamin D<sup>8,9</sup>.

## Coconut milk

Coconut milk is another alternative to cow's milk. It is lactose free and suitable for vegetarians and vegans. Coconuts are high in saturated fats but the fats come from MCTs. MCTs are fats with an unusual chemical structure that allows the body to digest them easily. These fats can be used immediately as an energy source. Coconut milk also contains a high level of potassium. The drawbacks to coconut milk are the low protein and calcium content and the high calorie count. One cup of coconut milk is approximately 450 calories, whereas a cup of whole milk is approximately 155kcal<sup>7,8</sup>. If you do choose coconut milk, it is important that you consider coconut milk as a fat source rather than a protein source – and remember portion control!

## Rice milk

Rice milk is another vegetarian/vegan option that is also lactose free. It is made from ground rice and hence is naturally lower in protein and calcium in comparison to regular milk and higher in carbohydrates than cow's milk. It is not recommended for children due to its low protein and calcium content<sup>8,9</sup>. If you are choosing rice milk, choose a variety that has been fortified with calcium and protein. **fp**

Linia Patel has a BSc degree in biochemistry and physiology. Since graduating in 2006, Linia has taken up various leading roles in performance nutrition and public health.

liniapatel.com



For references mentioned in this article visit [fitpro.com/references](http://fitpro.com/references)

