AROGA SKIN Supplement

The One and Only

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& **Chief Science Officer**

Dr McAnalley leads Aroga's cutting-edge research and product development.
His passion as a scientist is his focus on developing proprietary natural products that help build health and he currently holds 300+ patents.

My interest in skin care products started 60 years ago. During my last year in high school in 1962, I loved my chemistry teacher and planned to become one myself. My mother was a cosmetologist and owned her own beauty shop. In 1962, she was the president of the Texas Tom Greene County Cosmetologist Career Center.

At that time, they invited Jheri Redding, who founded the Jheri Redding Products Company, to speak. He was demonstrating and selling a cream rinse that he had just developed. He was a chemistry teacher and is known for bringing real science into the development of skin and hair care products.

My mother wanted me to listen to his talk and explain it to her. I asked a few questions during his talk, and he wanted to talk to me after his presentation. He said that if I got a cosmetology license, with my chemistry understanding, I could earn $1000 a week demonstrating & teaching the science behind his products.

My father made $5000 a year at that time, so I enrolled in Cosmetology College at night, finishing in 1963.

I was good with the chemistry of hair color and made very good money reducing the gray in men and women's hair in the evenings, allowing me to pay my own way through college. I learned a lot about women in my mother's beauty shop. My younger sister also worked her way through college as a Cosmetologist. She was my model when I later won 2nd place in a state competition in high fashion hair design.

I went to college and earned a degree in Chemistry and Math; then a Master's in Chemistry and Biology; a PhD in Pharmacology and Toxicology; and finally, an Internship in Clinical and Forensic Toxicology.

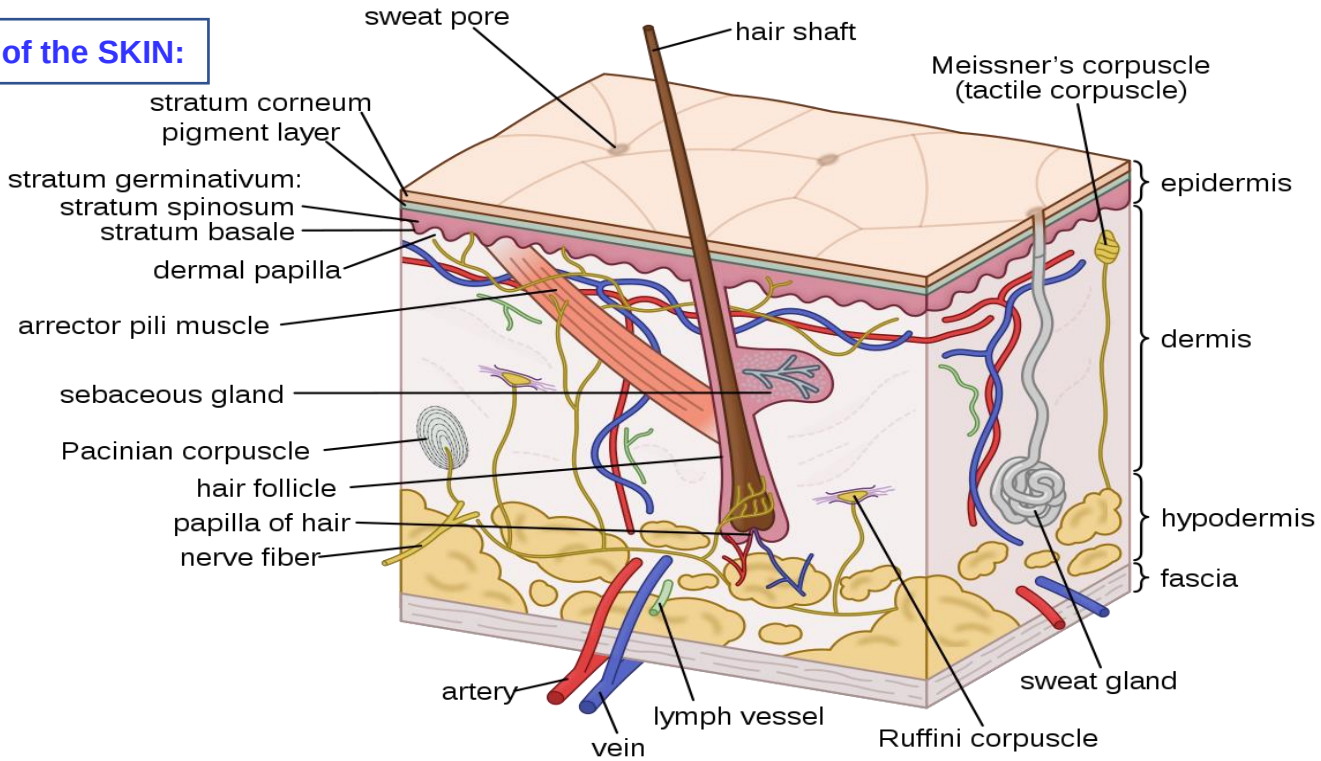
I continued working in my mother's beauty shop all through college and I was able to use the new skin & hair care products and learn the science behind them.

After I discovered Acemannan, I helped develop a skin care line for AvaCare. Today, there are several good skin care lotions & creams (many from Japan) that help protect the skin epidermis, but **they DO NOT help the main cause of skin aging.**

AROGA's '*Pathways Plus*' **SKIN SUPPORT** supplement

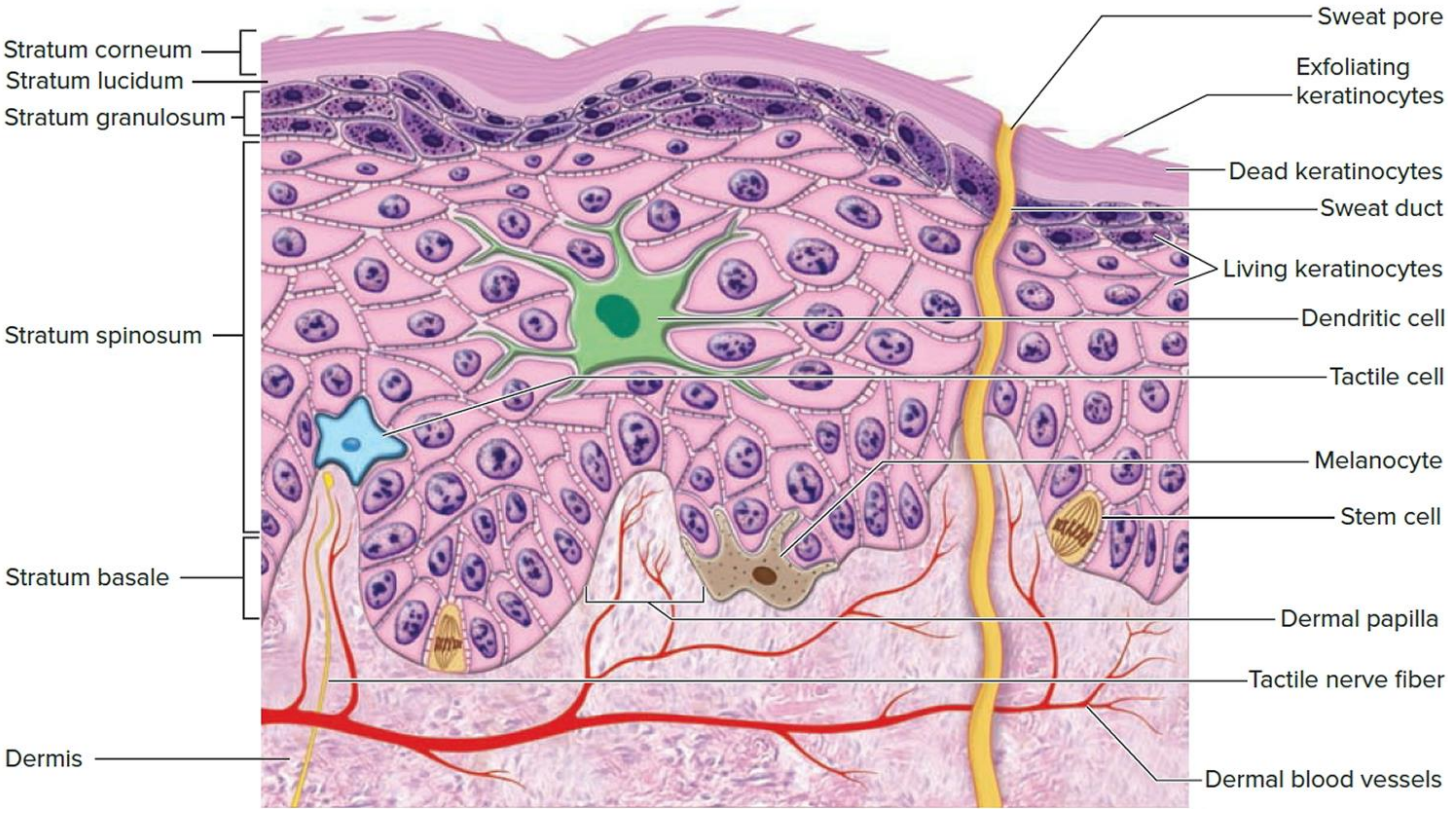
*is the **first to help** the **main cause** of **Skin Aging***

Parts of the SKIN:



The top layer of skin is the stratumorneum, where lotions and creams are applied.
Few if any of their ingredients get to the living cells of the epidermis.

The 5 cell types in the Epidermis



1) **Stratum corneum** is the top layer of the epidermis.
   It contains dead cells flattened into scales and packed with keratin.
   These dead cells flake off and become a major component of household dust.
   These cells are replaced every 28 days when you are young.
   They are replaced slower as you age.

2) **Stratum lucidum** is the next layer of skin formed by the stratum granulosum.
   It is only made in the thick skin on the palms of hands, soles of feet, on fingers and toes.
   The cells are filled with eleidin, an intermediate form of keratin that make thick skin more flexible.

3) **Stratum granulosum** is second layer of normal skin or the third layer in thick skin.
   It consists of three to five layers of cells.
   They begin to keratinize in order to move to the stratum corneum.

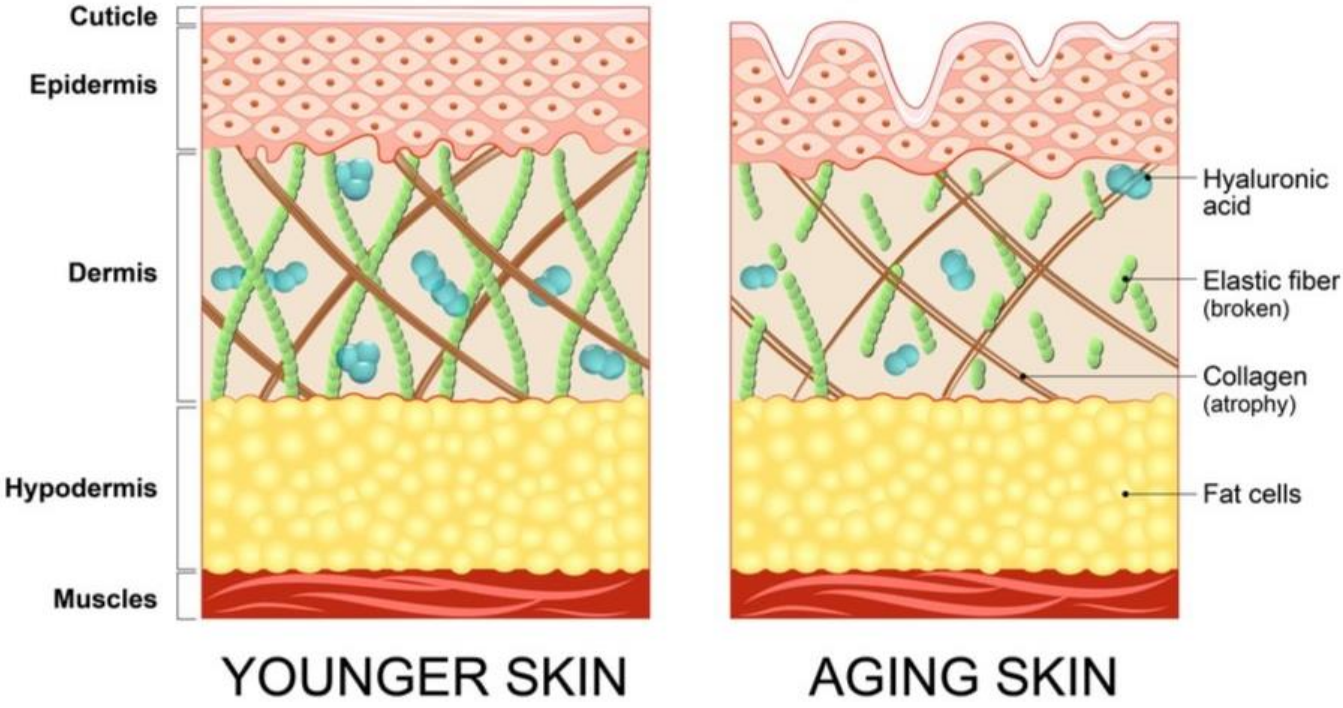
4) **Stratum spinosum** consists of eight to 10 layers of cells.
   They appear to form spines, called desmosomes, that hold the cells together.

5) **Stratum basale** is the layer closest to the dermis.
   It consists of a single layer of dividing stem cells that make new stratum spinosum cells.
   This slows down as you age and you make less new skin cells.

Telomere length is a marker of cellular aging.
Length decreases with age, causing this layer to make less new cells.

Telomerase is an enzyme, that is supposed to maintain the telomeres length as you age.

WHAT CAUSES SKIN to AGE?



Hyaluronic Acid, Collagen and Elastin

HYALURONIC Acid, HA (light blue spheres).
Skin aging is also associated with loss of skin moisture.

The key molecule involved in skin moisture is hyaluronic acid (HA), a glycosaminoglycan (GAG) with a unique capacity to bind and retain water molecules.

The most dramatic chemical change observed in old skin is the marked disappearance of epidermal HA

COLLAGEN (red fibers in the dermis) seems to be the buzzword for anything and everything regarding youthful skin. But most of us don't know that collagen is the most abundant protein in our bodies.

It is one of the major fundamentals in many body parts including muscles, bones and you guessed it — skin.
A pound of collagen fiber is three times stronger than a pound of steel wire.

As you get older, your body produces less collagen.
Even the collagen it does produce is of lower quality than what your body made when you are younger.

You can see this in your skin as it becomes less firm, loose, and loses its soft texture.

Topically applied **collagen** in lotion and creams only helps moisturize to the surface of the dead epidermis cells but is to large to inter the Dermis where it is needed.

ELASTIN like collagen, is a protein that derives from connective tissues. As the name suggests, elastin provides the skin with the ability to go back to its original shape after being stretched or pulled.

This protein is found in your artery walls, intestines, lungs, and of course, skin.

Elastin is 1000 times more flexible than collagen. It's made by fibroblasts from amino acids Its rubber band-like nature is essential in helping us convey expressions.

The harmful rays of the sun can damage the elastin in your skin which becomes more apparent as you age. This process breakdowns the elastic, causing the skin to sag and stretch, ultimately losing some of its ability to 'snap back'.

Like collagen, elastin is too large to enter the dermis where it is needed. It must be made at the site where it is needed

What Causes Skin to Age?

1) **Telomere length,** a marker of cellular aging, decreases with age. It has been associated with aging-related diseases.
   Telomeres are on the end of your DNA and shorten each time cell divides and makes 2 cells.
   If it is not replaced by telomerase, the cells cannot divide and make new skin cells. It slows with aging.
2) **A decline in mitochondrial quality and activity** has been associated with normal aging and correlated with the development of a wide range of age-related diseases. Mitochondria makes all of our bodies energy. The energy that keeps us warm, the energy to fix cells, the energy to make new cells and cell parts like hyaluronic acid, collagen and elastin. This is why you get colder easier as you age.
3) **Inflammation and apoptosis after UVB Irradiation.**
4) **The loss of Hyaluronic Acid also caused by decrease TGF-β**

How Aroga SKIN SUPPORT Works:

AMLA FRUIT POWDER: Phyllanthus emblica

1) **Emblica officinalis Gaerth** (Amla)
Produces a dose-dependent effect on the activity of mitochondria.

It also supports the formation of keratinocytes as rapidly as possible.
It increases telomerase activity in the cells and maintains telomere length.

GOTU·KOLA: → → → → → → Centella·Asiatica¶

2) **Gotu Kola** (Centella asiatica) increased the anti-aging benefits of telomerase activation 8.8 times
It promotes collagen synthesis. Centella asiatica provides a UVB protection by altering microRNA expression profiles in human dermal fibroblasts.

Centella asiatica reduces amyloid-β-Induced oxidative stress and mitochondrial dysfunction.
It reduces melanin synthesis by blocking ultraviolet-induced inflammation.

MANGOSTEEN Fruit Powder Garcinia mangostana

3) **Mangosteen,** Garcinia mangostana L. has anti-aging, anti-wrinkle, acne treatment, and the maintenance of skin lubrication effects.
It blocks UVB-induced skin wrinkles.

Taken together, these results reveal unanticipated anti-aging activities for several phytochemicals and open up opportunities for the development of novel anti-aging therapies.

MILK THISTLE Extract: Silymarin/Silybin/Silibinin

4) **Thistle seed**, (Silybum Marianum) contains a major Silibinin that prevents ultraviolet radiation caused skin damages.

It has more applications in cosmetics, with the effects of anti-aging, anti-wrinkle, acne treatment, and maintenance of skin lubrication.
Silymarin caused significant increases in the expressions of transforming growth factor TGF-β

TRAGACANTH GUM Powder Astragalus gummifer

5) **Tragacanth Gum,** Astragalus gummier has been used for thousands of years for it's anti-aging properties and its ability to delay the appearance of fine lines and wrinkles.
The effects of the ingredients are synergistic.
Only food can repair these skin problems naturally.

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