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PROTECTING THE SKIN'S POWERHOUSE

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Everyone wants youthful skin and is searching for the perfect products and tips on up-and-coming trends, how to get rid of unwanted pigmentation or acne issues, how to care for skin during a particular life stage, and the list goes on. As skin care professionals, we know the fountain of youth doesn't exist and there isn't one miraculous, cure all treatment available.

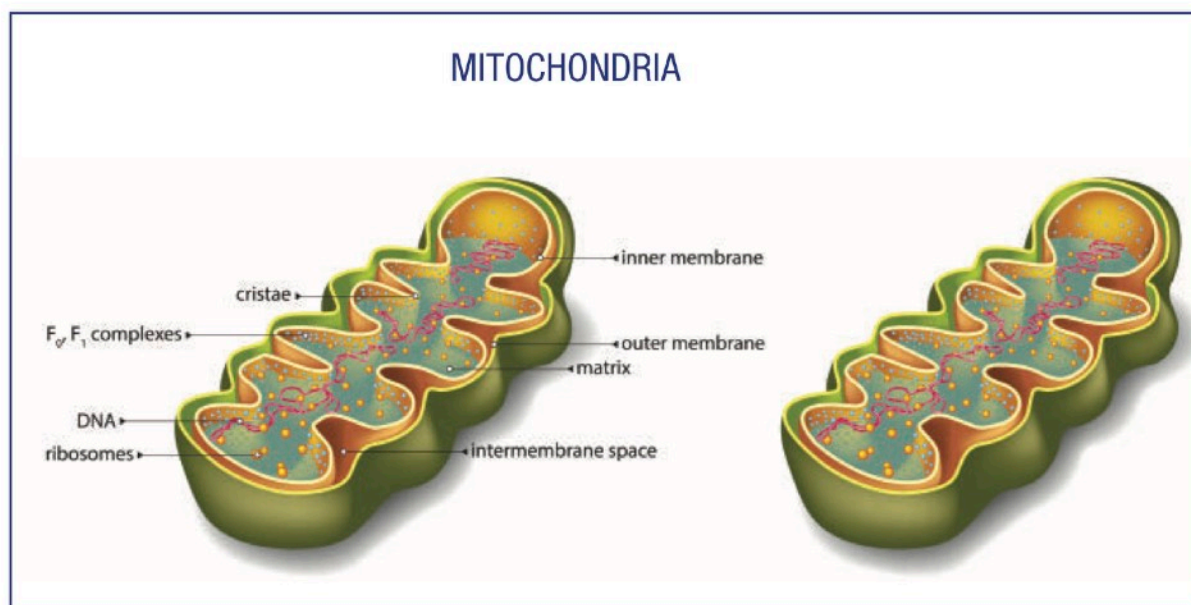
However, having healthy, happy skin is achievable for everyone, no matter the skin condition or age. Pro youth is our target for this conversation and what it comes down to is slowing down and reversing signs of aging by prioritizing and protecting the health of our skin cells.

CELL FUNCTION AND AGING

The skin is our largest organ and is affected by a wide range of internal and external factors. How well the skin fares against these triggers depends on the health of the cells and more specifically, the mitochondria.

Mitochondria. The mitochondria are known as the powerhouse organelles inside cells. Mitochondria produce chemical energy through a cellular respiration process known as adenosine triphosphate (ATP). Mitochondria also have their own DNA. This is known as mtDNA and is from the mother's side genetically. These organelles can replicate themselves, becoming

SKIN'S POWERHOUSE



the fuel for cells to stay healthy and function efficiently. Mitochondria organelles are a deciding factor in apoptosis (cell death); this is critical to function optimally. These powerful organelles are surrounded by phospholipid membranes filled with proteins and other valuable nutrients to feed into the energy production.

ATP is like the fuel or battery in a car. Just as the car depends on fuel or a battery to operate, cells rely on ATP to transport chemical energy. This chemical energy is what skin cells are dependent on to perform critical tasks like synthesizing collagen and elastin, replicating DNA, communicating and other cellular functions.

When this bio-energy is functioning properly, the cells work efficiently, and the skin reflects that with a healthy glow and slower aging. Our ATP energy begins to slow down in its ability to transport this energy, causing a domino effect internally with our cells. Studies

show that by the age of 60, our ATP is performing by less than 50%. The count of healthy skin cells begins to drop. If mitochondria stop functioning, the cell can become starved of energy causing damage and potential death of the cell.

This affects DNA replication inside the nucleus of the cell as well as inside the mtDNA of the mitochondria. The mtDNA hold instructions for many proteins and cellular support roles. When too many errors occur or not enough energy is present to perform replication, cells start to degrade

causing an array of concerns.

Think of it this way: skin cells require bio-energy to maintain the skin's health and happiness. The mitochondria and the process of ATP act as a digestive system to regulate the intake and breakdown of nutrients to create energy for the cell. Internal and external triggers damage the mitochondria, slowing the process of ATP to speed up the signs of aging. This is why it's important to educate your clients on what damages these cells and ultimately depletes their cellular energy.

Protecting mitochondria hinges on identifying what causes its damage.

BIO-ENERGY DEPLETION

Protecting mitochondria hinges on identifying what causes its damage. Any epidermal wounds can slow down and begin to deplete energy. Another culprit that increases risk of DNA and mtDNA damage has been identified as reactive oxygen species (ROS), known to most of us as free radicals. When ATP is synthesized, it produces free radicals. Unless this is addressed, damage will begin to occur. This environment now causes ATP energy to accelerate to compensate for the free radical damage taking place. Long-term acceleration leads to a depletion of energy. Basically, it just can't keep up and begins to slow down.

Most clients have heard about free radicals over the years and may already recognize them to be harmful to their skin, but do they really understand why? Free radicals are unstable molecules that cause harm to healthy living cells by stealing an electron to make themselves more stable. This creates a snowball effect, as they continue to steal because the electron they stole is now unstable. These free radicals start to degrade and oxidize cells, causing a host of cellular damage and accelerated aging. Other sources that increase free radicals include pollution, UV rays, stress, lack of sleep, poor diet, smoking and alcohol.

Some sources of free radicals may be challenging for clients to avoid all together, which is why skin care professionals need to prioritize education on the subject and emphasize awareness. Topical and internal antioxidants are the skin's best friend to help fight free radical damage and prevent free radicals from the snowball effect.

Inflammation is another trigger

that begins to weaken or deplete bio-energy. Chronic inflammation creates cellular damage, slowing down all aspects of cell function from collagen and elastin synthesis to DNA replication.

PROTECTING MITOCHONDRIA

An excess of mitochondrial damage slows bio-energy of the cells, increases DNA breakdown and increases diseases through the disorganization of cell death or apoptosis, which is why supporting

the powerhouse is instrumental in the health of the skin.

With this in mind, what does it take to protect mitochondria in the short and long term? By and large, these efforts can be broken down into three buckets: lifestyle habits, a prescribed skin care regimen and treatments incorporating powerful free-radical fighting ingredients.

As your clients begin fighting the accumulation of free radicals by adjusting their lifestyle and dietary choices, it is important to note free radicals aren't toxic to the body. In fact, the production



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of free radicals in the body is a normal consequence of things like breathing and metabolizing foods. It is only when the body gets too low on antioxidants and when free radicals from the environment build up that they begin reacting negatively, leading to the production of more harmful free radicals.

The domino effect stemming from high levels of free radicals causes oxidation in the body, similar to an apple that browns after being left out too long, which damages cells, muscles and tissues. This is why one critical anecdote is focusing on prevention through lifestyle and diet.

LIFESTYLE AND DIET

Adjusting habits to promote healthy skin is not a temporary change, it's a lifestyle your clients must embrace.

Top dietary sources of free radicals include processed foods, unhealthy fats, foods high in preservatives and additives and added sugars and sweeteners. When talking with clients, inform them not only of what to avoid, but also spend time emphasizing the foods to embrace and why.

Increasing their diet with antioxidant-rich foods (see

Antioxidant-rich Foods) including bright fruits and vegetables in deep hues of

green, orange and purple should be at the top of the list. Advise clients to incorporate leafy greens into their diet. Dark chocolate, walnuts and red wine do provide helpful antioxidants, and should be enjoyed in moderation.

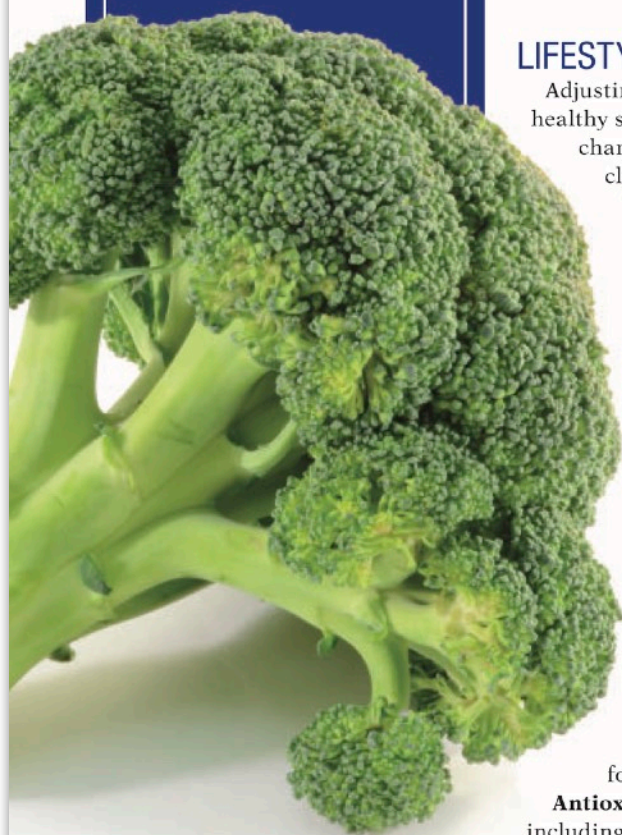
These fruits and vegetables aren't just nutritious; they pack a punch of effective antioxidants like vitamins A, C and E, as well as bioflavonoids and polyphenols. Just be aware that pesticide intake will work against these efforts, which is why it's ideal to eat organic as much as possible.

Recommending clients to avoid UV rays, excessive pollution and chemicals is a great start, as well as prioritizing physical health. This means finding ways to manage stress, avoid burnout and maintain a healthy body weight. Finally, quitting smoking is not a maybe, it's a must. One cigarette from time to time may seem harmless enough, but a single puff emits up to 40,000 free radicals.

SKIN CARE FOR MITOCHONDRIA PROTECTION

Once you've broken down the dos and don'ts of lifestyle habits, there are a number of skin care ingredients you and your clients may turn to in the treatment room and at home that work to neutralize free radicals, help protect mitochondria, increase ATP energy, repair and prevent future damage.

Spanning cleansers, toning lotions, serums, moisturizers



and masks, seek out formulas with ingredients that incorporate high levels of antioxidants to enhance energy and protect DNA. Antioxidant ingredients like magnesium ascorbyl phosphate, L-ascorbic acid, D-alpha tocopherol, grape seed oil, heart of green tea, resveratrol and L-glutathione are powerful. These are especially useful to help combat free radical damage while firming, toning and tightening the skin during facial treatments or through a home-care regimen.

Another key element for protection is applying physical sun protectants like zinc oxide over antioxidants. Free radicals are present in the environment, especially heavily polluted cities. This extra protection is essential in fighting harmful UV rays and defending against the elements. This cannot be stressed enough, given that 90% of photo-aging is due to UV exposure.

Look to formulas with pyruvic acid, adenine and CoQ10 to increase the cellular energy. Remember that without the ATP energy running efficiently, everything else will slow down and aging is accelerated. When we think about protecting and repairing DNA, find formulations with stem cells like edelweiss and apple. Stem cells have many other cellular abilities based on the type and can be vital in slowing down aging and disease. Phospholipids are another ingredient to add for mitochondria protection and to give the skin a supple, healthy glow.

Outside of identifying the right products, remind your clients that skin care is self-care. Skin cells benefit from improvements to lifestyle, diet, as well as clean,

effective skin care products and regular treatments.

MITOCHONDRIA HEALTH FOR ALL

The skin is a complex organ, and not everyone will have

mitochondria health on their radar every day. However, by taking the time to understand the skin's powerhouse and educate your clients on it you'll help clients build better lifestyle and dietary habits to keep their skin at its optimal level of happiness. ✂



Shannon Esau is the CEO and national educator at Rhonda Allison Cosmeceuticals. She brings more than 20 years experience in the esthetic industry. Esau owned skin care salons in the Dallas/Ft. Worth area, has studied chemistry in skin care formulations and has been mentored by Rhonda Allison for decades.

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