A New Theory on Over-Exfoliating the Skin

Written by Ben Johnson, M.D.

Exfoliation has become one of the most dominant activities in skin care and is considered by many to be beneficial as it refreshes the skin and removes dead cells. Before accepting this concept at face value, it is important for skin care professionals to examine why science might be hinting at something completely different.

Exfoliation Practices

Here are some of the methods currently being utilized for exfoliation by professionals.

Blading – This method uses a sharp blade and is a popular option for many clients because it also removes vellus hairs. The benefits of using a blade are that practitioners that are well-versed in this method can control the depth of exfoliation relatively well and that no chemicals are used. This procedure tends not to temporarily improve fine lines, which is why other treatments are often added.

Microdermabrasion – This treatment mainly uses crystals, although there are crystal-free methods. Although depth in this treatment can be difficult to control, newer devices claim to address that concern. The suction aspect of microdermabrasion is somewhat traumatic to the skin because it can create temporary plumping and potentially cause laxity issues in thinner

areas around the eyes. When microdermabrasion is used to exfoliate deep into the epidermis, some clients will see pinpoint bleeding, which indicates that their skin care professional has crossed the dermal-epidermal junction, which is not advisable.

Chemicals – Acid exfoliation provides the most temporary plumping because of its inflammatory nature. It is also very difficult to control depth with this treatment as every client's skin is different. While some of these treatments are superficial peels, others are intended to lighten pigmentation, meaning that they are designed for deep epidermal depths and will lead to long-term damage of the dermal-epidermal junction.

Vibratory Devices/Spatulas – These devices are a little harder to control than blading, but provide a similar type of exfoliation result without affecting the facial hair. They are often associated with chemical peels, which is risky because of the varying depths of abraded skin. These treatments are more likely to create temporary plumping because of the vibratory effect that results in the swelling of the epidermis.

Laser Resurfacing – Lasers take exfoliation to another level because of their heat. Exfoliation is considered exfoliation when it removes the epidermal barrier. Lasers, however, typically remove the entire epidermis, placing great heat damage on the dermal-epidermal junction. While they do a better job of removing pigmentation, post-inflammatory hyperpigmentation and hypopigmentation often occurs because of the dermal-epidermal junction damage. Furthermore, lasers do not increase or tighten collagen because any collagen that coils from heat is permanently damaged and removed by the skin within 24 hours. The tightening effect comes from swelling induced by the heat damage. Any collagen activated by the procedure is wound collagen, which is not additive to the skin; it will not make the client look younger because it is just replacing what was destroyed by the heat.

Alpha and Beta Hydroxy Acids – Glycolic remains the gold standard as an exfoliant because it wounds the dermal-epidermal junction in the process. This wounding gives clients the plumpness they seek. L-lactic acid is the most harmonious option because it also acts as a natural moisturizing factor. Salicylic acid has some anti-inflammatory benefits, but is still creating damage rather than resolving it.

Enzymes – This method is the gentlest way of removing some of the surface corneocytes. Enzymes have the unique ability to selectively target cells while leaving the lipid portion of the barrier intact. Most enzymes function about the same and will not cause trauma to the skin. Therefore, there is no temporary plumping
involved with enzymes.

Scrubs and Beads – These exfoliants are commonly used by consumers, but should not be regularly used because of their traumatic effect on both the corneocyte and lipid barrier. To refrain from over-exfoliation, this method should be used monthly or when attempting to remove numerous blackheads, as it is simply too hard on the skin when used several times a week.

Retinoids – Not all retinols are alike, but they are all keratolytic when present in the epidermis. The percent that is present with this method should be the primary focus. Since these ingredients have poor penetration, the bulk of their effect is in the epidermis and can be noticed with as little as 0.5 percent. Retinaldehyde is often recommended because it is 1,000 times stronger at stimulating collagen and, therefore, can effectively be used at 0.1 percent, which changes the dynamic.

The key to retinoids is to get them into the dermis so that they can act in their physiologic role and not as an exfoliant or epidermal plumper, which is what most clients are getting from their products. Out of all the retinoids, retinaldehyde and retinoic acid are the only proven collagen stimulators. The rest of the retinoids play other roles in the skin. Even though retinoic acid is an exfoliant, it is proven to completely disable normal epidermal maturation by stopping the keratinocyte from becoming a corneocyte. For this reason, it is not advised. Retinaldehyde, on the other hand, does not disrupt the skin at 0.1 percent, but rather stimulates dermal activity, which can increase the turnover rate from the inside.

A New Theory Explained

The skin is an incredibly complex organ that is far from being fully understood. In my opinion, the skin care industry has relied on noncomplex ideas to explain why exfoliation has merit, most of which I believe to be incorrect. My theory starts from the premise that the skin is always operating with the best intentions and that every action is purposeful and designed for the best outcome for the organ as a whole.

Sometimes the skin will slow down its turnover and sometimes it speeds up, but both actions occur to ensure the most harmonious environment and best outcome possible. I assume that since the skin is performing billions of activities a day, in nearly flawless precision, it rarely, if ever, makes a mistake.

If this theory is true, the first question to consider is why the skin's turnover rate slows down with age. The proponents of exfoliation, which, in fairness, include 99 percent of dermatologists, believe that older skin needs help exfoliating because its ability to maintain a youthful turnover rate declines due to accumulated damage. I believe that the skin slows down its turnover rate because it has fewer nutrients available to it. Every year of adult life – roughly after the age of 25 – the skin loses 1 percent of its circulation, which provides the needed components to maintain healthy metabolism in the skin, including the replacement of the epidermis.

On that timeline, a typical 40-year-old woman has 15 percent less circulation and, therefore, 15 percent less capacity to maintain all the activities of the skin. Her turnover rate can also be expected to be 15 percent slower, which equals about five days or 35 total days to renew her epidermis. If it is necessary, the skin can go into emergency response mode, such as after a chemical peel, for example, and rapidly replace the damaged layers in a few weeks. This rapid renewal shows that the skin is not unable to keep up turnover, but that it chooses not to. However, in normal maintenance mode, the skin will slow the turnover rate so that it has enough nutrients to make a complete barrier.

Other parts of the body that already start with less circulation will have even longer epidermal renewal times. Through exfoliation, the skin's barrier is being damaged because it removes some of the 15 DNA-designed layers of stratum corneum. Skin care professionals are forcing the skin into emergency response mode to restore itself faster than it wants.

Proponents of exfoliation state that increasing cell turnover leads to newer epidermal cells, which is always a good thing. However, if the epidermis is already renewing itself, what is really being discussed is the difference in the barrier being one or two weeks older. In that case, the benefit of exfoliation is that the epidermis is a week younger, on average. The downside of pressing the skin into ramping up this process, in my opinion, is significant.

The skin slows down the renewal process because it wants to hold on to nutrients for dermal functions and emergency responses. By depleting dermal stores, the skin will be less able to maintain dermal collagen, which results in more wrinkles. It also means less immune repair activity; therefore, managing daily sun damage is compromised. This problem becomes even worse when it is acknowledged that removing protective epidermal layers increases free radical damage from the sun. Long distance runners do not sprint out of the gate because they do not want to deplete their needed reserves. My theory is that the same is true for the skin; it controls turnover to manage operations that will be best for the skin as a whole. The slow starvation of the skin – losing one percent of its blood supply annually – is a critical aspect of aging. I believe that anything professionals do to make it worse will accelerate the aging process.

One of the other accepted benefits of exfoliation is an improved appearance in fine lines. If this advantage was valid, fountain of youth-like results should have been seen for the last 30 years. Instead, increasing signs of aging, increased sensitivity, and higher rates of skin cancer have been documented. When acids or devices are used to exfoliate the skin, a wound response is initiated. This response increases epidermal swelling, which temporarily plumps the skin and makes fine lines look better. This result, however, does not last and has nothing to do with new collagen; it is merely instant gratification that has led to the strong attraction to these methods. If a few layers of epidermis are removed, the skin will have to make more collagen sooner than it wanted to, causing the collagen-manufacturing machine to be redirected for epidermal reasons. It would be better to allow the skin to stay focused on dermal collagen, since that is the key aspect of a wrinkle. Any collagen made for a damaged barrier is temporary and is not the long-term collagenthat the skin desperately needs.

Sensitive and Dehydrated Skin

Sensitive skin has become a common problem in America. Two reasons for the increase in sensitive skin are systemic immune system issues that also affect immune support in the skin, meaning that it simply cannot keep up with repair demands, and increased inflammation in the skin and the depletion of the capacity to repair inflammation. Clients that exfoliate daily are reporting reduced tolerance to active products and more redness and irritation.

Over-exfoliation also causes dehydrated skin because it removes the lipid barrier that retains moisture. Unfortunately, topical products cannot adequately replace the missing components. Daily exfoliation will lead to constantly dry skin, amongst other issues. Sensitive skin usually involves a damaged barrier that, contrary to popular belief, is not solved with a good moisturizer.

Moisturizers

The skin is the only thing that can restore a proper barrier; moisturizers actually weaken the barrier because of the use of emulsifiers. Moisturizers are one of the most popular categories in skin care – even though healthy skin in people under 25 almost never seems dry. The number one cause of dehydrated skin is exfoliation because it removes the lipid barrier that retains moisture. However, no topical product can adequately replace the missing components.

Dirt and Debris

Another reason people exfoliate is to remove dead cells and any associated dirt or debris. The idea of having dead debris on the skin sounds negative. However, just because the stratum corneum is not physiologically active does not mean it is dead. These cells perform a critical function on the skin and should not be considered useless, which is what the concept implies. I feel that if the top three layers are useless, then the next 12 layers should be held to the same standard. People are born with 15 layers of stratum corneum in most areas. The complex design of the skin shows that the skin is purposely designed to be this way. Kids most often have flawless complexions, which includes dead skin cells, proving that it is not necessary to alter the number of skin layers. Dirt is also built into the design and sits on the surface because it is too large to penetrate the skin. Staying clean is important, but it should not come at the cost of a healthy, protective barrier.

Healthy Bacteria

Exfoliation affects the skin's bacteria by hurting it. These days, there is more conversation about probiotics for the skin and promoting healthy bacterial populations. The skin needs bacteria to maintain itself; it is a physiologic necessity because they process proteins and lipids that the skin uses while preventing more harmful bacteria from populating the skin. Exfoliating the stratum corneum and lipids from the top layer will damage these populations, compromising the skin's health in the process. The skin is very capable of maintaining this bacteria population on its own if the barrier is intact.

Age Spots

Age spot fading is another reason many favor exfoliation. While it is true that a hurried epidermis has less time to deposit pigment into its layers, which can lead to the fading of age spots, in no way is the color change a reflection of a repair or an improvement in skin health. The melanocyte is not actually making less melanin. Pigment made by melanocytes is actually purposefully created to form a layer of protection over a non-healing wound beneath it. Melanocytes are not acting abnormally, they are doing what they always do, making melanin in response to skin damage. Fading pigment in the skin actually increases the risk of free radical sun damage because melanin is protective. When this damage is added to the increased ultraviolet harm associated with fewer layers of stratum corneum, the reduced ability to heal sun damage due to lost nutrients and an overwhelmed immune repair

capacity results in an increased number of age spots and a worsening, over time, of the existing ones on the face. The best hope to prevent age spot formation is to maximize the natural barrier protection with a healthy epidermal barrier and healthy amounts of melanin.

Skin Cancer

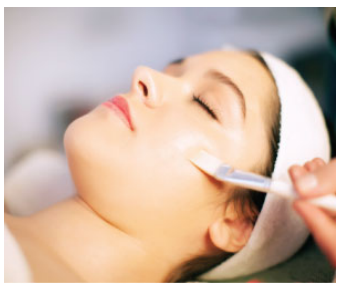
Studies show that topical alpha hydroxy acid causes sun sensitivity, which is another way of saying that the skin is getting more sun damage faster than normal. Burning easily and becoming red quickly is a physiologic response triggered by DNA damage. While there are currently not any studies linking alpha hydroxy acid use with increased cancer, its application results in DNA damage and inflammation. Therefore, I believe that skin cancer rates may increase with chronic utilization. The use of scrubbing devices has a less clear link because the increased ultraviolet damage is not combined with the chemical damage as it is with alpha hydroxy acids. However, less lipid and stratum corneum protection on the skin is clearly proven to increase ultraviolet radiation damage.

Monthly Exfoliation

The skin can manage monthly exfoliation as long as it is being well nourished in the process. There are many devices and treatments that can be used for monthly exfoliation. The primary benefit of exfoliation in these monthly procedures is the penetration of active ingredients that will accelerate age reversal.

Natural Exfoliation

Natural exfoliation can be generated in monthly facials and/or daily applications as a healthy way to avoid over-exfoliation. If more circulation, collagen, stimulation, and immune strength is created at the dermal level, the skin will restore its turnover rate to youthful levels. As a result, the protective barrier stays intact and the skin is able to determine where and how to use its resources in the most efficient manner. It provides skin that is less sensitive, more sun protected, and better hydrated than any other method. Ingredients that can have the most influence are liposomal retinaldehyde, niacinamide, asiaticoside, human growth media, trioxolane, and chlorella. Using these ingredients daily or during a monthly facial will trigger a high level of healthy activity that allows for the potential of actual age reversal while still keeping the epidermis fresh and healthy.



Skin care professionals have been trained for decades that exfoliation should be a healthy part of a daily skin care routine. Sometimes, it is hard to imagine something different. The skin is a remarkable and beautifully complex machine. The amount of skin cells it manufactures and the number of repairs it performs with graceful precision is overwhelmingly impressive. It handles its own exfoliation process with the same intelligence as it handles all of its other tasks. Professionals should trust that there is a reason it slows down with age. Replacing the needed tools and nutrients for healthy turnover rates is a much more holistic, safe, and effective way to rejuvenate the skin.

References

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Ben Johnson, M.D. is the founder and formulator of Osmosis Skincare. Johnson began his career by starting one of the first medical spa chains in the country, along with founding/formulating Cosmedix. He is an established speaker, educator, and formulator who is well known for his unique approach to skin conditions by thinking outside of the box. Johnson's passion is creating tremendous change in the skin without constantly exfoliating away the protective benefits of the epidermis.