
ALL NEW
THIRD
EDITION
40
BEAUTY MYTHS
BUSTED
What Really Works for
Clear, Younger-Looking Skin
Paula Begoun
& PAULA'S CHOICE RESEARCH
& EDUCATION TEAM

Paula Begoun is the creator and innovative force behind Paula's Choice Skincare. She is the author of over 20 best-selling beauty books.

Her work as an internationally-recognized consumer expert for the cosmetics industry has led to repeat appearances on CNN, as well as programs such as Oprah, The Today Show, 20/20, Dateline NBC and The View.

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PAULA'S CHOICE
SKINCARE

Research & Education Team
Bringing Truth & Transparency to beauty since 1995.

For over 20 years, members of this trusted group have scoured the research and worked tirelessly alongside Paula to develop breakthrough skin care, write robust online content and co-author best-selling books. They cut through the hype and help consumers around the world understand exactly what skin needs to look its best, no matter what.

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PAULA'S CHOICE HAS ALWAYS BEEN THE RADICALLY TRUTHFUL SKIN CARE COMPANY

A MESSAGE FROM PAULA BEGOUN:

For over 40 years I've been researching and sharing the science-based facts about what works for skin and what doesn't. My heartfelt goal has always been to help people around the world find the ideal products for their skin so they can experience the confidence that comes from looking and feeling their best. I understand and respect the desire many people have to know how to take the best possible care of their skin.

This mission led me to write 21 books on skin care and makeup and then to create Paula's Choice Skincare in 1995. From the very beginning Paula's Choice has always been the radically truthful skin care company. We always follow the science to formulate products based on what is proven to benefit skin. We never follow trends unsupported by research or gimmicks that don't help your skin, or even worse, hurt it. Such trends will never be part of Paula's Choice.

Paula's Choice celebrates the joy of discovering what it means to define beauty on your terms, and to embrace it with assurance and pride. What we do is always respectful, compassionate, and without compromise. We are always:

- Science-based;
- Straightforward;
- Knowledgeable;
- Globally minded (we are a company without borders);
- Supporting you to define beauty on your terms but want you to use skin care products proven to provide beautiful results;
- Honest to a fault. Sometimes the truth is frustrating, but knowing the truth is always empowering.

To those who've been with me and Paula's Choice for years, thank you for your trust and loyalty. You have filled my life with meaning and joy. If you're just discovering Paula's Choice Skincare and share our passion for busting myths, welcome to our community! I know you're going to love what you learn and the results you achieve for your skin.

MYTH-BUSTING!

There are so many myths in the world of skin care, it was incredibly difficult for us to choose which to include. We decided to include the myths that we are asked about most often. We have dozens of articles on PaulasChoice.com that you will find incredibly helpful on your journey to having the best skin of your life now and in the future. As we do for all the information we provide in this book and on our websites, we cite a selection of the studies we used to arrive at our conclusions and recommendations.

CONTENTS

MYTH #1

Jar or clear packaging is fine, what counts most is what's inside, not the packaging itself.

FACT: Packaging is a crucial component of skin care products. If the packaging exposes what's inside to light and air, that could mean the key ingredients will lose effectiveness much sooner.

Jar packaging is particularly problematic for many skin care products. The skin care industry uses a lot of jar packaging because they can be quite beautiful, and they allow you to easily get every last bit of product. However, traditional open-mouthed jars are doing your skin care products a disservice.

Many of the most important ingredients for skin are vulnerable to breaking down with routine exposure to light and air, including plant extracts, almost all vitamins, antioxidants, and other state-of-the-art ingredients like retinol, many peptides, probiotics, and even alpha hydroxy acid and mandelic acid. Along with jars, clear packaging also causes these bio-active ingredients to become less stable, and therefore, unable to work as well for your skin.

Jar packaging also presents hygiene issues: Dipping your fingers into a product (even if you've washed them first) can introduce bacteria and other pathogens into it, compromising its effectiveness. Some companies provide a spatula to use with the product which may seem more hygienic, but keeping that clean is difficult, so the spatula doesn't improve the stability of the product.

TRUTH

IT'S BEST TO LOOK FOR SKIN CARE PRODUCTS WITH BIO-ACTIVE INGREDIENTS THAT ONLY COME PACKAGED IN CONTAINERS THAT ARE AIRTIGHT

Bottom line: It's best to look for skin care products with bio-active ingredients that only come packaged in containers that are airtight or keep air and fingers out as much as possible and that are opaque or have a UV-coating to protect them from both light and air.

References for this information: *Polymers*, July 2020, pages 1–25; *Scientific Reports*, May 2019, ePublication; *Molecules*, July 2018, ePublication; *AAPS PharmSciTech*, September 2017, ePublication; *Pharmacology Review*, July 2013, pages 97–106; *Dermatologic Therapy*, May-June 2012, pages 252–259; *Current Drug Delivery*, November 2011, pages 640–660; *Journal of Agricultural Food Chemistry*, May 2011, pages 4676–4683; *Journal of Biophotonics*, January 2010, pages 82–88; *Guidelines on Stability Testing of Cosmetic Products, Colipa-CTFA*, March 2004, pages 1–10.

MYTH #2

Certain skin care ingredients work better when used at night because skin repairs itself best while you sleep.

FACT: Skin is in repair mode around the clock, and research has shown it's better at repairing during daylight hours when we're active, than when we're at rest.

There is no research showing that any ingredients work better at night than they do during the day. The companies that assert this is true never—or never convincingly—identify which ingredients work better at night versus during the day.

It's often said that our skin repairs itself faster or more efficiently at night but that's simply not true. Based on the research, the optimal time for skin or the body to heal is during the day when our bodies are active and in motion. This further stimulates blood flow, oxygen, cell renewal, and other body functions which aids in the overall healing and maintenance processes.

TRUTH

IT'S OFTEN SAID THAT OUR SKIN REPAIRS ITSELF FASTER OR MORE EFFICIENTLY AT NIGHT BUT THAT'S SIMPLY NOT TRUE

Your skin is receptive to and benefits from a wide variety of ingredients no matter the time of day. From ingredients that gently exfoliate, hydrating ingredients that replenish and soften, to more bio-active ingredients that restore and fortify, your skin is just happy to get (and in fact needs) a regular dose of these ingredients, regardless of whether it's day or night.

Your skin isn't keeping track of what time of day it is, so use products and ingredients based on what works best for your routine. Sunscreen of course is the obvious exception, since it is only needed during daylight hours.

References for this information: *Science Translational Medicine*, November 8, 2017, volume 9, issue 415; *Future Science OA,* June 2016, ePublication; *International Journal of Molecular Sciences*, June 2016, ePublication.

MYTH #3

You can become addicted to lip balm.

FACT: You cannot become addicted to well-formulated lip balm (or any other skin care product for that matter). However, because some lip balms contain irritants like menthol, camphor, fragrance, or essential oils they end up making your lips feel drier. In that case, the more you use those problematic formulas the worse your lips feel.

Have you ever applied lip balm over and over, only to find you're getting no results or that you're having to apply more and more to get relief from dry lips? You might have heard that lips can adapt or get addicted to lip balm, causing this phenomenon. Fact is, it's simply not true – and more likely has to do with what *type* of product you're using on your lips.

A lot of lip balms are poorly formulated, meaning they're made of thick waxes that coat lips and their limited moisturizing properties wear off easily, making lips feel dry again. Many also contain irritating ingredients (like mint, camphor or menthol) that make dryness and cracking worse.

Well-formulated lip balms will do their job day in and day out without the need for endless reapplication. What do we mean by well-formulated? Skin-loving, silky hydrators, beneficial oils, skin-soothing ingredients, and tenacious emollients to keep the product on your lips for longer periods of time all add up to an excellent balm. Ditto for lip balms made without fragrance or essential oils, both of which can trigger irritation.

Some tips to keep lips smooth: generously apply balm just before bedtime so it can work overnight, and during the day, use a balm or stick with SPF to protect the delicate skin of your lips from sun damage. Wearing opaque lipstick can also help shield lips from damaging UV rays; even better if the lipstick also contains sunscreen!

For more information on keeping lips hydrated and healthy, see our article on Solutions for Dry Lips:
https://www.paulaschoice.com/expert-advice/skincare-advice/dry-skin/solutions-for-dry-cracked-lips.html

References for this information: *Journal of Cosmetic Dermatology*, February 2018, pages 84–89; *Journal of Cutaneous Medicine and Surgery*, January 2018, ePublication; *Dermatitis*, March-April 2010, pages 111–115.

MYTH #4

Steam opens pores which helps clear out clogs and minimizes pore size.

FACT: Just the opposite is true. Steaming can lead to broken capillaries and cause facial irritation, which can then trigger oil production at the base of pores. The result? More congestion, and potentially more clogged pores and breakouts.

Forgive the rhyming phrase: pores aren't doors; they simply don't open or close. While it's been touted in fashion magazines and even in professional spa treatments, steam simply cannot have a lasting impact on the behavior of your pores. Even worse, prolonged exposure to steam can result in skin damage from the heat.

TRUTH

PROLONGED EXPOSURE TO STEAM CAN RESULT IN SKIN DAMAGE FROM THE HEAT

While it might seem that steam treatments or even hot water make pores open – thus, helping clear out any gunk inside – it's a temporary cosmetic effect and in the long run leads to broken capillaries and causes facial irritation, which can then trigger oil production at the base of pores. The result? More congestion, and potentially more breakouts. Steaming is also a terrible idea if you have the skin disorder rosacea, since the steam and heat will only worsen facial redness.

So, what can you do? The best course is to be gentle to skin and use a well-formulated, leave-on BHA (beta hydroxy acid, ingredient name salicylic acid) exfoliant. BHA exfoliants can penetrate deep into pores, cutting through oil to clear out what's clogging them and helping improve their shape.

Ingredients such as niacinamide, certain peptides, and azelaic acid can also improve pore function, resulting in clearer, more even-textured skin.

Years of unprotected sun exposure also have a surprising negative impact on pores. Cumulative UV light damage can cause skin's supportive elements to progressively weaken, leading to the appearance of stretched or enlarged pores. It's yet another reason why sufficient sun protection, 365 days a year, is so important!

It's also important to keep expectations realistic! Pore size is largely determined by environmental damage and genetics, so there's only so much any skin treatment or product can do to improve their appearance. But without question, using the right products (and avoiding the wrong ones) will make a noticeable difference if your pores have become enlarged.

References for this information: *Skin Research and Technology*, August 2018, pages 367–370, *Journal of Cosmetic Science*, January-February 2017, pages 55–58, *Dermatologic Surgery*, March 2016, pages 277–285; and July 2005, pages 860–866, *Clinical, Cosmetic, and Investigational Dermatology*, August 2015, pages 455–461, *Professional Beauty*, Jul/Aug 2014, pages 52–53, *Seminars in Cutaneous Medicine and Surgery*, March 2008, pages 170–176.

MYTH #5

Refrigerating skin care products preserves their efficacy.

FACT: Storing your products in a 'beauty fridge' long term can hurt their stability.

Long-term exposure to extreme temperatures on both ends of the spectrum (very hot and very cold) affects skin care formulations. This is evidenced through the stability testing conducted by formulators before a cosmetic product comes to market.

During this testing, a reputable brand's approved formulas are put through prolonged heating and cooling protocols to purposefully accelerate formulary degradation. This is done to gauge how the product holds up under such conditions.

TRUTH

CHILLIER-THAN-AVERAGE TEMPS CAN HAVE VARIOUS NEGATIVE EFFECTS ON THE SOLUBILITY AND STABILITY OF INGREDIENTS

The chillier-than-average temps can have various negative effects on the solubility and stability of ingredients. Beyond tampering with efficacy, extreme cold can cause unwanted textural changes, including the separation of water and oil-based ingredients or can result in crystallization. Both make blending these types of unlike ingredients more difficult when the product warms to room temperature.

In a real-world setting, the ideal temperature for your products is around 60–72 degrees Fahrenheit (or around 15.5–22 degrees Celsius). Don't get overly concerned if your household temps are a little higher or lower than that— the product's formula will still do its job to keep the ingredients stable (assuming the packaging is air-restrictive and opaque to minimize degradation from air and light). It's refrigerator-cold or high temps inside a car during hot summer weather where stability becomes a serious problem.

NOTE: Short-term (a few hours) exposure to very hot or freezing cold temperatures isn't likely to negatively affect most skin care products. Such exposures are what stability testing is designed to show such products can withstand; the issue is consistent long-term (days to weeks) exposure to very high or cold temperatures.

References for this information: *Journal of Cosmetic Science,* August 2018, pages 245–255*; Dermatology Times*, December 2017, page 8; *Trends in Food Science & Technology*, February 2017, pages 23–20; *Applied Rheology*, June 2000, pages 114–118; *Cosmetic Science and Technology Series*, 1999, pages 115–130.

MYTH #6

Applying face creams in an upward massaging motion and facial exercises help "lift" skin and prevent sagging.

FACT: Whenever you see skin move up or down, you are stretching out the skin's elastin and collagen support fibers causing it to prematurely sag, which is exactly what happens during facial exercises.

Recommendations to massage your skin care products using pressure in an upward or sideways motion (or some other pattern illustrated in a leaflet accompanying a moisturizer) may sound like it could help lift your skin, but the truth is that it doesn't work. In fact, routinely doing this can cause skin to sag *faster* than it would if you didn't pull and tug and it.

TRUTH

THE MORE YOU MOVE SKIN, THE MORE YOU'RE STRETCHING AND BREAKING DOWN SKIN'S NATURAL ELASTIN AND COLLAGEN SUPPORT FIBERS

The more you move skin, the more you're stretching and breaking down skin's natural elastin and collagen support fibers which leads to premature sagging. Gravity and age are already working to pull skin downward; they don't need you to help speed up the process!

While massaging skin can certainly feel good and have a relaxing effect, the tugging and pulling won't help lift a thing. Being gentle when you apply your skin care products and not moving skin as much as possible will go a long way towards preventing sagging, premature wrinkles and overall loss of firmness.

What about massaging cleansers into skin? This should be done as gently as possible and rinsing with water makes it a non-issue since water cuts the surface tension, allowing hands to move easily over your face without pulling or tugging at skin.

Studies looking at results from facial exercises show slight subjective improvement in some signs of aging, but the studies were short-term (a few weeks to months), meaning they're not measuring changes that would occur if the practice was done routinely for years.

References for this information: *Cosmetics*, February 2020, ePublication; PRS *Global Open*, July 2018, pages 1–2; *Journal of the American Academy of Dermatology*, March 2018, pages 365–367; *Aesthetic Surgery Journal*, January 2014, pages 22–27; *Aesthetic Surgery Journal*, January 2006, Supplement, pages S4–S9.

MYTH #7

You should never pop a pimple.

FACT: Popping a pimple the right way will help it go away faster!

The standard advice about never popping a pimple is wrong: not only can it be done safely without wounding skin and causing a scab but releasing the pressure inside a filled pimple frees the skin-damaging substance sitting inside.

Of course, you never want to damage skin, which is why this task should be done with the utmost care. If you don't pop a pimple the correct way, try to pop the wrong kind of pimple, or try to pop a pimple too soon, you can hurt skin. This makes the pimple look worse and prolongs healing. Over-squeezing and aggressive pushing, picking, or puncturing can cause serious damage that can last far longer than your zit would have—possibly causing a permanent scar.

Timing is key since it's critical to know when the blemish is ready for its contents to be released. You'll know it's ready when you see a noticeable "whitehead" on the surface, and the zit begins to look and feel slightly swollen. If you don't see a whitehead, wait. When the time is right, you have to be as gentle as possible.

For specific details on how to exactly and correctly pop a pimple, see our article (which also includes info on how to care for the lesion afterward): https://www.paulaschoice.com/expert-advice/skincare-advice/acne-and-breakouts/how-to-pop-a-pimple.html

References for this information: *International Journal of Women's Dermatology*, June 2018, pages 55–71; *Molecules*, August 2016, pages 1–20; *Cochrane Database of Systematic Skin Reviews*, November 2014, issue 11; *American Journal of Clinical Dermatology*, December 2012, issue 6, pages 357–364; *Journal of Dermatology*, October 2012, issue 5, pages 433–438; *International Journal of Cosmetic Science*, April 2011, pages 99–104.

MYTH #8

Adult acne is different from teen acne.

FACT: What causes acne (and can worsen it or prolong healing) is the same for teens and adults. Also, what helps control and heal acne is the same regardless of your age.

There is no research showing that adult acne is physiologically different from teenage acne. Some of the confusion around this myth stems from the fact that many adults struggling with acne believe anti-acne products are made for teens, so they won't address the root cause of their "adult" acne, but that isn't what the research shows to be true.

The same over-the-counter acne-fighting ingredients (such as benzoyl peroxide and salicylic acid) are the ones that work brilliantly no matter your age. Beyond looking for these effective ingredients, the most important consideration is to make sure the products are formulated without other drying, or irritating ingredients. Irritating ingredients always make acne worse!

TRUTH

THE SAME OVER-THE-COUNTER ACNE-FIGHTING INGREDIENTS (SUCH AS BENZOYL PEROXIDE AND SALICYLIC ACID) ARE THE ONES THAT WORK BRILLIANTLY NO MATTER YOUR AGE

It's often said that adult acne differs from teen acne because adult acne is caused by stress. The truth? Stress isn't the differentiating factor. Both teens and adults endure stress (if anything, teens suffer more because they're still learning how to manage it). Furthermore, if stress was a mitigating factor, everyone would have acne (given it is rare to find a person who doesn't have stress), and that isn't the case.

Adult acne is sometimes described as hormonal acne in order to separate it from teen acne, but again, for both age groups, hormones (namely, androgens) along with inflammation is a key underlying factor for triggering acne at any age.

The one thing that differs for adults with acne is that they might be dealing with other skin care concerns, like wrinkles, sagging, and hyperpigmentation. That doesn't change the need for using effective anti-acne products, but you also need products that effectively address those concerns. Happily, such products are available in textures that won't worsen acne.

For controlling and healing acne at any age choose only gentle, fragrance-free products including a water-soluble cleanser, a leave-on exfoliant that contains 2% salicylic acid (also known as beta hydroxy acid or BHA), a benzoyl peroxide product for breakouts and acne-related redness, a lightweight, fluid or lotion-texture daytime moisturizer with sunscreen and similarly textured, antioxidant-rich moisturizer for use at night.

A fluid, serum-like product that contains 10% niacinamide is a helpful addition to deal with other issues associated with breakouts and signs of aging like enlarged pores, post-breakout marks, uneven skin tone, and improving skin's environmental defenses.

For more information on treating acne and breakouts, see our articles:

https://www.paulaschoice.com/expert-advice/skincare-advice/acne-and-breakouts

https://www.paulaschoice.com/expert-advice/skincare-advice/acne-and-breakouts/adult-acne.html

References for this information:
The Journal of Dermatology, April 2021, pages 551–555; Scientific Reports, April 2020, ePublication; *Experimental Dermatology, June 2019, pages 786–794; International Journal of Women's Dermatology*, June 2018, pages 56–71; *Clinical, Cosmetic, and Investigational Dermatology*, February 2018, pages 59–69; *The Journal of Clinical and Aesthetic Dermatology*, January 2018, pages 21–25; *Clinics in Dermatology*, March-April 2017, pages 168–172; *Journal of the American Academy of Dermatology*, May 2016, pages 945–973; and *Indian Journal of Dermatology, Venereology, and Leprology*, May-June 2012, pages 335–341.

MYTH #9

You can scrub away acne, blackheads, and keratosis pilaris.

FACT: Scrubbing the surface of skin doesn't reach the root cause of these issues, can damage skin's protective barrier and trigger inflammation which makes matters worse.

It's important to understand that clogged pores are a major culprit of acne, blackheads, and keratosis pilaris (also known as KP—tiny, hard bumps on arms, thighs, etc.). Harsh or abrasive scrubs cannot penetrate pores where the clogs are trapped. Essentially, they just scratch the surface of skin, which is a major reason why they aren't effective for these conditions. They literally cannot reach the source of the issue.

The other problem with almost all scrubs is their abrasive texture that can irritate skin in a way that stimulates nerve endings at the base of the pores, leading to excess oil production.

Adding to that, rough scrubbing causes microtears skin, which weakens skin's barrier and makes breakouts and KP last longer and appear even more inflamed.

TRUTH

HARSH OR ABRASIVE SCRUBS CANNOT PENETRATE PORES WHERE THE CLOGS ARE TRAPPED

So, what *does* work? Exfoliating with a leave-on product that contains 2% salicylic acid, also known as beta hydroxy acid or BHA. Salicylic acid is oil soluble so it can penetrate clogged pores to un-trap and clear out the buildup of substances that were causing the breakouts, blackheads or KP.

Salicylic acid also offers natural skin-calming properties to neutralize inflammation in skin, which further helps improve these conditions. The result: smoother, even-toned, clog-free skin—and the freedom to wear sleeveless tops without feeling self-conscious of your rough, bumpy skin.

References for this information: *Experimental Dermatology*, July 2019, pages 786–794; *Journal of Cosmetic Science*, January-February 2017, pages 55–58; *Clinical, Cosmetic, and Investigational Dermatology*, August 2015, pages 455–461; *Cochrane Database of Systematic Reviews*, November 2014, ePublication; *The Journal of Clinical and Aesthetic Dermatology*, May 2012, pages 32–40; *Clinics in Dermatology*, May 2012, pages 335–344.

MYTH #10

Essential oils can safely and naturally treat many skin concerns.

FACT: Some essential oils do have some positive traits, but their fragrant components are irritants that pose an overwhelming risk to everyone's skin.

Essential oils are often touted as the natural solution to skin problems from acne to wrinkles, but in this case, natural doesn't mean better. Any potential efficacy—such as antioxidant benefits— is marred by the serious risk of irritation their volatile components trigger on and within skin. In short, essential oils come with far more risks for skin than rewards.

Some components of essential oils are indeed beneficial for skin; for example, many are rich sources of potent antioxidants like caffeic acid and rosmarinic acid. Others contain antibacterial ingredients that protect against visible skin problems related to fungi, yeast, and other microbes.

TRUTH

ESSENTIAL OILS COME WITH FAR MORE RISKS FOR SKIN THAN REWARDS

But getting these helpful components requires exposing your skin to problematic irritating fragrance chemicals like limonene, citronellol, eugenol, and linalool, among many other irritating components. These are present

in a shocking number of essential oils, including those perceived as gentle and calming such as lavender and rose.

What about essential oils recommended for those with acne, like rosemary, lemongrass, thyme, cinnamon, citronella, and tea tree oils? Although they all have a small amount of research showing they may be helpful, they can also cause significant irritation which makes acne and its redness worse. More important, they haven't been shown to be as effective as the gold standard active ingredients for acne: benzoyl peroxide, salicylic acid (BHA), prescription retinoids, and prescription azelaic acid.

Ultimately, the trade-offs essential oils present aren't worth it. Why risk the damaging irritation essential oils cause when there are dozens of beneficial non-fragrant plant oils and extracts that deliver wonderful advantages without the drawbacks of essentials oils? Save the fragrant oils for aromatherapy, not skin care.

Learn more about the best oils for skin:
https://www.paulaschoice.com/expert-advice/skincare-advice/dry-skin/the-best-face-oils-for-skin.html

References for this information: *Journal of Alternative and Complementary Medicine*, August 2020, pages 680–690; Archives *of Dermatological Research*, November 2019, pages 653–672; *Cosmetics*, December 2017, ePublication; *Evidence-Based Complementary and Alternative Medicine*, May 2017, pages 1–91; *Dermatitis*, July-August 2016, pages 170–175; *Asian Pacific Journal of Tropical Biomedicine*, August 2015, pages 601–611; *International Journal of Antimicrobial Agents*, February 2015, pages 106–110; and *Essential Oil Safety*, Second Edition, Tisser and Young, R., Elsevier Ltd., 2014, pages 69–98.

MYTH #11

Witch hazel is a safe, natural remedy for a variety of skin concerns.

FACT: Witch hazel has its place for occasional use, but daily use causes irritation and dries out skin.

Derived from the *Hamamelis virginiana* plant, witch hazel has long been touted as a treatment for numerous skin conditions. The leaves, bark, and twigs are processed to create a clear liquid that's sold commercially as witch hazel.

Witch hazel is often used as a makeup remover, cleanser, and sunburn soother among other things, but most frequently it's used as a toner, often by people with oily skin or acne. This is due to witch hazel's supposed ability to "tighten up" and "dry out" skin – but oiliness and acne aren't a matter of skin being "wet" or loose. In fact, drying out skin increases oil production and damages the skin's protective barrier making every aspect of skin health worse.

The problem with witch hazel is that while it is a natural source of antioxidants (like most plant-based ingredients), one of those antioxidants is a group of chemicals known as tannins. Applied to skin, tannins have a constricting and drying effect – but they're also sensitizing. Depending on which part of the witch hazel plant is used to make witch hazel, it naturally contains between 8% and 12% tannins. That's a much higher amount than what's found in many other plants rife with other beneficial compounds.

In addition to the tannins, almost all types of witch hazel are distilled using denatured alcohol (ethanol), with the extract form containing between

14%–15% alcohol. Although the distillation process destroys some of the astringent tannins, applying this amount of alcohol to your skin is always a bad thing because it generates free-radical damage, impairs the skin's barrier, and causes inflammation (and that is always terrible for skin).

What about brands selling alcohol-free witch hazel? This can be achieved through steam distillation, but the process destroys some of the antioxidants in this plant and you'd still be exposing it to a lot of astringent tannins. In short, alcohol-free witch hazel isn't much better than the type that contains denatured alcohol.

Another concern related to long-term use of witch hazel (alcohol-free or not) is the volatile oil it naturally contains. This oil is a source of the potent fragrant sensitizer eugenol, which is not good for anyone's skin.

In the end, the risks of using witch hazel far outweigh any potential benefit. It's much better to seek out a gentle, fragrance-free toner designed specifically for your skin type that's loaded with skin-loving ingredients like antioxidants, soothing ingredients, and skin replenishing ingredients.

Learn more about choosing the right toner for your skin: https://www.paulaschoice.com/expert-advice/skincare-advice/toners/why-you-need-a-toner.html

References for this information: *Dermatitis*, November-December 2017, pages 353–359; *The International Encyclopedia of Adverse Drug Reactions and Interactions*, 2016, pages 501–522; *The Journal of Clinical and Aesthetic Dermatology*, May 2014, pages 36–44; and May 2008, pages 20–25; *Journal of Inflammation*, October 2011, ePublication; *Journal of the German Society of Dermatology*, October 2010, pages 788–796; *Chemical Research in Toxicology*, March 2008, pages 696–704; Robbers, J. E., Speedie, M. K., Tyler, V. E. *Pharmacognosy and Pharmacobiotechnology*, Baltimore, MD: Williams & Wilkins, 1996.

MYTH #12

Clean beauty guarantees a product is safe and natural.

FACT: Nowhere in the world is there a regulated definition of what "clean beauty" means so anyone can use their own definition. Good skin care is about a smart combination of ingredients that are safe and effective.

Clean beauty usually emphasizes the safety of natural ingredients over synthetic ingredients reinforcing the misconception that natural ingredients are better for skin and synthetic or "chemical" ingredients are bad. Sadly, this belief could end up hurting your skin instead of helping it. The truth is far more nuanced than simply believing everything natural is good and anything chemical is bad.

What matters for any cosmetic is that it's formulated based on valid research, is proven safe whether the ingredients are naturally sourced or derived or developed in a laboratory, is as effective as possible, and delivers on its claims. In fact, great skin care is only possible when a combination of natural *and* synthetic ingredients is used. All natural cannot do it all.

Consider that there is no such thing as a natural sunscreen and the best acne-fighting ingredients are synthetic. Some of the most effective anti-aging ingredients such as peptides, ceramides, potent, stable antioxidants, niacinamide, retinol, omega fatty acids, and on and on are all created in a lab.

"Clean beauty" should never be about synthetic ingredients versus natural ingredients. Synthetic ingredients can be completely safe, effective, and sustainable, while natural ingredients can be harmful, ineffective,

and unsustainable. The reason this is important is because that's what research—not marketing hype— shows can create healthy, beautiful skin, now and for years to come. Everyone should avoid any ingredients, whether synthetic or natural, that research has shown can cause irritation or inflammation or can damage skin.

TRUTH

GREAT SKIN CARE IS ONLY POSSIBLE WHEN A COMBINATION OF NATURAL AND SYNTHETIC INGREDIENTS IS USED

Whether labeled as "clean beauty" or similar, what matters most is that every skin care product you use contains the most beneficial blend of non-irritating, natural ingredients, along with a smart selection of safe and effective synthetic ingredients.

References for this information: *Molecules*, January 2021, pages 1–24; *Journal of the American Academy of Dermatology*, September 2019, pages 1,344–1,345; *Journal of Preventive Medicine and Hygiene*, March 2019, pages E50–E57; *Food Research International*, September 2017, pages 58–71; *Environmental Sciences Europe*, March 2016, pages 1–14; *Toxicology and Applied Pharmacology*, March 2010, pages 239–259; *International Journal of Toxicology*, July-August 2006, pages 269–277.

MYTH #13

People with dark skin don't need sunscreen to protect from premature aging of the skin or the risk of getting skin cancer.

FACT: Dark skin is not immune from the cumulative damage unprotected sun exposure causes.

Regardless of ethnicity, people with dark skin should apply a broad-spectrum sunscreen rated SPF 30 or greater to areas of exposed skin every day. This is true regardless of where you live.

Melanin alone doesn't offer as much sun protection as you might think. People with dark skin have a built-in SPF rating of 2–4, depending on how much melanin is present. No trustworthy dermatologist today would ever advise a patient to use a sunscreen with such low ratings. Research has made it abundantly clear that skin of any color needs more protection when exposed to UV light.

People with darker skin tones *are* at *lower* risk of premature aging and skin cancer due to the natural protective effect their melanin-rich skin color provides plus the predominant type of melanin present. According to the United States Cancer Statistics Working Group, "Although skin cancer incidence rates are lower among Blacks and Hispanics compared to non-Hispanic whites, research and surveillance efforts have demonstrated that these demographic groups tend to have poorer prognoses and survival rates when they do receive a skin cancer diagnosis."

Having more melanin is advantageous when exposed to daylight: but it's also about which type of melanin is predominant. Dark skin has more of a type of melanin known as **eumelanin**. It's superior to the other type of melanin, pheomelanin, at reducing UV light damage because it's more stable and a potent antioxidant. This is the primary reason why darker skin is better at deflecting damage from the sun's UV rays than lighter skin.

TRUTH

MELANIN ALONE DOESN'T OFFER AS MUCH SUN PROTECTION AS YOU MIGHT THINK

The catch is that it doesn't take much of either type of UV ray to trigger a cascade of damage on and within skin, even if you don't burn or get tan. Those with melanin-rich skin won't see this damage until later in life, but it will eventually show as hyperpigmentation or pigment loss, dullness, impaired ability to heal, loss of elasticity, and wrinkles. For the health of your skin and body, make sure sunscreen is part of your daily skin care routine!

References for this information: *Molecules*, April 2020, ePublication; *Preventive Medicine Reports*, March 2019, pages 346–353; and December 2018, pages 203–209; *Photochemical and Photobiological Sciences*, December 2016, pages 10–23; *The Journal of Clinical and Aesthetic Dermatology*, January 2016, pages 31–38; *Cold Spring Harbor Perspectives in Medicine*, January 2015, pages 1–14; *Journal of Drugs in Dermatology*, February 2013, pages 194–198; *Photochemistry and Photobiology*, May-June 2008, pages 539–549.

MYTH #14

Sunscreens with ultra-high SPF ratings provide exponentially better protection.

FACT: Sunscreens with SPF ratings over 50 have their place, but don't get overconfident. The reality is SPF 100 blocks only about 3% more UVB rays than SPF 30 based on regulated testing. And SPF ratings only relate to UVB rays; they tell you nothing about UVA rays, which cause skin aging and play a role in skin cancer.

Here's how it breaks down:
SPF stands for "**S**un **P**rotection **F**actor." This rating is a time-based measure of how much UVB protection a sunscreen provides when liberally applied to skin.

SPF 15 shields skin from 93% of UVB rays, SPF 30 blocks about 97%, SPF 50 blocks 98%, and SPF 100 blocks 99% based on regulated testing. Not a big difference as the SPF rating increases, and it can be accurately stated that SPF 30 and up offers substantial protection.

TRUTH

SPF 15 SHIELDS SKIN FROM 93% OF UVB RAYS, SPF 30 BLOCKS ABOUT 97%, SPF 50 BLOCKS 98%, AND SPF 100 BLOCKS 99% BASED ON REGULATED TESTING

However, looking at it another way, SPF 30 lets 3% of UVB rays through while SPF 50 only allows 2% through. That's 50% more UVB rays penetrating your skin if you use SPF 30 vs. SPF 50. For daily use, most people will do great with SPF 30 to SPF 50. When you know your skin will see intense midday sun, you may want to consider a higher SPF. This is when UVB rays are most intense.

But there's a tradeoff: super-high SPF ratings mean increased potential for a sensitized reaction. And if mineral filters are used to reach an SPF rating much over 50, aesthetics will likely be compromised (hello, pasty white cast!)

So, with SPF ratings being about UVB rays, what about UVA rays? While UVB rays are the burning rays, UVA rays penetrate deeper into your skin, causing premature skin aging and playing a role in skin cancer. UVA rays can also penetrate through windows and are present at the same intensity all day long.

So how do you know if a sunscreen protects from UVA rays? That's where the broad-spectrum claim comes in. In order to earn this claim, a sunscreen formula must pass what's known as the **critical wavelength test**. A sunscreen passes this test and earns a broad spectrum claim if it lets 10% or less of UVA radiation penetrate skin. The spectrum of UV light is measured in nanometers, with UVA light falling between 320 and 400 nanometers. A broad-spectrum sunscreen must protect to at least 370 nanometers, but many (such as those from Paula's Choice Skincare) go even further, offering excellent UVA protection up to 400 nanometers.

One very important fact about sunscreen: you need to apply enough of it in order to achieve the protection indicated by its SPF rating. Countless studies done around the world have consistently shown people tend to

under-apply sunscreen, often applying less than half of what's needed to achieve the product's official SPF rating.

TRUTH

WHILE UVB RAYS ARE THE BURNING RAYS, UVA RAYS PENETRATE DEEPER INTO YOUR SKIN, CAUSING PREMATURE SKIN AGING AND PLAYING A ROLE IN SKIN CANCER

If you plan to engage in activity that causes sweating or will be swimming, a water-resistant broad-spectrum sunscreen is a must. And don't forget sun-smart behavior doesn't just involve sunscreen. It also requires avoiding direct sunlight, when possible (seek shade), wearing protective clothing, a broad-brimmed hat, and sunglasses. These steps are the best way to enjoy time outdoors while doing the least harm to your skin.

References for this information: *Journal of Travel Medicine*, Volume 27, Issue 6, August 2020, ePublication; *Frontiers in Medicine*, September 2019, pages 1–6; *Dermatology Online Journal*, July 2019, pages 1–6; *Clinics in Plastic Surgery*, Volume 43, 2016, pages 605–610; *Journal of the American Academy of Dermatology*, December 2013, pages 867.e1–867.e14; *Dermatologic Clinics*, July 2014, pages 427–438; *The Journal of Clinical and Aesthetic Dermatology*, January 2013, pages 16–24; and September 2012, pages 18–23; *Indian Journal of Dermatology*, September-October 2012, pages 335–342.

MYTH #15

Wearing sunscreen daily leads to vitamin D deficiency.

FACT: Sunscreen's effect on vitamin D levels is considered minimal for most people. Ironically, skipping sunscreen and getting a tan can trigger vitamin D deficiency.

Vitamin D is essential for your health, and while it's true that exposure to the sun's UVB rays triggers your body's internal processes that lead to the production of this vital nutrient, exposing your skin to harmful UV rays is not the way to get it.

It may be tempting to forgo sunscreen for 15–20 minutes each day, but research doesn't support this being necessary. First, the time factor of how much exposure to the sun your skin needs is not clear as it varies depending on your skin color, time of day, time of year, how much of your body is exposed, and on and on. More concerning is that unprotected sun exposure leaves skin vulnerable to a cascade of damage, including sunburn, multiple signs of premature aging, and skin cancer and new research on exposome factors suggests sun exposure's role in other diseases.

Vitamin D deficiency is a serious problem worldwide but surprisingly this deficiency has been identified more in people who are *not* routinely protecting their skin from the sun than those who are. How can this be?

The reason for this is because the pigment in skin (melanin) that makes skin darker blocks UVB light absorption which then inhibits vitamin D production (the same way it does if you have lighter skin and get a tan).

The truth is that everyone is at risk for vitamin D deficiency whether they have lighter skin tones or darker skin tones, even among people who live in sunny climates and are outdoors year-round.

Skipping sunscreen is a case where the risk significantly outweighs the reward, so it just doesn't make sense to do in hopes of increasing your vitamin D levels. Doing so will negatively impact your appearance and potentially your health in the short and long term, which isn't a good trade-off.

If vitamin D deficiency is a concern, there are safer ways to boost your levels. Talking with your doctor is the best place to start. With a simple blood test, they can assess your vitamin D level and make recommendations based on your individual needs (including vitamin D-enriched foods and dietary supplements). Upon your physician's recommendation, a daily oral supplement can be a brilliant way to maintain normal vitamin D levels, no sun exposure needed.

References for this information: *British Journal of Dermatology*, November 2019, pages 907–915; *The Scientific World Journal*, August 2017, pages 1–5; *Journal of the American Geriatrics Society*, January 2016, pages 65–72; *Journal of Steroid Biochemistry and Molecular Biology*, October 2014, pages 138–145; *Advances in Experimental Medicine and Biology*, volume 810, 2014, pages 1–16 and 464–484; *Annals of Dermatology and Venereology*, March 2013, pages 176–182; *Dermatologic Therapy*, January-February 2010, pages 48–60; *Journal of the American Academy of Dermatology*, January 2010, pages E1–E9; *British Journal of Dermatology*, October 2009, pages 732–736; *The American Journal of Clinical Nutrition*, April 2008, pages 1080S–1086S.

MYTH #16

You can skip sunscreen if you're going to be inside all day.

FACT: If you're near a window during daylight hours or can see daylight in your home or office, sun protection is still necessary.

Unfortunately, the sun's sneaky aging UVA rays can penetrate glass, so unless your windows have been specially treated to filter UVA radiation, your skin is at risk of their destructive effects even when you're indoors. Even if you don't feel or see their impact right away, the damage is being done.

UVA rays are known as the sun's silent killers because the damage they cause deep within skin typically goes undetected by the naked eye. But their destructive effects are progressively wreaking havoc below skin's surface.

TRUTH

UVA RAYS ARE KNOWN AS THE SUN'S SILENT KILLERS BECAUSE THE DAMAGE THEY CAUSE DEEP WITHIN SKIN TYPICALLY GOES UNDETECTED BY THE NAKED EYE

That's reason enough to wear sunscreen indoors, but more to the point, most of us venture outside at least once a day to get the mail, go to the store, and so on. Although such a brief amount of time spent outdoors

may seem harmless, research has shown that even just one minute of unprotected sun exposure starts damaging skin.

Over time, all of that cumulated exposure and the silent damage it causes prematurely ages skin (in the form of wrinkles, dark spots, loss of firmness, and a weakened barrier), and more importantly it increases risk for skin cancer.

The basic requirements for indoor sun protection remain the same: Use a broad-spectrum sunscreen rated SPF 30 or greater and apply it liberally. (Broad-spectrum means it protects from UVA rays while the SPF rating refers to the level of protection from UVB rays.) Sun-protective clothing can also be helpful.

References for this information: *Biomolecules,* September 2020, page 1–19; *Polymer Composites*, July 2016, pages 2,053–2,057; *Pediatric Dermatology*, May 2016, pages 343–344; *American Association for the Advancement of Science,* January 2015, pages 842–847; *Proceedings of the National Academy of Sciences,* October 2012, pages 17,111–17,116.

MYTH #17

Chemicals are bad for skin, so look for cosmetics labeled “chemical free”.

FACT: All cosmetic ingredients, even the natural ones, are chemicals. Everything from the air we breathe to the oceans, plants, food, clothing, and the human body itself is made of chemicals or relies on chemical reactions to function.

We need to stop thinking of the word “chemicals” negatively because the truth is just like there are good and bad ingredients for skin, there are good and bad chemicals. Without chemicals, we wouldn’t have *any* skin care ingredients!

It’s also more nuanced than that: good chemicals can do bad things if too much is used, if they’re used incorrectly, or the exposure is too high (for example, drinking too much water can be fatal). Many chemicals claimed to be bad for you are perfectly safe in the amounts typically used, a truth that applies to many cosmetic ingredients such as parabens, acrylates, PEGs, and sunscreen ingredients. The dosage matters a great deal.

TRUTH

FRAGRANCE OF ANY KIND HAS MINIMAL TO NO BENEFIT FOR SKIN ITSELF

Many people tend to think that natural ingredients are safer because they're identifiable and simple: a lemon is just a lemon, right? On the other hand, a difficult-to-pronounce ingredient like polymethylsilsesquioxane seems suspicious. As such, the latter is more likely to be viewed as a scary chemical than a seemingly innocent lemon!

As it turns out, the lemon is far more complex: it contains well over 100 separate chemicals, including 27 volatile aromatic compounds that contribute to its distinctive scent. In contrast, polymethylsilsesquioxane is a synthetic film-forming agent that's a single molecule, considered to be 100% pure and safe as used in cosmetics.

When you see "fragrance" or "parfum" listed on a skin care ingredient label, know that this single ingredient is composed of numerous chemicals, often a mix of natural and synthetic, that create the distinct scent. These unidentified components can also irritate skin, and many are known allergens. This is a good example of a group of natural and synthetic chemicals to avoid (and includes the highly volatile essential oils). Their risks are too great and fragrance of any kind has minimal to no benefit for skin itself.

References for this information: *Foods*, May 2020, ePublication; *Plants*, January 2020, ePublication; *Journal of Preventive Medicine and Hygiene*, March 2019, pages E50–E57; *Rejuvenation Research*, April 2018, pages 91–101; *Journal of King Saud University–Science*, January 2018, pages 14–20; *Nutrition and Food Sciences Research*, October–December 2017, pages 15–24; *Environmental Sciences Europe*, March 2016, ePublication; *Dermatologic Therapy*, November-December 2014, pages 317–322.

MYTH #18

Silicones are bad for skin.

FACT: This one is unequivocally false. There is a vast amount of research showing the benefits many types of silicones have for skin (especially when it comes to wound healing). In contrast, not a single study has proven any silicone ingredient is harmful for skin as used in cosmetics.

Contrary to popular claims silicones do not suffocate skin (never mind the fact that skin doesn't "breathe"). Instead, they form a flexible, beautifully smooth, permeable barrier on skin's surface that improves its texture, helps prevent moisture loss, and has amazing barrier protection properties.

What do we mean by "permeable barrier"? It's all about the unique structure of silicones, which are large molecules with wide spaces between each one. This allows silicones to be porous *and* resistant to air, although they don't prevent air from reaching skin.

Another plus? Silicones are non-irritating. In fact, they're so gentle they're used in their pure form in burn units throughout the world to aid healing by helping to maintain skin's water balance and allow an even exchange of air that aids healing.

Think of silicones in skin care like the material of a tea bag: when you steep this bag in water, the tea and its antioxidant components are released. The bag itself doesn't block anything except keeping the larger pieces of tea leaves from escaping. Beneficial ingredients combined with silicones will still get to where they need to be.

TRUTH

MANY PEOPLE ARE SURPRISED TO FIND OUT SILICONES HAVE A NATURAL ORIGIN: THEY BEGIN AS THE MINERAL SILICON WHICH BONDS STRONGLY WITH OXYGEN TO FORM SILICA

Many people are surprised to find out silicones have a natural origin: they begin as the mineral silicon which bonds strongly with oxygen to form silica. Chemists take what begins as a natural ingredient and create various synthetic silicones that are used in skin care products, including those for wounds and scars.

Silicones have many aesthetic advantages, including that they rarely feel heavy or occlusive on skin when compared with classic (beneficial, yet heavier) emollients like petrolatum and mineral oil. Despite their lighter nature, most silicones, especially dimethicone and its derivatives, are excellent for preventing moisture loss which helps skin maintain vital hydration.

References for this information: *Dermatologic Therapy*, July 2020, ePublication; *Clinical Rehabilitation*, January 2020, pages 120–131; *Journal of Cosmetic Science*, June 2019, pages 209–216; *Chemosphere*, September 2018, ePublication; *International Journal of Toxicology*, December 2017, ePublication; *Toxicology Letters*, October 2017, Pages 2–22; *Frontiers in Pharmacology*, May 2016, pages 1–8; *Therapeutic Delivery*, July 2015, pages 827–839; *Journal of Burn Care*, May-June 2017, pages 146–147; *International Journal of Pharmaceutical Compounding*, May-June 2015, pages 223–230; *Skin Pharmacology and Applied Physiology*, January 2014, pages 164–171; *Clinical and Experimental Dermatology*, January 2007, pages 88–90.

MYTH #19

A minimalist skin care routine is best.

FACT: A minimalist routine can work for some. However, if you have multiple or stubborn concerns such as fine lines, wrinkles, large pores, clogged pores, uneven skin tone, acne, rosacea, seborrhea, oily skin, or discolorations, sagging, and so on, minimalist skin care won't be enough, and your skin concerns will just get worse.

Skin care routines can be a little confusing, especially if you are new to skin care. And while having to do fewer steps morning and night might sound appealing it doesn't work for everyone. The problem? Lots of people need more.

TRUTH

AS WITH MOST THINGS RELATED TO SKIN CARE, THERE'S NO ONE-SIZE-FITS-ALL PLAN

As with most things related to skin care, there's no one-size-fits-all plan. As the body's largest organ, skin and its needs are complex and it's under constant environmental threat from things such as daylight and pollution. Aside from removing makeup and cleansing, research has repeatedly proven that skin needs a daily extensive mix of replenishing, restoring, and soothing ingredients along with a broad mix of antioxidants and daily broad-spectrum sun protection to be able to defend itself and maintain its health. Add to that the products you may want to use if you

have special concerns, then for certain a minimalistic approach is not going to work for you.

In short, while minimalist skin care routines may be on-trend and can work for some, it's important to think about your personal skin care goals and concerns, then assemble a skin care routine accordingly. Remember to experiment a bit as well to see which combination provides the best results.

For more information on how to put together a routine that addresses your specific skin concerns, see our article:
https://www.paulaschoice.com/skin-care-advice/skin-care-how-tos/how-to-put-together-a-skin-care-routine

References for this information: *Science*, February 2015, pages 842–847; *Journal of the American Academy of Dermatology*, July 2006, pages 1–19; and June 2005, pages 959–962; *Journal of Investigative Dermatology*, December 2010, pages 2,719–2,726; *Clinical Cosmetic Investigational Dermatology*, November 2010, pages 135–142; *Clinical Dermatology*, September-October 2009, pages 495–501.

MYTH #20

The order you apply your skin care products doesn't matter.

FACT: Applying skin care products in a certain order matters a lot for key steps at the beginning and end of your routine, and there's a simple rule for layering the products in between.

The general rule for any skin care routine is that the first step is cleanse skin, then apply a toner, and then apply a leave-on AHA or BHA exfoliant. After those steps you apply all the other products in your skin care routine in order of their consistency, from thinnest to thickest. Apply the most fluid, lightweight textures first, and then follow with the thicker products. The last product you apply during the day is always sunscreen (nothing except makeup should ever be applied over sunscreen).

At night, you can finish with facial moisturizer and eye cream, if desired, although if you have oily skin, you may find the hydration provided by treatment-oriented products like serums is enough. If you plan to use a facial mask meant to be left on overnight, apply this as the final step in your nighttime routine.

References for this information: *Medicine and Surgery*, June 2019, pages 1–13; *Journal of Cosmetic Science*, May-June 2016, pages 175–183; *Journal of Mississippi State Medical Association*, October 2014, pages 316–320; *Journal of Drugs in Dermatology*, April 2014, pages 414–421; *Indian Journal of Dermatology*, January–February 2011, page 26; and *Dermatologic Therapy*, Supplement 1, February 2004, pages 26–34.

MYTH #21

Drinking more water cures dry skin.

FACT: Studies show drinking extra water has little to no impact on visibly alleviating dry skin.

This is one of those longstanding myths passed on for years, but it isn't supported in the least by the research. Simply put, the causes and solutions for dry skin are more complex than drinking more water can address. In fact, there is only one study indicating drinking more water could *nominally* help dry skin, but it took approximately a gallon of water to see improvement (and a gallon is double the eight glasses of water you usually hear recommended). More important, the improvement was so minor, most people wouldn't notice a difference in real life unless they were dehydrated, in which case resuming normal (not excess) water consumption would likely make skin look better.

What *can* help? Applying replenishing ingredients like ceramides, hyaluronic acid, omega fatty acids, lecithin, electrolytes, niacinamide, non-fragrant plant oils, and glycerin. These ingredients work via multiple pathways to improve hydration in the different layers of skin due to their ability to strengthen and repair skin's barrier as well as its lower layers. By helping skin repair and maintain the health of every layer, it's better able to prevent moisture loss and maintain its ideal water balance.

Long story short: There's no denying staying hydrated is good for your overall health and appearance but drinking water in excess isn't going to change your dry skin, though it will lead to more trips to the bathroom.

References for this information: *Skin Research and Technology*, August 2018, pages 459–565; *Clinical, Cosmetic and Investigational Dermatology*, August 2015, pages 413–421; *British Journal of Dermatology*, July 2008, pages 23–34; *Dermatologic Therapy*, March 2004, pages 43–48; *Journal of Cosmetic Dermatology*, June 2007, pages 75–82; *International Journal of Cosmetic Science*, April 2003, pages 63–95, and October 2000, pages 371–383.

MYTH #22

Dry skin and dehydrated skin are the same thing.

FACT: Dehydrated skin may feel similar to dry skin, but it's triggered by different factors and requires different treatment to address the underlying issue.

When it comes to dry vs. dehydrated skin, it's important to know the difference in order to treat each correctly.

DRY skin produces very little oil. The lack of natural oil leads to a rough, flaky, parched appearance and skin that's often described as feeling too tight. Naturally dry skin also tends to have smaller pores save for on the nose, the area where facial skin has the most oil glands.

Treating DRY skin requires a mix of emollient + replenishing ingredients to restore moisture (shea butter, non-fragrant plant oils, omega fatty acids, and ceramides are good examples).

DEHYDRATED skin produces an adequate amount of oil but may look flaky and feel tight, and uncomfortable because the water content of its lower layers is deficient, usually due to an external trigger such as low humidity, cold, wind, or using the wrong skin care products that are drying or irritating or devices that cause inflammation (more on this below). This can create what some people describe as skin that feels "dry underneath but oily on top".

Another telltale sign of dehydrated skin is that it tends to come and go, whereas truly dry skin rarely fluctuates. Dry skin also tends to worsen, becoming flay and cracked in cold climates.

One of the major causes of sporadically dehydrated skin is using skin care products that contain harsh/sensitizing ingredients. A common culprit is SD or denatured alcohol, which dries out skin and leaves it feeling dehydrated, while simultaneously signaling irritant response that triggers skin to produce more oil.

Other causes of dehydrated skin include habits that significantly disrupt the skin's protective barrier such as routinely exposing skin to hot or cold water, harsh scrubs, stiff-bristled cleansing brushes, or microdermabrasion-type treatments.

Correcting your dehydrated skin for good may be as easy as eliminating habits that disrupt the skin's protective barrier and avoiding products with skin-aggravating forms of alcohol (as well as other skin sensitizers including witch hazel, menthol, peppermint, essential oils and fragrance in general).

For more information on how to choose products for dry vs. dehydrated skin, see our article:
https://www.paulaschoice.com/expert-advice/skincare-advice/skin-care-how-tos/what-is-dehydrated-skin-and-how-to-choose-the-best-products.html

References for this information: *Jurnal Tribologi*, May 2020, pages 59–82; *Journal of Hospital Infection*, August 2019, pages 419–424; *World Allergy Organization Journal*, August 2017, ePublication; *Journal of Clinical Aesthetic Dermatology*, January 2016, pages 25–30; *Skin Pharmacology and Physiology*, February 2014, pages 158–63; *Chemical Immunology and Allergy*, 2012, pages 77–80; *Annals of Pharmaceutical France*, May 2011, pages 135–141; *International Journal of Cosmetic Science*, April 2003, pages 63–95.

MYTH #23

Oily skin doesn't age as fast as dry skin.

FACT: Excess oil can make fines lines and wrinkles slightly less noticeable, but it does not determine how fast skin ages or make you less susceptible to premature signs of aging.

Sebum (skin's oil) contains a good number of fatty acids which help keep skin hydrated and more supple along with bolstering its microbiome, which plays a strong role in maintaining healthy skin. Sadly, sebum does not protect from daily environmental exposure, including sunlight and pollution, that are the primary cause of signs of aging. Surprisingly, having oily skin and going without sunscreen causes the sebum in skin to oxidize, generating skin-damaging free radicals which accelerates premature aging.

No matter your skin type, unprotected sun exposure (the biggest culprit), genetics, repetitive facial movements (plus tugging and pulling at skin), health, lifestyle, gravity, and more all play a role in how quickly skin ages.

TRUTH

HAVING OILY SKIN AND GOING WITHOUT SUNSCREEN CAUSES THE SEBUM IN SKIN TO OXIDIZE, GENERATING SKIN-DAMAGING FREE RADICALS WHICH ACCELERATES PREMATURE AGING

Research supports that it's essential to be as gentle as possible with your skin, no matter your skin type. It's also important to make sure that you're getting a good dose of antioxidants, skin-replenishing, skin-restoring, and skin-soothing ingredients every day. And most importantly, be diligent about liberally applying a broad-spectrum SPF 30+ daily because it is your best defense against fighting signs of aging.

For more information on how to get the antioxidants, skin-replenishing, skin-restoring and skin-smoothing ingredients oily skin needs: https://www.paulaschoice.com/expert-advice/skincare-advice/oily-skin/very-oily-skin.html

References for this information: *Experimental Dermatology*, September 2015, pages 651–654; *Journal of Zhejiang University Science*, January 2009, pages 57–66; *Skin Pharmacology and Physiology*, June 2012, pages 227–235.

MYTH #24

If a product doesn't show instant signs of irritating your skin, it's safe to use.

FACT: Research has demonstrated that products that contain ingredients proven to irritate skin, such as fragrance, denatured or SD alcohol, mint, citrus, and essential oils, are damaging your skin even if you can't see or feel the irritation immediately.

If the product you're using contains irritating ingredients, but you don't see inflammation or feel irritation on the surface of skin, don't be fooled. It is absolutely hurting your skin. Many irritating ingredients never reveal their damage immediately on the surface. Instead, they wreak havoc in the lower layers of skin, triggering inflammation that weakens its protective barrier and accelerates visible signs of aging. Ongoing weakening of skin's supportive layers eventually gives way to its surface looking older than it really is.

TRUTH

AVOID PRODUCTS THAT CONTAIN INGREDIENTS PROVEN TO IRRITATE SKIN, SUCH AS FRAGRANCE, DENATURED OR SD ALCOHOL, MINT, CITRUS, AND ESSENTIAL OILS

Think about it this way: The sun's damaging UVA rays come through windows and begin destroying skin's support structures, yet you never feel a thing. Skin is very good at hiding the harm we inflict on it, so you need to be cautious even when the surface looks like it isn't being impaired.

What to do? Avoid products that contain ingredients proven to irritate skin, such as fragrance, denatured or SD alcohol, mint, citrus, and essential oils (and never go without daily application of broad-spectrum sunscreen!). Even if you can't see or feel their effects instantly, they are damaging skin. The repercussions may not be noticeable in the short term, but they will accumulate and become visible in the long term.

References for this information: *American Journal of Clinical Dermatology*, June 2020, pages 401–409; *Annals of the Brazilian Journal of Dermatology*, August 2017, pages 521–525; *Journal of Dermatological Sciences*, January 2015, pages 28–36; *International Journal of Cosmetic Science*, August 2014, pages 379–385; *Pharmacology Review*, July 2013, pages 97–106; *British Journal of Dermatology*, October 2012, pages 787–793; *Dermatologic Therapy*, June 2012, pages 252–259; *Current Drug Delivery*, November 2011, pages 640–660; *Journal of Agricultural and Food Chemistry*, May 2011, pages 4,676–4,683; *Journal of Biophotonics*, January 2010, pages 82–88.

MYTH #25

A cool or tingling sensation means a product is working.

FACT: A brief, seconds-long tingling sensation such as you may get from a leave-on exfoliant is OK, but a lingering cool or tingling sensation is your skin's way of telling you it's being irritated, not helped.

And it's not just surface-level: in addition to the irritation you feel on the surface, there's also damage occurring below the surface, steadily breaking down skin's support structures.

The most common ingredients that cause a cool or tingling sensation on skin include denatured or SD alcohol, menthol, menthyl lactate, peppermint oil, camphor, and eucalyptus. Avoid products that contain these ingredients, especially when they are among the first ingredients listed.

Some people experience a slight, short-lived tingling sensation when trying higher concentrations of exfoliating ingredients such as glycolic acid. If the sensation is brief (lasting just a few seconds) and subtle, it's not concerning. Why? Because sometimes this is skin's initial response to a bio-active ingredient. In the case of exfoliating acids, the benefits these provide outweigh the brief irritation.

Ideally, this sensation will subside once skin acclimates to the exfoliating ingredient. If it does not or if the sensation worsens, it would be best to stop using the product (it may be too much for your skin).

References for this information: *Frontiers in Medicine*, May 2019, pages 1–5; *Asian Pacific Journal of Tropical Biomedicine*, August 2015, pages 601–611; *Journal of Lifestyle Medicine*, September 2013, pages 91–97; *Contact Dermatitis*, April 2008, pages 143–150 and January 2008, pages 9–14; *Seminars in Cutaneous Medicine and Surgery*, 2013, page 143; *Basic and Clinical Pharmacology and Toxicology*, June 2006, pages 575–581; *Archives of Dermatological Research*, 1996, pages 245–248.

MYTH #26

Having regular professional facials is a must in order to take the best care of your skin.

FACT: Regular facials are not a requirement to achieve better-looking skin and can often be a waste of time and money. Facials that rely on products containing irritating, highly fragrant ingredients, that pull and tug at skin, use devices that repeatedly damage the barrier, or use steam on skin are especially problematic.

The truth is that you can achieve clear, healthy, glowing skin at home with consistent use of well-formulated products for your skin type and concerns. This goal goes hand in hand with being sun smart every day of your life. Although facial treatments can be relaxing and in the right hands provide some noticeable results in the short term, they're not a *requirement* for great skin over the long term.

TRUTH

MANY PEOPLE ARE UNAWARE THAT SOME PROFESSIONAL FACIAL TREATMENTS MAY DO MORE HARM THAN GOOD

Many people are unaware that some professional facial treatments may do more harm than good. Treatments that include overly aggressive exfoliation or extractions, hot water or steam, sensitizing essential oils, facial massage (which can damage skin's elastin), or include products that

contain drying alcohols or other irritating ingredients are all problematic. From irritation and redness to broken capillaries (just to name a few), harsh treatments can undo some of the great results you're achieving at home.

What you do to care for your skin daily is more important than the occasional facial. Regardless of your skin type, regular use of a gentle cleanser, leave-on AHA or BHA exfoliant, serums and treatments loaded with antioxidants and other skin-beneficial ingredients, plus daily application of sunscreen will go a long way towards your skin looking and feeling its best!

If you like the sensorial and pampering experience, the occasional facial treatment (gentle scrub, chemical peel, light extractions, and nourishing fragrance-free masks) can be a complement to your at-home routine. Just be sure to opt for services that are as gentle as possible and ones that are provided by a trusted, qualified skin professional.

To be clear, we are making a distinction between facials versus cosmetic medical procedures such as Botox®, fillers, lasers, and pulsed light treatments, all of which can have remarkable benefits.

References for this information: *Journal of Cosmetic Dermatology*, October 2018, pages 693–702; *Skin Research and Technology*, January 2017, ePublication; *Clinical, Cosmetic, and Investigational Dermatology*, August 2015, pages 455–461; *Biochimica et Biophysica Acta*, May 2012, pages 1,410–1,419; *Journal of Natural Pharmaceutical Products*, January 2012, pages 9–10; *Evidence Based Complementary and Alternative Medicine*, June 2011, ePublication; *British Journal of Dermatology*, November 2000, pages 923–929.

MYTH #27

Dark circles, especially those you inherit, can be corrected if you get the right eye cream.

FACT: Getting rid of dark circles is very difficult but even more so if you've inherited the problem as a family trait. When the cause of your dark circles in inherited an eye cream won't be of much help but lasers and certain cosmetic corrective procedures might be able to help.

Dark circles are among the most frustrating skin concerns people struggle with. They can be caused or made worse by external factors such as sun damage and exposure to pollution or internal factors like genetics and allergies. Regardless of the cause, dark circles are often made worse by the build-up dead skin, irritating skin care ingredients such as fragrance, or the habit of rubbing your eyes.

TRUTH

DARK CIRCLES ARE OFTEN MADE WORSE BY THE BUILD-UP DEAD SKIN, IRRITATING SKIN CARE INGREDIENTS SUCH AS FRAGRANCE, OR THE HABIT OF RUBBING YOUR EYES

Some dark circles around the eyes respond well to ingredients like niacinamide, retinol, vitamin C, and azelaic acid. Applying a leave-on alpha or beta hydroxy acid exfoliant and of course, daily application of mineral-based sunscreen can also help. But if you have a genetic/physiological propensity for dark circles, it's going to take more than skin care to address the underlying causes.

This can also be true for dark circles triggered or darkened by advanced sun damage. In other words, it will take experimenting with the ingredients and procedures research has shown are most effective for dark circles to find what works best for you.

How do you know if your dark circles have been handed down to you through DNA? If it's an inherited trait, you'll likely notice other family members of all ages with the same issue. Research also indicates that the prevalence of dark circles is higher among certain populations, particularly those with darker skin tones.

For some people, dark circles are simply a vascular result of prominent veins showing near the surface of the thin skin of the undereye area. For others, dark circles are visible due to the natural shadows that occur as a result of deep-set eyes or the indented contours of the tear trough area. Sagging skin and the shifting of fat pads from aging can also create a shadowy or hollow appearance that contributes to dark circles.

In these instances, it's best to consult with your dermatologist/physician to discuss treatments that go beyond skin care (rather than throwing money at products that will never truly give you the results you want). These may include facial peels, various light-emitting treatments, artful use of special dermal fillers, or a combination approach.

Regardless of the cause or which in-office treatments you try, daily skin care still matters. You need to apply a moisturizer or eye cream containing the ingredients we mentioned and a mineral-based sunscreen with SPF 30 or greater every day to prevent the dark circles from getting worse. Take it a step further by wearing UV-rated, wraparound-style sunglasses when outdoors to increase protection for the delicate skin around the eye.

References for this information: *Cosmetics*, March 2021, pages 1–12; *Dermatologic Surgery*, January 2021, pages 70–74; *Annals of Dermatology*, October 2018, pages 522–528; *Lasers in Medical Science*, December 2016, pages 1,783–1,787; *Skin Research and Technology*, August 2016, pages 276–283; *Indian Journal of Dermatology*, July-August 2016, pages 413–417; *Journal of Cutaneous and Aesthetic Surgery*, April-June 2016, pages 65–72; *The Journal of Clinical and Aesthetic Dermatology*, January 2016, pages 49–55.

MYTH #28

Certain skin care products such as facial masks and special spa treatments can detox skin.

FACT: Simply put, it is physiologically impossible for any skin care product, ingredient, or spa treatment to detoxify skin. That's because skin is not a detoxifying organ of the body—that job falls to the liver and kidneys. Neither the skin nor its pores can purge toxins, even though such claims run rampant in the world of skin care and spa treatments.

Toxins are produced by just about everything in our world, ranging from plants to animals, insects, industrial waste, people, smoking, garbage, heavy metals, car exhaust, and on and on and on. Yet even though the skin can't eliminate any of this from the body, the claims that skin care products or facial treatments can have this benefit persists. Of course, exactly which toxins these products or treatments are supposed to be purging from the skin is never specified. You're just supposed to believe they're being removed without looking too closely at the reality.

What about the notion that sweating removes toxins through the sweat glands of the skin? A few studies have indicated that sweat itself can act as a carrier in "detoxifying" by removing unspecified trace heavy metals from the body. However, before you spend time sitting in a sauna or steaming your skin, the methodology of those studies was considered questionable when reviewed by independent third-party experts. Even if it were possible to eliminate traces of toxins through sweat, "trace" is just that, negligible and pretty much meaningless for the health of your body or skin.

TRUTH

SAVE YOUR TIME AND MONEY BY STICKING WITH WHAT THE RESEARCH SHOWS CAN REALLY WORK AND IGNORE SKIN DETOX CLAIMS

Save your time and money by sticking with what the research shows can really work and ignore skin detox claims because they really are more fantasy than reality.

For more information on keeping your skin barrier healthy: https://www.paulaschoice.com/skin-care-advice/moisturizers/what-is-skin-barrier-and-why-it-matters

References for this information: *National Center for Complementary and Integrative Health*, Accessed February 2022, ePublication; *Annales Pharmaceutiques Françaises*, November 2019, pages 446–459; *Journal of Dietary Supplements*, June 2018, pages 649–658; *Journal of Human Nutrition and Dietetics, December* 2015, pages 675–686; *Journal of Nutrition and Metabolism*, June 2015, pages 1–23; *Experimental Diabetes Research*, August 2012, pages 1–9; *Harvard Health Publishing*, May 2008, ePublication.

MYTH #29

Do-it-yourself (DIY) skin care is a great way to take care of skin and save money.

FACT: It's tempting to gather ingredients from your pantry and whip up your own skin care products, but the truth is that it's rarely in the best interest of skin, even when the ingredients are beneficial.

While there are wonderful skin care ingredients you could find in your kitchen such as green tea, plant oils, soy milk, honey, and yogurt, to name a few, how to combine them into an effective, stable formulation is an entirely different story. As an analogy, just because you have old computer parts in your home doesn't mean you can build a state-of-the-art computer that works.

The biggest challenge for creating skin care products is delivering key ingredients into skin. That requires sophisticated complex formulary skills. Applying pure honey or green tea on your skin isn't the same as what a brilliant skin care formula can provide, even though both ingredients are beneficial.

The larger concern is that many of the do-it-yourself recipes include ingredients that can be problematic and trigger or exacerbate skin concerns. Lemon and orange may sound refreshing, but both can cause irritation and even be phototoxic to skin when you're out in the sun.

Isopropyl (rubbing) alcohol and witch hazel may provide a squeaky-clean feel and toothpaste may dry up an oily pimple, but all of these are drying and strip skin of natural beneficial substances. Worse yet, sugars, salts and baking soda may sound like good, inexpensive options for exfoliation, but each can cause micro-tears in skin that leave it compromised, fragile and less able to defend itself against environmental aggressors.

TRUTH

ISOPROPYL (RUBBING) ALCOHOL AND WITCH HAZEL MAY PROVIDE A SQUEAKY-CLEAN FEEL AND TOOTHPASTE MAY DRY UP AN OILY PIMPLE, BUT ALL OF THESE ARE DRYING AND STRIP SKIN OF NATURAL BENEFICIAL SUBSTANCES

Even when the DIY ingredients you want to consider using are good for skin or may have been passed down to you as a home remedy, they are still limited in their effectiveness and stability. What your skin needs to look and feel it's best is a broad range of products and ingredients including gentle cleansing, a leave-on exfoliant that contains alpha and/or beta hydroxy acids, an array of skin-restoring, replenishing and soothing ingredients, potent antioxidants and of course daily sun protection from a broad-spectrum sunscreen rated SPF 30 or greater. Those aren't the kind of recipes you can easily cook up in your kitchen.

References for this information: *American Journal of Clinical Dermatology*, February 2018, pages 103–117; *Biomedicine and Pharmacotherapy*, August 2017, pages 849–855; *Journal of Alternative and Complementary Medicine*, July 2015, pages 380–385; *Critical Reviews in Food Science and Nutrition*, 2013, pages 728–750; *PLoS ONE*, January 2013, ePublication; *Indian Journal of Pharmacology*, November-December 2012, pages 784–787; *Journal of Cosmetic Science*, September-October 2011, pages 505–514.

MYTH #30

You should avoid skin and hair care products that contain sulfates, parabens and mineral oil because all of these ingredients pose a risk to your health.

FACT: Sulfates, parabens, and mineral oil are brilliant ingredients in the world of skin care with decades of research proving their efficacy and safety, yet they continue to be wrongly vilified and maligned. Just when we think the unfair negative hype about them has subsided, it gears up again, often adding new misleading information to the story. Here's the research-supported truth about each of them:

SULFATES

This vast range of ingredients are used as cleansing and foaming agents in skin care and hair care. They are excellent at washing away oils, dirt, and impurities and are not known to leave a skin- or hair-dulling residue.

If you have been thinking about sulfate-free options, know there is no research anywhere stating that non-sulfate cleansing agents are any gentler or better for hair (or skin) than standard sulfate-based surfactants. In fact, research has shown that using a combination of surfactants, each at low levels, produces gentle cleansing formulas that remain highly effective.

The myths and misleading information surrounding the safety of these ingredients generally stem from their production process. The concern is the way sulfates are manufactured creates a by-product that is considered a potential carcinogen. The key word here is "potential": just because something is a potential carcinogen in a lab setting when fed to mice in high doses does not translate to how these ingredients are used by people. According to the safety assessment published in the *International Journal*

of Toxicology, sulfates "have not evoked any adverse responses in any toxicological testing, including acute oral toxicity, subchronic and chronic oral toxicity, reproductive and developmental toxicity, carcinogenicity, and photosensitization studies."

The other concern is sensitivity. While certain ingredients such as sodium lauryl sulfate or SLS (not to be confused with the gentler sodium laureth sulfate or SLES) can indeed be sensitizing and drying in higher concentrations, that does not represent the entire class of ingredients, nor does it make them dangerous.

Even the research about sulfates being sensitizing can be a little misleading. That's because results related to sensitivity included patch tests done where a concentration of the pure sulfate ingredient was left on bandaged skin for 24 hours. That's not how these ingredients are used in skin care products. Rinsing off a skin care or hair care product with sulfates after brief contact with skin or hair is very different from 24-hour exposure under occlusion!

PARABENS

Parabens, specifically methylparaben, ethylparaben, propylparaben and butylparaben have a long track record of safety and efficacy and rank among the least sensitizing preservatives on the market despite a sharp downturn in their use due to misinformation.

Moreover, we know parabens applied to skin are broken down in the lower layers of skin before a small amount enters the body, meaning topical use of parabens does not lead to the presence of *intact* parabens in the body. The skin-metabolized parabens do not magically reassemble themselves in the body, their by-product, known as p-hydroxybenzoic acid is broken down further and then excreted via urine.

TRUTH

PARABENS ARE A FOOD GRADE PRESERVATIVE AND ALSO FOUND NATURALLY IN PLANTS SUCH AS RASPBERRY, CHERRY, CARROT, AND ONIONS

You may be surprised to know that parabens are a food grade preservative and also found naturally in plants such as raspberry, cherry, carrot, and onions.

Unfortunately, all the misinformation and fearmongering have caused many cosmetic companies to seek alternative preservatives that don't have the longstanding safety, effectiveness, or gentleness record parabens have when used in the approved amounts, which is typically 0.4% or less for a single paraben and no more than a 0.8% concentration of a paraben blend.

MINERAL OIL

Mineral oil has been used in skin care for decades, and while some people swear by it, others believe it is one of the worst ingredients around. So, what's the truth?

Confusion around mineral oil has a lot to do with it originating from crude oil (itself a natural ingredient). That is its origin, but the mineral oil used in cosmetics and pharmaceutical products is highly purified, just like how plants that come from the ground must be purified of dirt, insects, molds, heavy metals, etc. before being used in skin care.

Mineral oil is a colorless, odorless oil that's considered completely safe and benign on skin. It's remarkably effective for dry skin and is even used in many wound-healing ointments meant for skin, lips, and the eye area. It's never been shown to cause any health issues and remains one of the all-time great ingredients for dry skin.

TRUTH

MINERAL OIL IS A COLORLESS, ODORLESS OIL THAT'S CONSIDERED COMPLETELY SAFE AND BENIGN ON SKIN

What about mineral oil being pore-clogging? Although it does have a thick, greasy texture that someone with oily, acne-prone skin won't love, the molecular size of mineral oil is too large to get stuck in the pore lining where clogs form.

Mineral oil is an excellent ingredient for many skin care products meant for dry, chafed skin. From creating a smoother texture, to forming a film that reduces water loss, to protecting skin from external triggers of dryness, mineral oil can provide significant benefits and is absolutely not a dangerous ingredient for skin.

References for this information: *Dermatitis*, January-February 2019, pages 32–45 and November-December 2015, pages 254–259; *Toxicology Letters*, October 2017, pages 70–78 and December 2013, pages 295–305; *Journal of Exposure Science and Environmental Epidemiology*, May 2017, 320–325; *Environmental Science and Technology*, April 2017, page 4,009–4,017; *Journal of Applied Toxicology*, April 2017, ePublication; *Annual Review of Food Science Technology*, February 2017, pages 371–390; *Journal of Clinical & Experimental Dermatology Research*, November 2014, ePublication; *British Journal of Dermatology*, July 2014, pages 115–123; *Skin Therapy Letter*, July-August 2013, pages 5–7; *International Journal of Cosmetic Science*, December 2012, pages 511–518; and October 2007, pages 385–390; *International Journal of Toxicology*, July 2010, pages 151S–161S; *Journal of Agricultural Food Chemistry*, June 2008, pages 4,631–4,636; *Journal of Dermatologic Science*, May 2008, pages 135–142; *International Journal of Toxicology*, April 2008, pages 1–82; *Contact Dermatitis*, January 2003, pages 26–32; *Food and Chemical Toxicology*, March 2001, pages 279–286.

MYTH #31

Chemical sunscreen ingredients are bad for your skin.

FACT: So-called "chemical" sunscreen actives are not inherently bad for skin. This is another example of "chemical" (synthetic) ingredients being viewed negatively when the research is 100% clear the threat of the sun's UV light is the real danger. Anything you can do to protect your skin from the sun will save it from premature aging and decrease the risk of skin cancer.

Technically, all sunscreen ingredients (indeed, all cosmetic ingredients period, regardless of the source) are considered "chemicals". There are two main types of sunscreen ingredients, mineral and non-mineral. Mineral sunscreen ingredients include zinc oxide and titanium dioxide. The non-mineral sunscreen actives such as oxybenzone and octinoxate are often deemed "chemical". A more accurate name for these non-mineral sunscreens is synthetic, since they are lab-made, and they are completely safe and effective when used as directed.

Research is definitive that protecting your skin from exposure to UV light, whether you're using non-mineral or mineral sunscreens, can offset several skin *and* health problems now and in the years ahead. Going without sunscreen when outside causes significant, cumulative, and lasting damage to every part of skin, which is why sunscreen, sun-protective clothing, and other sun-smart behavior are necessary to reduce this threat.

Despite the clear evidence on the benefit of daily use of sunscreens, some media-hyped studies on synthetic sunscreens have unfortunately created consumer concern. Most of these studies did not accurately

represent real world scenarios. For example, studies where the synthetic sunscreen ingredients were ingested or applied to isolated cells in a lab showed a link to endocrine (hormone) disruption. What's often left out of such stories is that separate studies involving topical application of synthetic sunscreen ingredients on people have NOT shown any biologically significant effect on hormones.

TRUTH

STUDIES INVOLVING TOPICAL APPLICATION OF SYNTHETIC SUNSCREEN INGREDIENTS ON PEOPLE HAVE NOT SHOWN ANY BIOLOGICALLY SIGNIFICANT EFFECT ON HORMONES

While some studies using topical application on people have shown that sunscreen ingredients can end up in the body, those studies have not linked the ingredients to any negative health issues. Lots of ingredients end up in the body, from what you eat to what you inhale in the environment, or come into contact with, including plants in skin care products (for example, lavender and tea tree oils are endocrine disruptors).

Other studies that tend to scare people about sunscreens absorbing into the body base their results on huge amounts no person would ever apply. For example, a person would need to apply a lot of sunscreen for a hundred years to come close to matching the amounts used in animal tests that showed concerning results. In short, the scary outcome of such tests doesn't match real-world scenarios, not even remotely.

If you remain concerned about synthetic sunscreen ingredients, opt for the mineral filters titanium dioxide and zinc oxide, which are also ideal choices for those with sensitive skin.

References for this information: *Journal of Cosmetic Dermatology*, March 2021, pages 729–737; *Current Dermatology Reports*, January 2020, pages 1–9; *International Journal of Dermatology*, 2019, September 2020, pages 1,033–1,042; *American Journal of Clinical Dermatology*, May 2017, pages 643–650; *Toxicology Reports*, May 2017, pages 245–259**;** *BioMed Research International*, December 2016, ePublication; *International Journal of Molecular Sciences*, June 2013, pages 12,222–12,248; *Archives of Dermatology*, July 2011, pages 865–866.

MYTH #32

Sunscreens labeled Reef-safe are proven to not harm coral reefs.

FACT: Reef-safe is a marketing term. Many UV filters labeled as reef-safe have an unknown impact on coral reefs. In fact, there isn't enough conclusive data to understand the true impact of any sunscreen ingredient on coral reefs. We do know that coral reefs face risks from pollution, coastal development, and climate change that far outweigh risks from sunscreen ingredients.

Scientists who have analyzed the concerns of how UV sunscreen filters may affect coral reefs know there isn't enough data to reach any conclusion one way or the other.

Some countries and states have banned certain UV filters such as oxybenzone. This is truly shortsighted because there is a lack of evidence proving that other sunscreen ingredients (that are often labeled as reef-safe) are better for coral reefs. For these reasons, scientists caution that the use of alternative supposedly reef-safe UV filters could have similar or more complex outcomes. You are not helping coral reefs by buying into the reef-safe marketing claim.

It's also important to keep in mind that coral reefs in remote parts of the world where there is limited to no human contact (and thus, no exposure to sunscreen) have suffered extensive damage due to rising carbon dioxide levels that trigger ocean acidification resulting from pollution and warming due to climate change, not sunscreen. The threat of invasive species is also a documented causative factor in coral decline.

TRUTH

THERE IS A LACK OF EVIDENCE PROVING THAT OTHER SUNSCREEN INGREDIENTS (THAT ARE OFTEN LABELED AS REEF-SAFE) ARE BETTER FOR CORAL REEFS

There are many complicated questions yet to be answered about how to protect our precious oceans and coral reefs. As mentioned above, climates such as La Niña and El Niño weather patterns play a natural role as does coastal development. As one retrospective report stated "While climate change alone is a major threat to coral reefs, it cannot be considered in isolation when local human activities are severely damaging coral reef. These include direct damage and sedimentation from coastal development, pollution from land-use change, increased nutrients from agriculture, invasive species, overfishing and destructive fishing practices." Notice that sunscreens weren't on that list.

Our strong recommendation is that you need to protect your skin from the sun when swimming in the ocean and you must wear water-resistant sunscreen. Do not forgo this step! But what you can also do is wear sun protective clothing in the water so you will only need to apply a fraction of the amount of sunscreen you normally would. This is a helpful approach for the coral reefs and oceans.

References for this information: *Environmental Toxicology and Chemistry*, Volume 40, Number 4, April 2021, pages 967–988; *International Journal of Women's Dermatology*, January 2021, pages 45–69; *Sustainable Futures*, Volume 2, 2020, ePublication; *Photodermatology, Photoimmunology, and Photomedicine*, November 2019, pages 442–446; *PLoS One*, February 2018, ePublication.

MYTH #33

You should never exfoliate more than 2–3 times per week.

FACT: Depending on your skin type and skin concerns, you can get beautiful results if you exfoliate as often as once or twice a day. This assumes you use a well-formulated gentle leave-on exfoliant that contains research-supported concentrations of AHAs (alpha hydroxy acids) BHA (beta hydroxy acid), or PHAs (polyhydroxy acids).

Because everyone's skin care needs are different there are no definitive rules on how often to use an exfoliant, so it all depends on what works best for your skin type, skin concerns, and how your skin responds.

Using a gentle, leave-on exfoliant twice per day can be a great way to go if you have more stubborn bumps, clogs, or advanced signs of sun damage. Others will find once-daily or even once every other day-usage is their skin's sweet spot, or you may find this pattern is great for maintenance after a few months of twice-daily usage.

Note: If you're new to using hydroxy acid exfoliants, it's smart to introduce them into your routine slowly. For initial use, that means spacing out application to only two or three times the first week. As long as your skin does well (no signs of redness, flaking, or irritation), you can gradually increase frequency as desired.

It's important to emphasize that leave-on, acid-based exfoliants do not impact skin's natural turnover rate in the living layers of skin where new skin cells are formed. Leave on AHA and BHA exfoliation simply help dead skin cells in the uppermost layers of skin (and, in the case of BHA, in the pore lining) shed normally as young skin does. This is an important

skin care step because the skin's natural exfoliation process can become impaired due to sun damage, aging, genetics, or certain skin conditions such as oily skin and acne.

TRUTH

LEAVE ON AHA AND BHA EXFOLIATION SIMPLY HELP DEAD SKIN CELLS IN THE UPPERMOST LAYERS OF SKIN SHED NORMALLY AS YOUNG SKIN DOES

Specific to salicylic acid, it's been an approved over-the-counter acne-fighting ingredient since 1985, although it has been used in that capacity for much longer. As part of the United States Food & Drug Administration's acne monograph, it is advised for use up to 3 times per day, in concentrations between 0.5–2%. Several studies have shown twice-daily usage of products with 2% salicylic acid are effective and well-tolerated.

Every Paula's Choice Skincare AHA and BHA exfoliant is formulated to be effective and gentle, containing a selection of proven skin-soothing ingredients to ensure the best possible results regardless of which frequency of use you find is ideal for your skin. And we never use any irritating ingredients such as denatured alcohol, fragrance, menthol, and irritating plant extracts that cause barrier disruption and dry, flaky skin.

References for this information: *Cosmetic Ingredient Review*, June 2019, pages 1-60; *International Journal of Toxicology*, Volume 36, Issue 5, Supplement 2, October 2017, pages 15S–21S; *Journal of Drugs in Dermatology*, March 2013, pages 259–264; *Clinical, Cosmetic, and Investigational Dermatology*, November 2010, pages 135–142; *Italian Journal of Dermatology and Venereology*, June 2010, pages 319–322; *Cutis*, February

2004, Supplement 2, pages 3–13; *Archives of Dermatology*, June 1996, pages 631–636; *Journal of Dermatological Treatment*, February 1996, pages 93–96.

MYTH #34

You should choose either a BHA or AHA exfoliant and never use them together.

FACT: For some people AHAs and BHAs can be used together – with either alternating use or applying at the same time – with extremely positive results.

While you might not *need* to use an AHA (alpha hydroxy acid) and BHA (beta hydroxy acid, also known as salicylic acid) exfoliant together, you absolutely *can* – what's most important is experimenting to find out which application method works best for you.

It's crucial that you select well-formulated, gentle products to get the most out of both types of exfoliants and minimize the risk of over-exfoliating or irritation. By well-formulated, we mean products that have supporting ingredients, including skin soothers and antioxidants, that take them beyond exfoliation alone. They also need to be formulated within the optimal pH range (between 3–4) for exfoliation to occur.

The key reason for using an AHA and BHA exfoliant at the same time is whether your skin needs more thorough exfoliation. This might be the case for those who have advanced signs of sun damage, deep wrinkles, stubborn clogged pores and bumps, or persistent dull, flaky skin.

What's the best method for incorporating AHAs and BHAs into your routine? Alternating usage is one way, though you can use both together at the same time. If you're doing that, apply the exfoliants after cleansing and toning, starting with whichever has the thinner texture; for example, regardless of the type of acid, you'd apply a liquid before a gel or lotion.

You don't need to wait for one to absorb before applying the next, and you can immediately follow with the rest of your skin care routine—it won't throw off the pH or decrease the effectiveness of either exfoliant.

You can also use a single leave-on exfoliant formulated with both AHAs and BHA – the key is looking for one that discloses the amounts of acids used so you know you're not overdoing it; amounts between 5–10% are great for most people.

If you choose to alternate, here are tips on how to do so:

- Most people do fine exfoliating once daily, morning or evening based on personal preference.

Note: If you're new to using these types of exfoliants, incorporate them gradually, so that you're only doing this step two to three times max the first week. As long as your skin does well (no signs of redness, flaking, or irritation), you can gradually increase frequency as desired.

- If you want to alternate an AHA and BHA, simply decide which exfoliant to use at the beginning of each week and then switch back and forth day by day. You can also use one for a week, then switch to the other the next week.
- Another option is to apply one type of exfoliant in the morning and the other at night. This can be a great approach for breakout-prone skin showing signs of sun damage.
- You also can experiment by alternating different strengths of an AHA or BHA—or both!
- Once or twice per week, rotate into your routine a higher-strength specialty AHA and/or BHA treatment to give yourself an "at home peel" experience that delivers more dramatic results.

Ultimately, there's no single best way to go about using AHA and BHA exfoliants; it's all about experimentation to find what works best for you and then adjusting as needed based on the changing needs of your skin.

For additional information on choosing the right AHA or BHA products for your skin concerns, see our article: https://www.paulaschoice.com/skin-care-advice/exfoliants/difference-between-aha-and-bha-exfoliants

References for this information: *Clinical, Cosmetic, and Investigational Dermatology*, August 2015, pages 455–461 and November 2010, pages 135–142; *Dermatology Research and Practice*, February 2015, ePublication; *Journal of the German Society of Dermatology*, July 2012, pages 488–491.

MYTH #35

You should not use retinol at the same time as AHA or BHA exfoliants because the acidity of AHA & BHA exfoliants reduces retinol's effectiveness.

FACT: Research has not shown that alpha or beta hydroxy acid (AHA or BHA) exfoliants make retinol any less effective when applied one after the other.

The faulty premise is that the low pH of a leave-on exfoliant (which is necessary for their effectiveness) will somehow deactivate retinol. But that's not what happens. Retinol is naturally present and active in our skin and skin is naturally acidic. We know pH isn't a problem for the retinol (in the form of retinyl palmitate) that already exists in skin.

AHAs and BHA help products deliver their vitally important ingredients (like retinol) by removing the dead skin that limits their absorption. As long as your skin tolerates these ingredients, it's very beneficial to make them part of your skin care routine.

TRUTH

RESEARCH HAS ALSO SHOWN THAT USING RETINOIDS WITH AN EFFECTIVE AHA OR BHA PRODUCT INCREASES THE BENEFITS OF EACH

Research has also shown that using retinoids with an effective AHA or BHA product increases the benefits of each. This combination has proven to be a very effective approach to reduce signs of sun damage, clogged pores and acne as well as post-breakout marks and other types of hyperpigmentation.

Comparative studies have proved that retinol and salicylic acid or glycolic acid can be used together with remarkable results for the treatment of certain forms of acne.

If you're worried about the pH of AHA or BHA exfoliants rendering the retinol ineffective, don't be. Once a formula's pH has been established, it is not easily altered by applying a product with a different pH.

Where this myth about retinol and AHA and BHA probably stems from is how the two ingredients work in a formula versus how they work on skin. Retinol needs to be formulated in a product with a pH range of 5–6 but applying an exfoliant whose pH is between 3–4 will not alter the performance of retinol on and within skin. However, within the same product, retinol and AHA or BHA will be a problem and won't be very stable. But this is different from applying a pH-established exfoliant followed by a *separate* retinol product formulated in its ideal pH range.

Note: Whenever you're incorporating new active ingredients or combining advanced formulas, such as retinol and AHA/BHA exfoliants, it's smart to introduce them into your routine slowly. For initial use, that means spacing out application to only two or three times the first week and alternating between highly active formulas. As long as your skin does well (no signs of redness, flaking, or irritation), you can gradually increase frequency as desired.

References for this information: *Journal of Italian Dermatology and Venereology*, October 2020, pages 14–21; *Journal of Cosmetic Dermatology*, March 2016, pages 36–42; *The Journal of Clinical and Aesthetic Dermatology*, October 2015, pages 21–26;

Indian Dermatology Online Journal, March-April 2015, pages 84–88; *International Journal of Cosmetic Science*, Volume 30, 2008, pages 175–182; *Dermatology*, January 2005, Supplement 210, pages 14–21.

MYTH #36

All skin care ingredients are absorbed into the body.

FACT: Most skin care ingredients do not get into the body and the small amount of those that do have not been shown to cause health problems.

This is a confusing topic due to a preponderance of misinformation and misunderstanding of how ingredients work on skin. While some speculate that the body absorbs sixty percent or more of the ingredients applied to skin, others say the number is closer to zero.

TRUTH

IN TRUTH, THE LAYERS OF SKIN ARE ACTUALLY VERY GOOD AT KEEPING INGREDIENTS OUT OF THE BODY OR BREAKING THEM DOWN BEFORE THEY CAN GO ANYWHERE ELSE BESIDES THE SKIN

Part of the art and science of cosmetic chemistry is understanding the penetration limitations of ingredients and how those can be combined with other ingredients and types of emulsions to enhance, limit, or even prevent penetration beyond skin's uppermost layers. Delivery systems can

also be utilized to keep key ingredients within skin, unable to be absorbed further. Essentially, the goal is to keep the ingredients where they will do the most good, which is on and within skin.

A couple of terms used interchangeably: penetration and absorption. What's the difference? Penetration is about an ingredient's ability to enter different layers of skin, while absorption refers to an ingredient's ability to make it past all layers of skin and into the body. This type of absorption is the case for transdermal products (medicinal products applied to the skin via a patch, such as nicotine and insulin), that is not the case for most skin care ingredients.

Can any ingredients absorb into the body? Yes, but when this occurs the body does what it's supposed to do: recognize the ingredient, metabolize it, and eliminate it. Studies have not shown common skin care ingredients that are used topically accumulate in the body and cause health problems.

Absorption rates of ingredients vary based on their molecular size. The smaller the size, the more likely it will penetrate skin and potentially enter the body but once again, skin is good at keeping things out: its natural defense system is composed of enzymes that can limit how far certain ingredients go or break them down to easily metabolized fragments the body then eliminates.

Skin care products are generally formulated so that key ingredients get to where they need to be in skin: some remain on the very surface, some penetrate a bit further, and some go deeper still for multi-level hydration, replenishment, and repair. This is what the skin needs to repair the harm caused by environmental damage.

References for this information: *Journal of Applied Toxicology*, March 2020, pages 403–415; *Current Problems in Dermatology*, Volume 49, 2016, pages 103–111; *Pharmaceutics*, December 2015, pages 483–470; *Current Pharmaceutical Design*, Volume 21, 2015, pages 2,698–2,712 and pages 2,713–2,724; *International Journal of Cosmetic Science*, December 2012, pages 525–535 and February 2009, pages 1–15; *European Journal of Dermatology*, July-August 2009, pages 309–323.

MYTH #37

CBD has no research showing it benefits skin. It's just an overhyped trend.

FACT: CBD (full ingredient name: cannabidiol) is a soothing ingredient for skin. Ongoing research has shown that it works topically to reduce inflammation, the cause of many skin concerns.

CBD seems to exert its calming effect via multiple pathways, one of which involves boosting skin's antioxidant defense system, which can become depleted due to environmental exposure.

Research has shown that cannabinoids such as CBD have an excellent calming effect when used topically, leading to healthier-looking skin. This truly exciting benefit makes CBD an important ingredient for interrupting the progression of damage within skin that can lead to signs of aging and sensitivity. What remains unclear at this point is exactly how CBD works its magic, but research to gain a better understanding of this is ongoing.

Also unclear is how much CBD a skin care product needs to contain in order to deliver results; however, we can calculate amounts very likely to be effective based on research that's been done to date. Any CBD skin care product you buy should list its CBD content in milligrams. Even better if the brand makes their third-party assay (a test to confirm the product really contains CBD) available to consumers.

Lab-made (synthetic) cannabidiol is also showing promise for several skin issues, although this form does not contain traces of other cannabinoids which are believed to make plant-derived CBD more effective than what's known as CBD isolate (pure cannabidiol).

TRUTH

ANY CBD SKIN CARE PRODUCT YOU BUY SHOULD LIST ITS CBD CONTENT IN MILLIGRAMS

We continue to monitor the research and regulations on this ingredient—it's currently not allowed to be sold in all parts of the world—but feel strongly that CBD is worth exploring as a soothing skin care ingredient. That's because inflammation is at the core or at least plays an indirect role in every undesirable change in skin's behavior and appearance.

References for this information: *Clinical, Cosmetic, and Investigational Dermatology*, December 2020, pages 927–942; *Molecules*, February 2020, ePublication; *Redox Biology*, January 2020, ePublication; *Cells*, August 2019, ePublication; *La Clinica Terepeutica*, March-April 2019, pages e93–e99.

MYTH #38

Humectants like glycerin and hyaluronic acid pull water from skin causing dehydration.

FACT: Humectants are smart ingredients that can detect where skin needs more moisture, and act accordingly to keep skin's water levels balanced.

Humectants are ingredients that attract water to skin. They include glycerin, hyaluronic acid, sodium hyaluronate, sodium PCA, various glycols, amino acids, glycolic and lactic acids, various plant sugars known as polysaccharides, honey, panthenol, and urea (when used in concentrations of 10% or less).

Humectants draw and bind this moisture to skin then help evenly distribute it within skin's water channels, known as aquaporins. They give skin a plump, dewy, smooth look, which is why at least one or two from the list above are commonly used in moisturizers and serums. Glycolic and lactic acids help skin make more ceramides, which are vital components of its surface layers that help lock hydration in.

Along with attracting water from the ambient air, humectants can also pull it from skin's lower layers, potentially causing what's known as transepidermal water loss. The common thinking is that this would make dry skin worse, but in fact many humectants (and the ingredients paired with them) form a flexible film on skin that keeps the water that's drawn from skin's lower layers from evaporating. In essence, humectants are smart ingredients that sense where skin needs more moisture, and act accordingly to keep skin's water levels balanced.

Applying a pure humectant such as 100% glycerin to skin might seem like a bad idea in a very low humidity environment, but pure glycerin is considered excellent at preventing water loss, so even if it pulls a lot of water from deeper in skin, it keeps it from escaping so skin still benefits.

TRUTH

MANY HUMECTANTS (AND THE INGREDIENTS PAIRED WITH THEM) FORM A FLEXIBLE FILM ON SKIN THAT KEEPS THE WATER THAT'S DRAWN FROM SKIN'S LOWER LAYERS FROM EVAPORATING

Today's best skin care products artfully combine humectants with emollients, replenishing fatty acids, peptides, and hydrating antioxidants to help skin get the most from them. At the same time, such blends work with humectants to minimize water loss and keep skin soft, smooth, and comfortable.

References for this information: *Clinical, Cosmetic, and Investigative Dermatology*, October 2018, pages 491–497; *Clinical Medicine and Research*, December 2017, pages 75–87; *Indian Journal of Dermatology*, May-June 2016, pages 279–287; *International Journal of Cosmetic Science*, April 2017, pages 165–178; and October 2014, pages 412–418.

MYTH #39

You shouldn't apply niacinamide at the same time as vitamin C or retinol.

FACT: Retinol, vitamin C, and niacinamide can be used together without concern. In fact, using all three has a synergistic impact which enhances your results.

Although all these superstar ingredients are incredibly effective on their own, research has shown that combining niacinamide with retinol can keep skin calm and enhance tolerability while retinol works its wrinkle-fighting magic. These two ingredients work in different yet complementary ways to reduce signs of aging, while also addressing other issues like enlarged pores and uneven skin tone.

Niacinamide helps stimulate skin's natural production of beneficial fatty acids and ceramides, which reinforces retinol's ability to improve the look and feel of skin's surface. Each works in different ways to normalize pore function, which helps skin double down on oil control and minimize enlarged pores.

Last, both take unique pathways to improve uneven skin tone and brighten dull skin—even more reason to use them in tandem. Vitamin C helps in this regard, too!

As for vitamin C and niacinamide, several sources online incorrectly state that combining them creates a two-fold problem: it neutralizes the effectiveness of both ingredients and might create a by-product (nicotinic acid) that triggers redness.

Although studies showing incompatibility between niacinamide and vitamin C exist, they date back to the early 1960s (yes, that far), and were doomed from the start because they used non-stabilized forms of both ingredients. In modern-day cosmetic formulas, both ingredients are stabilized, so the risk of one inactivating the other is irrelevant.

Going further, the formation of irritating nicotinic acid as a by-product of niacinamide and vitamin C only happens when the two ingredients are combined in a high-temperature environment for a long time. This type of environment does not reflect what average skin care products experience during development, manufacturing, or in real-world storage and usage.

It's safe to use both niacinamide and vitamin C, either together in the same product, or combined from different products that you layer one over the other. All skin types will see their skin become more radiant, smoother, even, and noticeably younger-looking. Be sure to check out the next myth for info on what else is OK to use with vitamin C!

As mentioned in previous myths, whenever you're incorporating new active ingredients or combining advanced formulas, it's smart to introduce them into your routine gradually. As long as your skin tolerates them well, you can increase frequency of use as desired.

References for this information: *International Journal of Cosmetic Science*, February 2021, pages 102–106; *The Journal of Clinical and Aesthetic Dermatology*, July 2019, pages E65–E70; *Journal of Drugs in Dermatology*, July 2016, pages 863–868; *Cosmeceuticals and Cosmetic Practice*, 2014 pages 103–112; *Journal of Cosmetic Dermatology*, December 2012, pages 310–317; and December 2004, pages 88–93; *International Journal of Cosmetic Science*, 2004, pages 231–238.

MYTH #40

Vitamin C is not compatible with other active ingredients.

FACT: Copious research has shown that vitamin C works well and can be used with other beneficial ingredients, including niacinamide, retinol, peptides, and exfoliating acids.

Vitamin C + Retinol: What makes the myth about vitamin C and retinol not working together so farfetched is that retinol (in the form of retinyl palmitate) and vitamin C (ascorbic acid) are abundantly and naturally present in skin, where they work to keep it healthy and renewed. In fact, vitamin C is our skin's most abundant antioxidant!

Vitamin C and retinol can co-exist and maintain their benefits in a single formula, or they may be formulated separately and layered depending on your skin concerns. Both ingredients deliver multiple benefits for all skin types, ethnicities, and skin concerns from dullness to dark spots, wrinkles, and loss of firmness.

Comparative research has shown that when used in the same formula, retinol and vitamin C have a beautiful synergy that boosts skin's environmental defences. Other studies have proven the benefits of applying retinol and vitamin C at the same time for improving aging skin, including skin undergoing changes due to menopause.

Vitamin C + Peptides: Vitamin C, as well as other antioxidants, plays beautifully with almost all peptides, working to protect skin's supportive elements and helping it repair environmental damage.

Research has clearly shown that each peptide works in very specific ways to target an exact skin care need. They also teach skin to do what's required to help revitalize proteins, skin's fundamental building blocks, which can visibly improve aging skin.

Vitamin C (ascorbic acid) also plays a protective role by intercepting and neutralizing free radicals before they harm peptides.

So why do some brands recommend using vitamin C and peptides separately?

This rule only applies to a specific type of peptide paired with the metal copper. This copper-peptide has gained popularity for its work in skin to visibly repair skin that's begun to deteriorate due to age and sun exposure. However, copper peptides are far from the only ones capable of doing this.

Copper is known to oxidize ascorbic acid to a less active form, so applying them at the same time wouldn't be advised. But this rule does not apply to any other peptide not bound to a metal such as copper, meaning the vast majority of peptides can safely be used with all forms of vitamin C, including ascorbic acid.

Vitamin C + AHA/BHA: Vitamin C and alpha or beta hydroxy acids can work beautifully together. The exfoliating action of AHA ingredients like glycolic or lactic acids or BHA (salicylic acid) help shed the buildup of skin-dulling, pore-clogging cells that in turn help vitamin C penetrate past skin's surface. In essence, using AHA or BHA prior to applying a vitamin C treatment enables it to be more effective, while the exfoliation complements the glow-enhancing and firming benefits vitamin C provides.

As always, whenever you're incorporating new active ingredients or combining advanced formulas in your routine, introduce them gradually

(just two to three times for initial use). As long as your skin tolerates them well, you can increase frequency of use as desired.

References for this information: *Current Nutrition Reports*, September 2020, pages 226–235; Cosmetics, April 2018, ePublication; and May 2017, pages 1–4; *ChemMedChem*, August 2016, issue 16, pages 1,850–1,855; *Bulletin of Experimental Biology and Medicine*, May 2016, pages 175–178; *Journal of Drugs in Dermatology*, April 2016, supplemental, pages 63–71; *Clinical, Cosmetic, and Investigational Dermatology*, September 2015, pages 463–470; *Austin Journal of Pharmacology and Therapeutics*, August 2014, pages 1–9; *Biological Trace Element Research*, August 2013, issue 2, pages 268–274; *Clinical Chemistry and Laboratory Medicine*, April 2013, pages 1–8; *Indian Dermatology Online Journal*, April-June 2013, pages 143–146; *Journal of Cosmetic Dermatology*, December 2012, pages 310–317; and 2004, issue 2, pages 88–93; *Dermato Endocrinology*, July 2012, issue 3, pages 308–319; *Molecules*, February 2012, pages 2,219–2,230; *Journal of Drugs and Dermatology*, July 2008, pages S2–S6; *Skin Pharmacology and Physiology*, March-April 2005, pages 81–87.

BONUS MYTH

Estrogen loss doesn't lead to signs of aging. Sun damage and pollution are the main triggers.

FACT: Loss of estrogen is responsible for triggering and intensifying many signs of aging on and within skin, including:

- Loss of thickness (skin literally becomes thinner since key supportive substances such as hyaluronic acid are decreased).
- Loss of elasticity due to diminishing collagen and elastin fibers.
- Dryness and dehydration since skin is less able to maintain its barrier plus sebum (oil) production is reduced.
- Texture changes making once-smooth, dense skin look like crepe paper.
- An acceleration of signs of aging due to sun damage + skin becoming more vulnerable to environmental exposure.

Addressing the specific needs of estrogen-deficient skin (EDS) can be as simple as applying a single product that contains either prescription only lab-engineered estrogen (estradiol) or over-the-counter estrogen-like alternatives derived mostly from soy isoflavones.

Research suggests that taking steps early, before estrogen loss begins, will help skin look younger far longer. Menopause is a natural process where ovaries make less and less estrogen over time. This process typically begins around the age of 40 and continues until menstruation ends. The average age of menopause (often defined as when you have your last menstrual period) is 51. But because estrogen loss negatively affects skin much sooner than most people think, it's best to act sooner.

TRUTH

RESEARCH SUGGESTS THAT TAKING STEPS EARLY, BEFORE ESTROGEN LOSS BEGINS, WILL HELP SKIN LOOK YOUNGER FAR LONGER

The most researched soy-derived ingredients to visibly improve EDS are genistein, equol, daidzein, and soy extract (collectively referred to as phytoestrogens). All of these phytoestrogens and estradiol can interact with estrogen receptors on skin cells, telling them to restore (to some extent) what the loss of estrogen caused.

In other words, applying phytoestrogens or estradiol makes skin think it has enough estrogen to revive collagen production, restore barrier repair, renew elasticity, help skin's surface and lower layers remain hydrated so it feels thicker and more supple, and make a noticeable improvement in smoothing crepe-textured skin. Topical phytoestrogens can also boost skin's antioxidant defense system, which wanes due to estrogen decline and cumulative environmental damage.

Some skin care products containing plant extracts such as soy, red clover, and kudzu claim to have plant estrogen benefit, but at the time of this writing, there's no research showing this is true. While these ingredients *do* have the highest concentration of estrogen-like isoflavones when applied topically they do *not* have the benefit the isolated isoflavones of genistein, equol, or daidzein provide to estrogen-deficient skin.

This is similar to how the isolated antioxidant component of a plant is more potent for skin than the entire plant extract is. For example, grape extract is a very good skin care ingredient but resveratrol, the antioxidant part of the grape, is more bio-available, more stable, and far more effective for interrupting environmental damage. Fun FACT: Resveratrol is also a phytoestrogen!

On the technical side of EDS skin care, research indicates phytoestrogens applied to skin or consumed via soy-based foods target the anti-cancer beta estrogen receptors (ER-B) present on skin's surface cells. The fact that skin's surface is a rich source of ER-B receptors is one reason topical phytoestrogens are considered safe when used in this manner.

As further reassurance, much of the science indicates that topically applied estrogens of any kind (lab-engineered or phytoestrogens) have little ability to absorb into the body. Instead, any form of estrogen would only benefit the area where it was directly applied. As stated in a literature review looking at published scientific research on topical estrogen and phytoestrogens from 1993 through 2018, "...studies show that topical treatment with estrogens or phytoestrogens, especially genistein, also improves the quality of the skin and does not significantly increase the systemic dosage of these hormones. Thus, topical estrogenic compounds represent a new, promising, and safe therapeutic approach for skin aging in women in perimenopause."

References for this information:

Mechanisms of Aging and Development, Volume 197, July 2021, ePublication
Phytotherapy Research, March 2020, pages 435–447
Surgical and Cosmetic Dermatology, January-March 2020, pages 11–15
International Journal of Women's Dermatology, June 2019, pages 85–90
Macedonian Journal of Medical Sciences, February 2019, pages 495–499
Journal of Drugs in Dermatology, November 2018, pages 1186–1189
Nutrients, June 2017, pages 1–10
International Journal of Cosmetic Science, October 2017, pages 535–542
International Journal of Molecular Science, November 2017, pages 1–14

SUMMING UP...

We hope the explanations behind these myths has helped you learn about how to shop for the best skin care products for your needs. Knowledge is power, and we pride ourselves on giving you the most current, research-supported information so you have the facts to make truly informed decisions that will lead to beautiful, confidence-boosting results!

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