

# Time for Enzymes

Everything you ever wanted to know about the benefits of enzyme therapy, but were afraid to ask

by Danné Montague-King

**M**y readers have questioned my many references to enzyme treatments over the years. Many assume I am talking about a specific product, and several have queried, “Where do I get these products?” Actually, I’m not referring to any one product, but treatments involving one of nature’s true phenomena.

If an extraterrestrial being approached me and asked me to describe the human body at its fundamental level, I would have to truthfully say, “We are nothing more than a bag of fluids, proteins, and amino acids, orchestrated by enzymes and held together by electromagnetic energy.”

There are 76,000 known enzymes that control every molecular aspect of our bodies, but I am convinced there are many more. It is not surprising that enzymes play an important role in the treatment of skin disorders. After all, it is a series of enzymatic activities that maintain the skin at its healthiest in the first place.



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### WHAT IS AN ENZYME?

Enzymes are nature's biological catalysts. For many years, skin care therapists and even physicians believed that enzymes were not suitable for real skin therapy because they were huge protein molecules—too big to penetrate the skin. The fact is, enzymes are not proteins any more than a light bulb is electricity. Skin therapy enzymes use proteins formed in plant and some animal cells to act as organic catalysts in initiating or speeding up specific chemical reactions.

### HOW DOES AN ENZYME WORK?

Research shows that enzymes combine temporarily with a reacting molecule. Mutual contact and interaction of surrounding molecules is then no longer a matter of chance but a matter of certainty; hence a faster reaction or result. For example, when the body breaks down a carbohydrate, the energy used to hold the carbohydrate is released and immediately used or stored in the body. This is called metabolism. Metabolism is divided into two functions: anabolism (for synthesis of cell material) and catabolism (for the decomposition of cell material).

These reactions would be very slow unless assisted by proteins and orchestrated by enzymes. Enzymes work by joining to the substrate (reactant) to form an enzyme-substrate complex and then produce the products of the reaction. The enzyme itself never changes and is not used up in this reaction; it is released for repeated use.

Think of an enzyme as a space station. Around this station could be many different types of spaceships flying at random, not interacting with each other at all, thus accomplishing no missions. The space station has a docking port for a specific style of ship. If the ship docks in its own port and another ship lands in its correct place on the space station, they are

held in stasis and can interact with each other—and then things happen. This is how an enzyme works—by docking with a specific substrate and producing a reaction.

### ENZYMES AND SKIN REVISION TREATMENTS

There are many enzyme and coenzyme (vitamin) activities in the skin that regulate its normal functions. For example, the enzyme collagenase helps to regulate the synthesis of collagen fibers. If collagenase is destroyed by the invasion of an aggressive treatment—such as the drug Roaccutane, acid peels, or severe laser skin resurfacing normally performed on acne-scarred clients—the collagen fibers rush to the source of trauma.

These harsh treatments can cause a keloid or hypertrophic scar. This is one of the reasons the old-fashioned phenol acid or trichloroacetic acid peels left the client's skin looking plastic or waxy. The normal proliferation of collagen fibers was accelerated and rushed to the surface in an effort to participate in repair and remodeling of the skin too quickly.

A gentler alternative is enzyme therapy. Many enzymes that can be applied topically to the skin can assist in removing the buildup of dead skin cells, often misdiagnosed as dry skin, that manifest in superficial wrinkles. Enzymes can also release gases, impurities, and other effluvia from the skin. This type of treatment can result in younger and tighter skin. It is not the number of enzymes used in formulation that accomplishes this, but the stimulation of enzyme activity in the skin itself. If the correct formulations of enzymes are applied to the skin, hydrolysis of the dead cells and the impurities burdening the living cells begins in about 20 minutes.

### TOPICALLY APPLIED ENZYMES

Enzymes are categorized into several groups. Some dissolve dead protein; others digest starches and excess glucose. Still others help to break up solidified fats in the shunts or openings of the skin. A special enzyme, transferase, can send messages across cell membranes. This is called transcription.

In this process, a strand of messenger RNA (mRNA) is synthesized according to the nitrogenous base code DNA. The enzyme RNA polymerase binds to one of the DNA molecules in the double helix. The other strand remains dormant. RNA moves the DNA strand reading the nucleotides and positions them in an mRNA molecule according to the principle of complementary base pairing. The mRNA

## Glossary

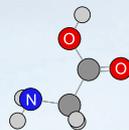
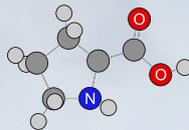
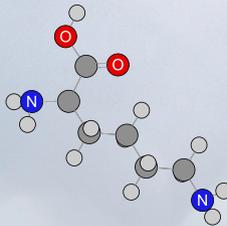
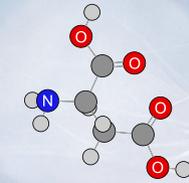
**Aspartic acid:** A roborant that strengthens the tissues.

**Copper chlorophyll:** Promotes healing and photosynthesis of any active botanical used in formulation.

**Lecithin:** Rich in linoleic acid.

**Lysine:** An amino acid that improves protein quality in tissue and is one of the three amino acids necessary for collagen production.

**Proline and glycine:** The other two amino acids in collagen production energized into action by vitamin C; glycine is also antipruritic (anti-itch) and is of great benefit to eczema-type skin conditions.



molecule then carries the genetic message to the cytoplasm for protein synthesis. This keeps them alive longer and healthier—while removing the burden of the dead cuticle.

### ENZYME FORMULATIONS

I discovered more than 47 years ago that the best base to store inert yet still living enzymes was in the zygote-rich base albumin. Albumin is from the inside membrane of egg shells and makes an ideal storage place for live enzymes that activate once exposed to aqueous fluids and air in about 45–60 minutes. However, laboratory-grade albumin must not be mistaken for ordinary raw egg white, often promoted in bygone eras to “refresh and tighten the skin” (it doesn’t).

In addition, I add lysozyme and amylase. Amylase initiates the hydrolysis of glycoside linkages—part of the so-called “cellular glue” that helps bind dead cells to the underlying living cell stratum.

The starch-eating enzyme amylase is also part of the formulation, as well as grozyme, rapidase, and superclastase. These are especially vital in the treatment of acne. I also use lipase, another message carrying enzyme that deals with lipids and fats in the skin.

Other enzyme treatments bring about a plasmatic action in the skin by dilating all the peripheral capillaries. This brings about improved oxygen uptake from inside the body. The increased oxygen is deposited in the correct amounts into the mitochondria, which requires oxygen for the production of sufficient adenosine triphosphate (ATP) for antiaging results. You can literally see this effect on the skin of the face, neck, and décolletage following an enzyme treatment.

Following the treatment, there is very little, if any, superficial erythema, but the capillaries stand out like a road map—proving that the effects of the enzyme treatment go deep enough for total dilation of the peripheral capillaries. This is true oxygen therapy, as opposed to the dangers or lack of positive results from applying oxygen creams (merely peroxide) or spraying the skin with compressed oxygen.

### REVERSE OSMOSIS

Properly formulated, an enzyme-stimulating mask can create reverse osmosis (RO) deep within the epidermis. This in itself is probably the most stunning and miraculous effect of enzymatic

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therapy. RO is a high osmotic pressure in the capillaries that pulls fluid from the extracellular volume (ECV) into the veins. This forces a large amount of effluvia and toxins from inside the cell out through the cell wall, leaving a clean, healthy matrix around the cell. This creates a fantastic environment for coenzymes and antioxidants to flourish and ward off attacking free radicals and other inflammatory agents.

But like all other aspects of the body, there has to be balance to maintain the results of RO. The negative pressure of RO has to have equal positive pressure as well. This is accomplished by the pulsing effect of an enzymatic mask. Pulsing creates a positive or rest phase that allows the osmotic pressure to smooth out naturally. The smoothing-out effect means that fluids are pulled from a place in the skin's tissue that has a low osmotic pressure due to trauma or dermatitis to a higher reverse osmotic pressure. The higher pressure is referred to in healthy skin as hydrostatic (equilibrium of fluids). Normally we always have this hydrostatic status in our capillaries that are in the ECV outside the cell membrane. All the nutrients we need for healthy skin go from our blood to the ECV, so it is important to maintain this hydrostatic pressure during an enzyme treatment to prevent the absorption of nutrients, immune stimulators, and anti-inflammatory agents from going back into the blood too slowly. If the absorption is too slow, we end up with edema, too much heat, and inflammation of the skin.

When the mask is removed after approximately 45 minutes, test to see if the enzyme mask treatment is really working. If the osmotic pressure is not balanced and the absorption of nutrients is too slow, the skin will be uniformly red and feel warm or hot. These symptoms also mean that the oxygen in the skin has not successfully reached the mitochondria—making the treatment practically worthless.

If the enzymatic mask treatment is properly formulated and performed, all the peripheral capillaries will be sharply outlined on the client's face and neck in various configurations (sort of like a road map) and the skin will feel cool and firm to the touch. This proves that equal osmotic pressure has been maintained and vital therapeutic activity has taken place in the deeper regions of the skin. Most clients are quite alarmed

when they see this “road map” look on their skin for the first time, but the visible effects last only 20 minutes.

There has also been strong evidence from teachers of the Vodder Method of Lymph Drainage that this type of pulsing enzymatic treatment mimics the subtle and fine-tuned movements of manual lymph drainage massage. Many doctors and therapists claim this to be true from their experiments, and apply the enzymatic masks over all the focal areas of lymph nodes.

### **FACIAL MUSCLES AND ENZYMES**

The fragile, underlying facial muscles can be strengthened, much as any muscle in the body can, with exercise. However, facial exercises are tedious and require a religious daily routine to achieve and maintain results. Most clients will not devote the appropriate time to this type of regimen. Electrical stimulation with the so-called facelift machines offers only about a 20 percent result in muscle stimulation.

Voluntary contraction of facial muscles using enzyme treatments has a much more natural and lasting effect in that the muscles themselves are moving on their own accord against resistance. If you apply strong enzyme mask “bands” to the skin, from motor control point to motor control point, you can accomplish this voluntary action. Most facial, neck, and décolletage muscles are lateral, horizontal, or vertical. These can be worked with predictable results. The oris oculi and oris orbicularis (muscles of the mouth and eyes), however, should not be treated in this manner as they are round and unpredictable as to the direction they may contract.

### **ENZYME THERAPY FORMULATION**

Enzyme therapy formulation is not an easy process from the manufacturing level. It can be costly and time-consuming to produce. Numerous enzymes are required for efficient catalytic functions in the presence of atoms of small, non-protein molecules. This includes ingredients that stimulate enzymes already present in the skin and coenzyme molecules, many of which are only transiently associated with primary enzymes.

Then there are the side-chain groups of amino acid residues that make up the enzyme molecule at or near the active site in the skin that requires a catalytic event. These factors make true enzymatic therapy unattractive to most manufacturers of skin treatment products.

For more than 47 years, I have depended on the art of enzyme therapy as my primary form of skin revision and find its uses to be applicable in nearly every skin disorder or aging skin situation. If by some stroke of fate I was forced to relinquish all of the many tools we have at our disposal as professionals and had to choose only one tool to keep, I would choose enzyme therapy. ☺