

From the Creators of
THEBEAUTYBRAINS.COM

CAN YOU GET HOOKED ON LIP BALM?

Top Cosmetic Scientists Answer Your
Questions about the Lotions, Potions and
Other Beauty Products You Use Every Day

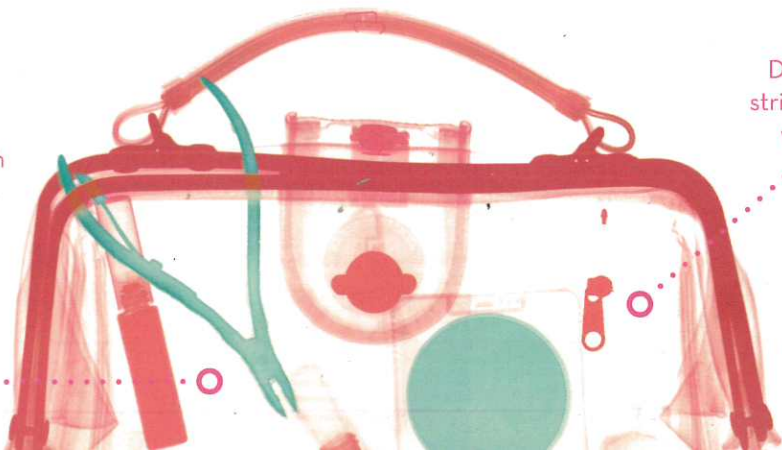
“For the real scoop on cosmetics and hair care,
forget stylists, ask the scientists at The Beauty Brains.”

—SCIENCE MAGAZINE

Why does
my nail polish
peel off my nails
so easily?

Do pore
strips really
work?

Is baby
shampoo
good for
adult hair?



fore they are published. The best studies are done as randomized, double-blinded clinical trials where neither the panelists nor the researchers know who was treated with the control or the test product. This methodology ensures the results are honest because no one knows the “right” answer.

CROW'S-FEET CREDIBILITY

The ability of a product to impact the appearance of fine lines and wrinkles is nothing new. This can be achieved through a combination of plumping up the skin with moisturizing agents and tightening the skin with film form agents. What makes Anew Clinical's claim seem so impressive is that Avon is implying their results are comparable to those you'd achieve from a doctor-administered laser treatment. Such treatments not only resurface the top layers of skin but can also stimulate collagen production at deeper levels.

THE BOTTOM LINE

It's very plausible that Avon Anew can reduce the appearance of fine lines and wrinkles around the eye area. It's ridiculous for them to expect us to think it can replace surgical procedures.

CAN MESOTHERAPY MELT AWAY FAT?

Deb asks: *What do you know about a procedure for skin tightening known as mesotherapy? Apparently, it has been used for many years in France and recently came to the United States. It is a series of injections with a drug “cocktail” containing homeopathic treatments and chemicals (including hyaluronic acid) to stimulate skin tightening and collagen production.*

According to the American Society of Plastic Surgeons (via *Science Daily*), mesotherapy has not been established as safe and effective: “There is no information on what happens to fatty acids once they leave the targeted area or how the various ingredients affect the body's organs and other tissues. There is simply too much we do not know about mesotherapy to say it is unquestionably safe for patients.”

Similarly, in a 2008 paper published in the journal *Aesthetic Plastic Surgery*, the authors opined that even though mesotherapy is growing in popularity, the results it provides and the risks it presents are at best “ambiguous.” They registered their

concern that independent medical professionals who have reviewed the data are skeptical due to both the lack of confirmed efficacy and the potential for side effects.

THE BOTTOM LINE

Considering the lack of solid medical data on this process, we'd be very careful. There isn't enough evidence to say conclusively that mesotherapy is worth doing.

IS IT SAFE TO USE LIPSTICK ON YOUR CHEEKS?

Stephanie wants to know: *Is it safe to use makeup for other things than originally intended? I know some people use lipstick on their cheeks, but what about eye shadow? Can you use it (in red shades, of course) as lipstick or blush? Can you use lipstick on your eyes? Lip liner as eyeliner and vice versa?*

We can't think of any significant danger posed by using eye makeup or lipstick on your face. The only thing that *might* be a problem is using products on your lips that weren't meant to be used there. That's because lipsticks and lip glosses are made with ingredients that are meant for incidental ingestion (that means it's OK to swallow small amounts). The same is not true for eye or face makeup. But the real potential danger is in using lip and face stuff on your eyes!

LIP LINER AS EYELINER?

This is a no-no! There are some ingredients that are used in face makeup that are not permitted to be used in eye makeup for safety reasons. The two most common examples are colors and preservatives. There are only a few colorants that are approved for use around the eyes, while products for the lips and the face can incorporate many, many more. The other thing to consider is bacterial contamination. While some bacteria in your lip gloss won't kill you if you ingest it, the same bacteria in your eye could cause infection or even blindness! This is an even greater danger if you're using a product like a mascara wand that can scratch the surface of your eye. So stick to eye products and be safe!

THE BOTTOM LINE

While cosmetics in general are very safe, you do need to be extra cautious when applying products to your eyes.

DO DRYER SHEETS CAUSE ACNE?

Nina asks: Is it true that dryer sheets can cause acne? I've also heard they contain known carcinogens and are toxic. If so, can enough of the toxic chemicals make their way onto our skin from clothing, towels and other laundry and cause harm? I smell some scare tactics.

One must be careful when declaring that a chemical is "toxic." Many substances can be toxic (or carcinogenic) under certain use conditions (e.g., when ingesting or inhaling high concentrations over long periods). But that doesn't necessarily mean that indirect contact with a small amount is problematic.

FABRIC SOFTENER SICKNESS?

Checking the literature for specific research on the health effects of dryer sheets, we found that testing done on Bounce brand dryer sheets showed that they "produced no irritation in challenge patch tests, provocative patch tests, continuous patch tests, repeated insult patch tests, prick tests and clinical wear tests. Bounce would not be expected to cause irritation or induce cutaneous sensitization." However, we did find one PubMed study showing that people with chemical sensitivity did have some reaction when exposed to dryer sheet chemicals, compared to a control group of chemicals. That's not much information to go on, but without more research, we would have to say that it is safe for most people to use Bounce and that it would be prudent to avoid using fabric softeners if you are sensitive to chemicals and have a high level of concern.

BREAKOUTS FROM BOUNCE?

To determine if dryer sheets cause acne there are two key questions that must be answered: (1) Are the chemicals used on dryer sheets comedogenic (that is, do they cause acne?); and (2) are those chemicals transferred to the skin in sufficient quantities to have any effect?

First, what chemicals are used in dryer sheets? It's impossible to say for any given product because household products, unlike cosmetics, don't have to provide a list of ingredients. But two common types of dryer sheet ingredients are softening agents (like dihydrogenated tallow dimethyl ammonium chloride and polydimethylsiloxane) as well as waxy coating agents (like stearic acid). Siloxanes (or silicones in general) and stearic acid rate very low on the comedogenicity scale. So these specific ingredients would be highly unlikely to cause breakouts. But without a

THE TOP 10 INGREDIENTS THAT IRRITATE THE SKIN

Temporary skin rash, reddening or itchiness is known as allergic contact dermatitis, and a study by the Mayo Clinic cites the top ten ingredients that can cause the condition. The list includes metals, antibiotics, fragrance ingredients and various preservatives. The study was done using a method called patch testing, in which human volunteers allow researchers to stick patches of these chemicals on their bodies for hours and days on end.

If you experience this condition, check the ingredients list on your beauty and skin care products and avoid those that contain any of the following:

- 1. Nickel (nickel sulfate hexahydrate):** Found in jewelry or on your clothes.
- 2. Gold (gold sodium thiosulfate):** Yes, the same stuff used to make jewelry.
- 3. Cobalt chloride:** A metal used in many applications, like medical products, hair dye and antiperspirants, to name a few.
- 4. Neomycin sulfate:** An antibiotic used in various first aid creams. Less commonly used in cosmetics.
- 5. Bacitracin:** Another antibiotic.
- 6. Thimerosal:** A preservative ingredient used in antiseptics and vaccines.
- 7. Balsam of Peru (myroxylon pereirae):** A natural fragrance ingredient derived from tree resin, and used in perfumes and skin lotions. Who said "natural" was better?
- 8. Fragrance mix:** Common fragrance allergens found in cosmetic products. Manufacturers in the United States must list this on the ingredients statement.
- 9. Formaldehyde:** A much-maligned preservative. You might remember the smell of this stuff from high school biology class.
- 10. Quaternium-15:** Another preservative used in some cosmetics.

complete list of ingredients, it's impossible to know the true acne-genic potential of any given dryer sheet formulation.

Second, how much of these ingredients actually end up on your skin? Let's assume we're talking about drying your face with a towel that you dried with a fabric softener sheet. The small amount of softening formula on a dryer sheet is spread across an entire dryer load of towels. And using one of those towels to dry your face will only transfer to your face a tiny fraction of the total material on the towel. So the amount of chemicals deposited on your skin is very low. Even for those chemicals that do cause acne, a very low dose is unlikely to clog pores. While there haven't been any published studies on this topic, our guess is that the likelihood of dryer sheets causing acne is very, very slight.

THE BOTTOM LINE

While there are no definitive answers to these questions, there doesn't seem to be a need for a high level of concern. If you're still not convinced, just stop using dryer sheets. Most clothes and towels are soft enough without them.

THE SURPRISING SECRET OF SOAP

***Maggie asks:** Is a bar of soap a cosmetic or a drug? And what about soap in liquid form?*

See page 156 about the difference between cosmetics and drugs. While the Food, Drug and Cosmetic Act classifies other personal cleansing products as either cosmetics or drugs, soap is neither. Why?

SOAPY SECRET

Even though the FD&C Act defines "articles for cleansing" as cosmetics, soap is technically exempt from that law. The reason is political: At the time the original law was passed (1906), soap manufacturers successfully lobbied to be excluded from the definition of "cosmetic" just as ice cream companies wanted to be excluded from labeling requirements for foods. So, in the government's eyes, soap is neither a cosmetic nor a drug. Instead, it's given its own definition.

DEFINITION OF SOAP

To be soap, a product must meet two criteria:

1. It must be primarily made from the alkali salt of fatty acids.
2. It must be labeled, sold and represented solely as soap.

If a cleansing product does not meet these criteria, then it is not really soap—it's either a drug or a cosmetic. Think of it this way: You could have different cleansing bars that all look and act like a bar of soap, but they could be classified differently depending on what ingredients they contain and what claims they make. If the first bar is made of synthetic detergents instead of fatty acids, it may be called a soap, but it is regulated as a cosmetic. (Cosmetics must have ingredients lists; soaps do not.) If the second bar makes claims about moisturizing skin, then it is a cosmetic. And if the third bar contains an active drug and/or makes claims about treating skin conditions (like acne), then it is a drug. Get it?

WHAT ABOUT LIQUID SOAPS?

Liquid soaps are not really soaps at all! Because they are not made with neutralized fatty acids, they are actually cosmetics and are regulated under the FD&C Act, even though they may have the word *soap* in their name.

THE BOTTOM LINE

Politics and science make strange bedfellows, which is why soaps can be either drugs or cosmetics. Or they can be just... soap!

sed to sell cosmetics and beauty products. You can find a number of articles about how to protect yourself from quackery all around you.

U.S. FOOD AND DRUG ADMINISTRATION

(www.cfsan.fda.gov/~dms/cos-toc.html)

Contrary to what some sources claim, the FDA does provide regulatory guidelines for the cosmetics industry. At this website you can find information about a number of cosmetics issues, such as ingredient and product descriptions, labeling requirements, recall information and even a quiz to test how smart you are about cosmetics.

PERSONAL CARE PRODUCTS COUNCIL—COSMETICS INFO

(www.cosmeticsinfo.org)

This website is run by the Cosmetics Industry Oversight Council, which is responsible for ensuring that cosmetics in the U.S. comply with accepted standards. It provides good scientific information, but it is not completely unbiased, since it's run by cosmetics manufacturers.

AMERICAN ACADEMY OF DERMATOLOGY

(www.aad.org)

This site provides a wealth of free information regarding nearly every type of skin condition known. You can find advice for how to deal with acne, eczema, psoriasis and other common skin problems. It also gives great information for finding a dermatologist in your area.

SOCIETY OF COSMETIC CHEMISTS

(www.scconline.org/website/news/ask_the_expert.shtml)

If you want to know more about cosmetics, try the SCC's Ask the Expert page. Simply fill out the form and send in your question. It will be answered by a member of the Society of Cosmetic Chemists.

THE DEMON-HAUNTED WORLD—SCIENCE AS A CANDLE IN THE DARK BY CARL SAGAN

Sagan was a wonderful writer and this book was one of his best works. In it he explained how science can be used to understand the world better. Of particular interest to skeptical beauty aficionados is chapter 12, in which there is a "baloney detection kit" for determining if something is science or fiction.

INGREDIENTS LISTS

Perhaps the most important skill you can cultivate to evaluate cosmetics is reading the ingredients list. In the cosmetics business, it's called an LOI or list of ingredients. Here is how you read it, what it means and where you can find more information.

In the United States, cosmetics manufacturers are compelled by the governing industry trade organization, known as the Personal Care Products Council (formerly the Cosmetic, Toiletry and Fragrance Association), to include a list of ingredients on their labels. They maintain a book known as the INCI (*International Nomenclature of Cosmetic Ingredients Dictionary*) with the names of nearly all the ingredients used in cosmetic products worldwide. It's quite a tome, and it makes for groovy bedtime reading.

WHY THE LABELS?

The labels are required because the industry wants consumers to know exactly what chemicals they are putting on their bodies. This will allow you to make choices as to which chemicals you want to be exposed to.

Of course, this presumes that you know what any of the chemicals are, which for most consumers is not the case. Fortunately, with the internet you can simply look up chemical names using a search engine to get more information about the compounds. Be careful however: There are plenty of sites loaded with misinformation about perfectly safe chemicals. Compounds like propylene glycol, mineral oil and sodium lauryl sulfate have been slandered by biased sources all over the internet. Read all things on the internet with a skeptical eye. We reject gurus and encourage everyone to become his or her own expert.

WHAT DO THE LABELS MEAN?

When properly written, the labels can provide you with a lot of useful information. In the United States, any chemicals above 1 percent by weight in the formula are required to be listed in order of concentration. Below 1 percent, they can be listed in any order. Typically, preservatives, fragrances and colors are listed at the end. As an example, let's look at the list of ingredients in a skin moisturizer:

water, glycerin, cetearyl alcohol, petrolatum, mineral oil, ceteareth 20, dimethicone, glyceryl dilaurate, erythrose, persea gratissima fruit extract (avocado), avena sativa meal extract (oat), simmondsia chinensis seed extract (jojoba), calendula officinalis flower extract, olea europaea fruit oil (olive), tocopherol, cyclopentasiloxane, stearic acid, acrylates/c10 alkyl acrylate crosspolymer, methylparaben, propylparaben, citric acid, disodium EDTA, sodium hydroxide, DMDM hydantoin, BHT, fragrance, caramel, titanium dioxide, mica, dihydroxyacetone.

The first ingredient is water, which means this formula is mostly water. Based on the Brains' knowledge of lotions, it is about 80 percent water. Glycerin is the next most abundant ingredient, probably at about 5 percent. The next few ingredients are anywhere in the 1-3 percent range. Look at other skin lotions and you will find many of the same ingredients listed in the first line.

When you get to a "natural"-sounding ingredient like *persea gratissima* fruit extract, you've probably dropped below the magic 1 percent level. This is where manufacturers can start to make things look different. Generally speaking, natural ingredients are so expensive and so ineffective that only a trace amount is in there.

Most manufacturers like to put lots of these "feature" ingredients in the formula so they can show how their formula is different. The truth is the real functional work of the product is done primarily by the ingredients above this 1 percent line. The more abundant a material, the greater the effect it will have. Ingredients below the 1 percent line can provide benefits, but they are likely to be minimal compared to those that make up more than 1 percent.

Ingredients lists are included on your cosmetics to give you useful information about the products you use every day. They are put together following specific rules and if you know these rules, you can learn a lot about a product. The next time you're thinking of spending \$25 on that upscale hair conditioner, compare the ingredients list to that of the \$3 bottle. You might be surprised by the striking similarities. And if the chemicals are the same, you can bet they'll work similarly.

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