Camel Milk's Healing Power

Research and experience from an increasing number of people around the world demonstrate that camel milk facilitates healing in our bodies. Camel milk has many unique and amazing properties.

Here's some quick research:

- Camel milk has been shown to heal food allergies (1) and gut problems. The antibodies and immune properties of camel's milk contribute to its wonderful viral and bacterial fighting abilities.
- It is particularly helpful in addressing immune system dysregulation in various forms. Camel milk can support and help people with autoimmune conditions, including autism, heal.
- A research study by Dr. Reuven Yagil (2005) shows camel milk has positive results in children with autism. (2)
- Camel milk contains insulin and is effective in diabetes (3), including gestational diabetes (4).

Since children with autism routinely have immune system challenges: inability to fight bacterial, viral and other infections, and states of chronic inflammation, allergy, and autoimmunity, camel milk has promising health and healing benefits.

Camel herders and indigenous cultures have known about the power of camel milk for a long time. To this day, Bedouin parents send their children to drink camel milk for a couple weeks in their childhood, as they know that it sets up a strong immune system for life. Dr. Weston A. Price observed their dental health (and therefore physical health) was excellent stating, "The Arabs in several districts use camels' milk extensively. It is nutritious, and in much of the desert country constitutes the mainstay of the nomads for months at a time." (5)

Camels are built differently than any other animal. Camels are not ruminants but are Tylopodes and have three stomachs, but they do ruminate. They can survive in incredibly harsh climates, and are able to live without water for 30 days at a time (even with little food), while still producing high quality milk. Imagine that! A large part of camel milk's healing power stems from the unique and hardy immune system of camels, it's unlike any other mammal.

Camel Milk: Highly Nutritious with Unique Casein

Camel milk is highly nutritious. The milk contains only 2% fat (I'm not a fan of a low-fat, but these are the facts). The fat molecules are joined to protein, so there is no stress on the liver to process it. Higher is some nutrients and lower in others—camel milk is rich in vitamin C (5x that of cow's milk), iron (10x) and calcium. The fat profile of camel milk varies in a "rich diet" (domesticated camels) versus the diet camels eat in the desert – but generally it's high in polyunsaturated fatty acids, with a higher ratio of omega 3 to omega 6 compared with cow's milk.

Camel milk is considered a complete food and can be consumed exclusively while meeting all nutritional requirements. Camel milk is most frequently consumed raw and unpasteurized, because the raw milk contains the most nutritional and immune properties. Only when the quality and safety of the milk is in question would someone pasteurize it.

Camel's milk contains no beta-lactoglobulin and a "new" beta-casein (6). Therefore it is not reactive to children with autism and even non-allergenic to those with even the most sensitive allergy to milk and casein. One study found Camel's milk was also not recognized from circulating IgEs from a child specifically allergic to ewe's milk.(7) Children with severe food allergies react well to the milk, and astonishingly, fully recover from their allergies including to other foods (1).

Casein molecules are actually micelles and camel micelles have been found to be larger in size (15 nm) than those of cow milk or human milk. (8). Camel milk has a lower pH than other milk, so that upon entering the stomach the casein micelles do not breakdown into casein and whey and therefore do not break into casomorphins. Casomorphin creation from cow milk consumption is a common problem in autism that increases autistic symptoms.

Camel Milk: Immune Benefits

Camel milk has an amazing immune profile.

The immunoglobulins (Igs) and protective proteins in camel milk contribute to camel milk's incredible infection fighting and eradication capacity. Camel Igs (which exist in the milk) are able to penetrate into tissues and cells that human Igs were unable to. Therefore, they are able to get into the kidney or inside a cell, where they are also able to completely neutralize the enzyme activity of an infectious agent such as a bacteria or virus.

Camel Immunoglobulins

Camel milk also contains immunoglobulins (Igs) that are special in camels, including unique subclasses IgG2 and IgG3. The Igs are the same structure as human immunoglobulins but only one-tenth the size. Being so small, they can penetrate into tissues and organs to fight infection and aid repair, where human antibodies cannot.

Camel antibodies have superior antibacterial and antiviral properties. As stated in Dr. Reuven Yagil's autoimmune paper, "conventional antibodies rarely show a complete neutralizing activity against enzyme antigens, but camel IgG has a full neutralizing activity against tetanus toxin as it enters the enzymes structure." (9). Viruses can also be neutralized by knocking out their enzyme activity, and studies show the camel antibody is an effective inhibitor against hepatitis C enzyme system (10).

In a study on camel milk for autism, the author compares camel milk to intravenous immunoglobulin therapy that acts as a natural immunoglobulin therapy, whose effects continue after the therapy is stopped, because of the immune rehabilitating action.

Camel Immune Protective Proteins

Camel milk contains the following immune proteins (often in higher qualities than other milk):

- Peptidoglycan Recognition Protein, PGRP is very high in camel milk. It stimulates the host's immune response and has antimicrobial activity. It even appears to have an effect on breast cancer in studies.
- Lactoferrin is also in higher concentrations in camel milk, more than cows and goats. Lactoferrin prevents microbial overgrowth and invading pathogens. Lactoperoxidase, has bactericidal activity on gram-negative bacterial like Escherichia coli (E. coli), Salmonella, and, Pseudomonas, and has antitumor activity.
- Lysozyme is an enzyme that is part of the innate immune system that targets gram-positive bacteria. N-acetyl-beta-D-glucosamidase (NAGase) found in similar quantities in human milk has antibacterial activity.

Autoimmunity

One theory about autoimmune disease is that the body attacks itself because it's trying (in vain) to get at the bacteria buried in the intestinal tissue. Camel milk's antibacterial activities and the special immune response allow for their penetration into the intestinal tissues when the "quiet" bacteria turn pathogenic. Because the antibodies are able to get into the affected tissue to attack the infectious agent (for example the saprophyte bacteria found in Crohn's disease), camel milk can help someone heal in ways not seen through any other intervention – dietary or otherwise.

Camel Milk and Autism (and Beyond)

Dr. Yagil says that "camel milk does not contain the two caseins that lead to the autism symptoms when drinking cow milk. Therefore camel milk can safely be drunk by autistic children." The results published in a paper on camel milk for autism were very positive, especially for younger children that "showed an apparent complete recovery from autism after strict removal of cow's milk". (2) Regarding the results seen with autism, Dr. Yagil explains, "it is NOT only a case of repressing the clinical signs but a rehabilitation of the immune system. Therefore the kids completely recover. "

Since camel milk is nourishing and easy to digest, it does not trigger allergenic or opiate responses, and helps heal the gut and infections, protecting and enhancing the immune system.

Considering the vast qualities of camel milk, there's seems no limit to the range of maladies that it many help address. The positive reports from parents are exciting – camel milk holds great promise, and future study and clinical experience will be valuable. From parents to professionals like Dr. Yagil, I am intrigued and enthused about the value and healing properties of camel milk for people with people with a wide variety of health conditions.

Camel milk would be a wonderful addition to people on special diets such as GAPS. I'm drinking it, and so is my baby.

ADDITIONAL INFORMATION – UPDATED 3/23/12

Autism research is a rapidly growing field. While many parents report great results with camel milk, recently new information has come to light about cerebral folate deficiency (CFD), a condition of below normal levels of folate in the central nervous system. Folate receptor protein alpha (FRA) transports folate in the central nervous system. Dr. Quadros who tested camel's milk stated, "folate receptor alpha antigen is very similar to cow's milk and the immunoreactivity with the folate receptor alpha is also similar." In light of this new information, it appears for children who produce autoantibodies to the folate receptor alpha, camel milk would be contraindicated and should be avoided. Dr. Dan Rossignol has found these antibodies in 62% of children with ASD that he's tested. Because it is so prevalent, Dr. Rossignol recommends all children with ASD be tested for FRA autoantibodies. You can learn more about testing from your doctor, Dr. Quadros, and Quadros Lab.

References

1. Yosef Shabo MD, Reuben Barzel MD, Mark Margoulis MD and Reuven Yagil DVM. Camel milk for food allergies in children. IMAJ 2005;7:796–798

2. Yosef Shabo, PhD, MD and Reuven Yagil, DVM. Etiology of autism and camel milk as therapy. International Journal on Disability and Human Development 2005;4(2):67-70

3 R.P. Agrawal, R. Beniwal, S. Sharma, D.K. Kochar, F.C. Tuteja, S.K.Ghorui and M.S. Sahani. Effect of raw camel milk in type 1 diabetic patients: 1 year randomised study. Journal of Camel Practice and Research 12(1), p. 27-35, 2005

4. Dr. Reuven Yagil, video presentation at the symposium of "Gastro-Intestinal and Immunological diseases and how they relate to Camel Milk." February 9, 2011.

5. Price, Weston A, Nutrition and Physical Degeneration. The Price-Pottenger Nutrition Foundation, La Mesa, CA, 2008.

6 Obaid Ullah Beg, Hedvig von Bahr-Lindström, Zafar H. Zaidi, Hans Jörnvall. Characterization of a camel milk protein rich in proline identifies a new ß-casein fragment. Regulatory Peptides, Volume 15, Issue 1, August 1986, Pages 55-61.

7. P. Restani, A. Gaiaschi, A. Plebani, B. Beretta, G. Cavagni, A. Fiocchi, C. Poiesil, T. Velona, A.G. Ubazio and C.L.. Cross-Reactivity between milk proteins from different animal species. Clinical and Experimental Allergy, 1999, Volume 29, 997-1004.

8 Kappeler S., Farah Z., Puhan Z. Sequence analysis of Camelus dromedarius milk caseins. Journal of Dairy Research (1998) 65 209–222.

9 Prof Reuven Yagil, Paper, "Camel Milk and Autoimmune Diseases: Historical Medicine." 2004.

10 Martin, F., Volpari, C., Steinkuhler, C., Dimas, N., Burnetti, M.,Biasiol, G., Altamura S., Cortese, R., De Francesco, R., Sollazzo, M. Affinity selection of a camelized V (H) domain antibody inhibitor of hepatitis Cvirus NS3 protease. Protein Engineering. (1997) 10: 607-614.