



## Camel Milk- A Boon for Human Health

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### ABSTRACT

Although camel is amounting less milk production as compared to cattle and buffalo, but that has a number of obvious advantages over bovine milk, including more powerful nutrients and better chemical compounds. Camels do not need the massive amounts of grazing area like other animals, and filled with less methane gas. The important health benefits of camel milk include its ability to prevent diabetes, improve the immune system, stimulate circulation, treat autism, lessen allergic reactions, promote growth and development, protect against certain autoimmune diseases, and boost heart health are highlighted in the present article.

### INTRODUCTION

Camels are mammals and are of two types: dromedary camels (Arabian - *Camelus dromedarius*), which have one hump, and Bactrian camels (Central Asia-*Camelus bactrianus*), which have two humps. Camel humps stores fat that can metabolize when food and water is scarce. They have three eyelids; third one protects eyes from blowing sand. However, two rows of long lashes also protect their eyes. They are used for transport for thousands of years as they can carry about 500 pounds on their backs. Domestic camels are often the main source of meat, milk and even leather or wool products. They are more than 6 feet in height and 400 to 600 Kg in weight. When water is available they can drink 113 liters at a time. Camels can survive up to six months without food or water. The gestation period of camel cow is about 12 to 14 months and usually delivers one calf. It is usually thought that camels only live in hot climates, they do well in temperature ranges from - 29 °C to 49 °C. Camels live in herd which is led by a dominant male. Wild Bactrian camel (*Camelus ferus*) was discovered in 1878 by Nikolai Prejevalsky, a Russian geographer

who explored Mongolia and Tibet. This comes now in endangered. Camels have been domesticated for 3,000 years, according to the San Diego Zoo. Camels can run at 40 km/h for longer. Camels have nucleated red blood cells, which are oval-shaped cells that help continue blood flow during water scarcity ([livescience.com/27503-camels/](http://livescience.com/27503-camels/) [www.reference.com/pets-animals/explore/camels](http://www.reference.com/pets-animals/explore/camels)).

India ranks third in camel population in the world (Khanna et al. 1990a). Out of the 1.1 m population, 70% camels are found in Rajasthan. There are 4 main camel breeds, viz. Bikaneri, Jaisalmeri, Kutchi and Mewari. The breeding season of camels is November through March. The average age at first calving is more than 5 years (Khanna et al. 1990b). The average gestation length is approximately more than one year. The camel in India has been an animal of utility from the early Harappan level of civilization (c.3000-1800 BC) (Khanna 1990).

The British established a camel- breeding farm at Hisar in 1809 for supplying camels to the army. Distribution of *C. dromedarius* (one- humped camel) in India is presently confined to the dry lands located in parts of Rajasthan, Gujarat, Punjab, Haryana, Uttar Pradesh and Madhya Pradesh. Around 55-60 two humped camels (*C. bactrianus*) are available in Leh district of Ladakh. These animals are believed to be from the original stock of Yarkhandi camels which operated on the silk route (Khanna 1997).

### CAMEL MILK

The health benefits of camel milk as compared to traditional forms of milk from cattle, buffalo, goat, etc., there has been a major increase in camel milk farming. However, it is extremely expensive to

harvest camel milk, which may be available in food markets throughout the Middle East and Northern Africa. It is the closest form of nutritive mixture as it contains higher levels of micro minerals such as Copper, Cobalt, Zink, Iron, manganese (Mn), Molybdenum (Mo), Plumbum (Pb) and vitamin C, and protein, as well as less fat (Mal 2000; Saini et al. 2007).

### **IMMUNITY**

There is a surprisingly high level of proteins and other organic compounds in camel milk, some of which have powerful antimicrobial abilities. This means that it can help to boost the immune system against various diseases and keep us healthy. A trail (Mal et al. 2000 & 2001) was carried out to observe the therapeutic efficacy of camel milk on human patients afflicted with tuberculosis (TB). At the end of the trail, studies revealed that the camel milk can act as an adjuvant nutritional supplement in TB patients. Increase in appetite, no pus formation, more radiological improvement in terms of lung expansions was also observed in patients whose diet was supplemented with camel milk. Hematological parameters showed significantly higher haemoglobin content, significant reduction in neutrophils, significantly lower LDH activity, etc. In addition, Mal et al. (2006) studied the camel milk effect in multiple drug resistant (MDR) tuberculosis patients. They found a positive benefit of camel milk supplementation in multiple drug resistant TB patients.

### **DIABETES**

Camel milk has a potential natural solution for diabetes, eliminating the need for insulin injections if camel milk is included in the diet. If used as a preventative measure, it can also prevent you from developing the disease in the first place. The effect of camel milk on glycemic control risk factors and diabetes quality of life in patients with type 1 diabetes was evaluated (Agarwal et al. 2003 & 2005). After 3 months of trial, there was a significant improvement in fasting blood sugar and HbA1c (glycated haemoglobin) levels, and significant reduction in insulin requirement in patients receiving camel milk. Diabetes quality of life improved significantly in patients. There was a 30% reduction in doses of insulin in 92% of in a group of patients. However, there was no significant change in lipid profile plasma, insulin and c-peptide. In addition, such studies carried out in Israel (Zagorski et al. 1998)

and Germany (El-Mahdi 1997) demonstrated the anti-diabetic properties of Camel milk. This claim is supported by research on diabetes, which has indicated that an insulin-like protein has been detected in camel milk (Beg et al. 1986).

### **AUTISM**

Camel milk benefits people with autism. A study published in International journal demonstrating the effect of camel milk on autistic people. It was observed that a 4-year old girl was fed camel milk for 40 days, her autism symptoms disappeared. Similarly a 15-year old boy was also recovered after feeding camel milk for 30 days. There are more examples like this mentioned in the article (Shabo and Yagil 2005). Possibly certain symptoms related to autism, enterocolitis, H. pylori infection and lactose deficiency might be cured with camel milk as well. Although being the various cause of autism, the primary cause of alimentary canal where the breakdown of casein malfunctions, leading to formation of opioids that eventually cause brain damage. Neurological symptoms are secondary in autism. Camel Milk is also a potential therapy as an antioxidant in Autism Spectrum Disorder (ASD) (Laila et al. 2013).

### **GROWTH AND DEVELOPMENT**

The high level of animal proteins found in camel milk, many of which are not found in goat and cow milk, can help to stimulate proper growth and development of bones and organ systems. Camel milk provides a lot of proteins, but lack of  $\beta$ -lactoglobulin (Hatmi et al. 2006). In fact, in many cultures, camel milk is given to malnourished infants and children, as it can improve health and wellness so dramatically. Camel milk was first used as a way to prolong journeys through the desert, when food and other chances for liquid were limited.

### **STIMULATE CIRCULATION**

The high iron content found in camel milk (Kappeler 1998) makes it ideal for preventing anaemia. Iron is a crucial component of red blood cells, which means that camel milk can increase circulation of the blood and oxygenation of the body's organ systems and extremities. Following childbirth, injury, or period of malnutrition, camel milk can significantly help maintain health.

### **ALLERGIC REACTIONS**

Camel milk has been connected to reducing allergic reactions in those who regularly consume it.

Furthermore, camel milk does not cause the same sorts of lactose intolerance reactions of cow milk, as it has a significantly different chemical makeup. Food allergies in children are often very serious and can lead to anaphylactic reactions. Observations that camel milk ameliorates allergic reactions were noted over the years. The effect of camel milk is probably related to its special composition. Shabo et al. (2005) found that all eight children in their study reacted well with the milk and recovered fully from their allergies.

## HEART HEALTH

With such a healthy and a comprehensive set of fatty acids, camel milk can greatly improve the balance of cholesterol in the body. By reducing “bad” cholesterol in the body, camel milk helps to reduce atherosclerosis, heart attacks, and strokes, and even lowers blood pressure in regular users. Camel milk fat differed from mammalian fats by its high content of the long-chain fatty acids. The ratio of unsaturated/saturated acid was more favourable in camel’s milk compared with that of cows or other mammals (Konuspayeva et al. 2008).

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