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[NUTRITION]

# The Missing Link?

How goat milk can potentially enhance health and speed recovery for physical therapy patients

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**P**hysical therapy as a science often overlooks a very important element of rehabilitation—nutrition. If we expect our patients to be able to improve posture, pain management, range of motion and more, we must be willing to equip them with the tools of nutrition that ensure success. While most PTs probably know the basics of nutrition, such as moderation, extra fruits/vegetables and variety, many might not know of the healing attributes of goat milk and goat milk products. Goat milk is not tremendously popular in the U.S., but it is the milk of choice for a significant percentage of the world's population. Goat milk and related products are an ideal choice for PT patients because they are easy to digest, highly effective and will contribute to patient success in any therapy environment.

## Muscle Health

It's no secret that our metabolism requires nitrogen-rich material to expand lean body mass (muscle). The main source of nitrogen in our food supply comes from protein. While most have heard something positive regarding this nutrient, a primary aspect of protein intake is often overlooked and misunderstood—"protein quality" or bioavailability. This is unfortunate

because bioavailability is one of the most important tenets of protein nutrition.

Many foods contain protein and some even at concentrated levels, but very few foods deliver the nutritional protein quality found in goat milk. More than 98 percent of the protein in goat milk is bioavailable. Contrast this with the protein found in corn, of which only 50 percent is bioavailable, and goat milk protein quality becomes quite apparent.

Consider the fact that shoe leather is almost 100-percent protein. If one looked only at the nutrition fact panel, this might appear to be a healthy food based on protein content. Good luck digesting or absorbing any of the leather's protein since its protein bioavailability is less than 1 percent. Not only does goat milk protein have a high bioavailability, it also has a similarity to human breast milk that makes assimilation to the human body much more complete. In fact, built into the genome (the cellular foundation for all life) of goat milk protein is a DNA structure comparable to that of mother's milk. This similarity will translate into better digestion, absorption and nutrients.

All of this matters because the vast majority of our patients are outpatients recovering from either surgery or injury, or both. In the

case of patient recovery, protein is usually one of the most needed nutrients. Therapists would be wise to make a habit of considering their patients' protein needs.

For example, the RDA advises the following formula for determining protein needs:  $0.8g \times kg / \text{body weight}$ . So a 185-pound male would need around 67 grams of protein per day. While this recommended level may be debatable, consider that in virtually any physical therapy patient this number is going to be significantly higher. In some cases, it may be anywhere from two to three times higher than normal.

Biologically, this makes sense since in times of stress, protein needs increase to replace, nourish and rebuild damaged tissue. A general rule of thumb is that burn patients always need the most protein-rich diet. To a lesser extent, all surgeries/injuries, whether to the knee, elbow, back or neck, require substantial amounts of nitrogen to promote growth and healing. Your patients deserve the best protein to assist their recovery.

## Goat Milk Minerals

While the merits of using goat milk protein for muscle health are rather orthodox, an often overlooked attribute to goat milk itself is the high prevalence of bioorganic minerals. Bioorganic is used to denote minerals that come from food. Food-based minerals are easy to digest and absorb and can have a substantial effect on maintaining healthy muscle.

The muscle fibers that build muscle generate tension with the assistance of two proteins known as actin and myosin. This tension is known as a muscle contraction, which is the result of an action potential originating in the central nervous system (CNS). These action potentials are controlled and affected extensively by various intracellular and extracellular minerals such as sodium, calcium, magnesium and potassium. When these minerals are in plentiful supply, muscle function is normal. However, in the case of post-op patients, these levels may be low, which can cause precious rehab time to be lost due to weakness, cramps and fatigue. Goat milk is high in these minerals, which can help keep patient's muscles functioning at a peak level.

## Bone Health

Milk is famous for being high in calcium, a crucial element for building strong bones and teeth. Bones can be likened to a "storehouse" or "bank" for total body calcium. More than 99 percent of systemic calcium is found in our

bones. These bone banks are constantly “loaning” and “depositing” calcium between vast arrays of metabolic/systemic processes. These processes (such as muscle contraction) depend heavily on calcium to function properly.

Calcium is deposited and withdrawn much like money from a bank. When patients have depleted bone bank accounts, bones become weak and brittle, while various metabolic processes suffer. However when bone bank accounts are “high,” bones are strong, injury (or re-injury) is less likely and all calcium-dependent cellular operations function normally. Extracted goat milk minerals are an excellent source of calcium, having 26 percent of the RDA in just two tablespoons.

However, calcium is not the only mineral vital for bone health. Both phosphorus and magnesium play important roles in maintain strong bones. Phosphorus is the second-most abundant mineral found in bones. It combines with calcium to form a compound called hydroxyapatite, which gives bones their strength. There are more than 300 magnesium-

dependent biochemical reactions that occur every day in our cells. More than 50 percent of magnesium is found in bones and abundant levels of this mineral ensure healthy bone density and proper calcium absorption, while protecting against osteoporosis.

### Colostrum for Post-Op Recovery

Colostrum is the “first milk” produced by mammals (including humans). It contains high levels of a natural hormone called insulin-like growth factor 1 (IGF-1). IGF-1, as the name implies, is similar to insulin, which is an anabolic hormone. As a rule, anabolic hormones build tissue, bone, muscle, etc. Following operations, surgeries or injuries of any kind, these hormones play a crucial role in transforming a patient from hurting to healing. Several immune-modulating compounds such as immunoglobulins, antibodies, lactoferrin and hemopexin found in colostrum, protect the body from sickness during recovery. This protection allows patients to focus on regaining range of motion, increasing mobility and

relieving pain while maintaining good health in the post-operative stage of recovery.

### The Next Step

After hearing of the many benefits that goat milk and goat milk products have to offer, the logical question to follow is: Do these products make good economic sense? A supplement may be healthy, organic and effective, but without a cost-effective way to deliver the product, the discussion remains merely theoretical. Goat milk is generally recognized as a premium ingredient and while slightly more expensive than its cow milk counterpart, the extra expense can be easily absorbed by the increased level of patient satisfaction. The good thing for you, the physical therapist, is that not only will you be helping your patients to a far greater degree, but you will also be improving the health of your practice. ■

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