The Effects of Fermentation on Milk

- **Protein** - The reduced curd size, a factor in digestibility of proteins, is believed to be well tolerated and absorbed by infants, children, and adults. An increase in free amino acids can increase digestibility of milk.
- **Milk fat** - The lipase activity (low) of lactobacilli can enhance digestibility of milk fat and the presence of fat soluble vitamins in milk fat increases nutritive value.
- **Lactose** - Intestinal flora metabolize lactose to lactic acid and other compounds. Lactose stimulates gastrointestinal activity and increases the ability of the body to utilize phosphorus and calcium. Lactose promotes the production of lactic acid.
- **Enzymes** - The enzymes lactase and B-galactosidase help digest lactose. They are from the cells of yogurt culture that just pass through the intestinal tract.
- **Lactic acid** - A natural preservative (antimicrobial) that makes fermented milk biologically safe, even in hot and contaminated environments. It makes milk more easily digestible. Lactic acid promotes peristaltic movement in nearly every part of the intestinal tract. This maintains health by increasing digestion and absorption, increasing fecal excretion and leads to excretion of harmful bacteria before they can multiply.
- **Minerals** - Lactic acid and lactose favorably effect calcium absorption and lactic acid aids in calcium retention.
- **Vitamins** - Some B-vitamins are reported to increase (folic acid) while others decrease (B12). In koumiss there was a sharp increase in B12. Intestinal flora synthesize pyridoxine allowing tryptophane to be converted into niacin.
- **Volatile fatty acids** - May be important nutritionally. Intensifies the antimicrobial properties of fermented milk.
- **Antibacterial metabolites** of yogurt, which retard the growth or kill pathogenic bacteria, include organic acids (lactic, acetic) hydrogen peroxide, and antibiotic substances (e.g. bulgarin), etc.
- **Low pH** - The acidity of fermented milk retards the growth of undesirable microorganisms, and gives it better keeping qualities.
- **Safety** - Fermented milk products are hardly ever the cause of salmonellosis or any other type of food poisoning. Antibiotics produced by lactic acid bacteria are know to slow growth of harmful bacteria which decreases their production of harmful substances.