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Commentary

The Nutritional Composition of Milk Produced in Dairy Farms

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DESCRIPTION

Dairy goats have long been used to produce milk all over the world, particularly in Asia, Africa, and Europe, which generate 58.4 percent, 24.1 percent, and 14.2 percent of the world's goat milk, respectively. Dairy goat production systems grow in arid and semi-arid regions such as Asia and Africa, therefore worldwide dairy goat production mostly consists of huge production systems with self-consumption of milk. However, a lower share of worldwide goat milk is commoditized to dairy products, mostly in Europe and Latin America.

Although dairy goat farming has long been conducted in Southern Europe, incorporating varying intensity production techniques, dairy goat farming in the United Kingdom has risen over the previous 25 years. There are 40,000-45,000 goats in the UK, producing almost 34 million liters of milk each year, accounting for 0.2 percent of the volume of cow milk produced in the country. Although liquid retail milk from various brands is available, goat milk is mostly used in UK to make butter, cheese and yoghurt.

Potential health benefits of goat milk consumption have recently been reviewed, including hypoallergenicity and improvements in gastro-intestinal disorders, Fe and Cu absorption, growth rates, bone density, and blood levels of vitamin A, Ca, thiamine, riboflavin, niacin, and cholesterol.

However, claims about human health continue to rely primarily on anecdotal evidence, which is also used in industry promotional material and within the media. Given that species, breeds, husbandry techniques, and season all have a substantial influence on the nutritional content of milk, variations between cow and goat milk are to be expected, although their magnitude may vary between and within nations. However, most nations, including the UK, lack thorough nutritional profile of retail goat milk. There are studies that investigate the differences in nutritional profiles (basic solids composition, Fatty Acids (FA), minerals, and phytoestrogens) between cow and goat retail milk, (ii) evaluate the seasonal effect on the observed differences, and (iii) quantify the potential implications on consumers' nutrient intakes.

Milk and dairy products are the primary source of Saturated Fatty Acids (SFA) in human diet, including those linked to an elevated risk of cardiovascular disease (C12:0, C14:0, and C16:0). Total SFA consumption is now greater than suggested levels, and nutritional recommendations call for a decrease in consumption (to contribute less than 10% of total energy intake). Milk, on the other hand, has a number of Monounsaturated Fatty Acids (MUFA) and Polyunsaturated Fatty Acids (PUFA) that have been linked to improved human health.

The primary advantageous MUFA in milk are c9 C18:1 (oleic acid; OA) and t11 C18:1 (vaccenic acid; VA), whereas the primary beneficial PUFA are c9t11 C18:2 (rumenic acid; RA), and the omega-3 (n-3) c9c12c15 C18:3 (-linolenic acid; ALNA), c5c8c11c14c17 C20:5 (docosahexaenoic acid; DHA). Minerals are necessary for the human body and perform a variety of important functions, including enzyme cofactor activity, metallo-proteins, vitamin and bone synthesis, osmolarity, nutrient absorption, and oxygen transport.

Milk contains the macrominerals Ca, Mg, P, and K, as well as the microminerals I, Se, and Zn. It also includes the macrominerals Na and S, as well as the microminerals B, Co, Cu, Fe, Mn, Mo, and Ni, however it is not a significant source of these minerals in human diets. Phytoestrogens (containing lignans, isoflavones, and coumestans), particularly equol, have been linked to a variety of health advantages, including a lower risk of cardiovascular disease, type 2 diabetes, some malignancies, and osteoporosis, metabolic syndrome, and menopausal symptoms.

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