

ask DR. BEN

PODCAST TRANSCRIPT

Speaker: Dr. Ben Johnson

Episode 23: The Most Important Skincare Ingredients: A Shopper's Guide Part 2

Hey, everybody and welcome back to another podcast of Ask Dr. Ben.

Last week, we finished up talking about the ingredients in skincare, the most important ingredients in skincare, and how to shop for them and get the best bang for your buck. We dove right in on retinols because they're probably the most highly recommended of the anti-aging line of serums, and covered a lot of ground when it came to that. Hopefully, that has registered with you.

Now, today, we're going to cover a few more. We're going to cover vitamin C, and then sort of the antioxidants category, and then peptides, hopefully in this half hour. I don't want to stretch it to three episodes if I can help it.

So, what is it about vitamin C? Why is it so beneficial? You know, there are tons of antioxidants in the world. Is vitamin C unique? How do we compare that vitamin C to other antioxidants? It's a really interesting category, and it's fraught with misinformation, marketing BS and, yeah, wasted money spent in a lot of cases. So, I hope I can save you here.

As I mentioned last week, I am a skincare owner. [Osmosis](#), obviously, and you know, a lot of people might say, "Well, clearly, you're going to have a bias towards whatever ingredients are in your formulas." I just want to remind you, I have the pick of any vitamin C I wanted to use. I've listed pretty much all of them that I am familiar with. I will explain to you why I chose what I chose, and give you the science behind it, but I can give you the science about all of these. It's quite fascinating. There's reasonable arguments for all of them. But I think the most important thing to say about vitamin C is that it is not critical to the skin because it's an antioxidant. It is critical to the skin because of the role it plays in your dermis, where it causes a reaction called hydroxylation, which is essentially making all the amino acids that your skin links together one by one, sticky.

So, without vitamin C down there hydroxylating, you end up getting scurvy, which is when your skin starts falling apart. But essentially, you can't make collagen in an efficient way with low vitamin C levels. So, that's why vitamin C is important to skincare.

Now that said, there's always the pro/con and the weight of it, right? You've probably seen lots of formulas with vitamin C at 10%, many others at 15%, and many others at 20%. Sometimes you might even see a formula that's 100% vitamin C. How is that even possible? Would your skin benefit from that? Well, we're going to address that issue as well.

So, ascorbic acid, L-ascorbic acid, is the most active form of it, but ascorbic acid is vitamin C. The thing about ascorbic acid is, there are two, what are called, isomers of ascorbic acid. One is called L-ascorbic acid, which is the left-handed version of vitamin C, and the other one is called the D-ascorbic acid. Then there's also something called D Oxy ascorbate, which is when vitamin C is oxidized. This form is believed to be ineffectual on the skin and harmful in some way, but that is also marketing hype.

ask DR. BEN

PODCAST TRANSCRIPT

When you see something, a marketing campaign, and they're talking about products and they say, "Oh, this product has pure vitamin C." They love that term "pure". You want to be very careful to look and read that it is L-ascorbic acid, because that is arguably the pure form of vitamin C because it is the only form that the skin recognizes when it's doing that hydroxylation I talked about. It's the most active and effective form.

I'm a fan of L-ascorbic acid. It's the smallest molecule. Remember, a big challenge for vitamin C is how well it penetrates into the skin, and the larger the molecule, in other words, if you add other things to vitamin C to stabilize it, the less penetration you're going to get. That's a really important concept to understand because it all matters, right?

So, let me give an example. There is a vitamin C I used to use called ascorbyl glucoside, and it's a nice stabilized vitamin C. I like it because your skin has glucosidase, an enzyme that breaks that glucoside off of ascorbyl glucoside, and that allows that vitamin C to become active in your skin. So, ascorbyl glucoside great, right? Well, here's the problem. The penetration of this molecule, because it's bigger than vitamin C, that glucoside is a big old chunk added onto it, I estimate to be about 40% of regular C. So, you literally have to use two and a half times the amount of it in order to get an effective dose of L-ascorbic acid. Well, that becomes expensive, and they charge you more for that, and is it any better? Well, that's where we can have the debate.

But yes, you have ascorbic acid, and don't be confused by pure. If it's ascorbic acid, it's only got 50% L. That's the point I want to make. So, it's really half strength. If you get regular vitamin C products, half strength to the skin's function, anyway. There's roles for D-ascorbic acid. I just don't think they're at the skin level.

Then, you could go to a really well known version of vitamin C that's sought after. It's called sodium ascorbyl phosphate. Some others use magnesium ascorbyl phosphate. Again, the challenge here is it's a little more stable. It's not stable like ascorbyl glucoside, but it's more stable, and it's bigger! It's bigger, so it's more expensive, so people that use this ingredient are more likely to charge you more. Again, with the modest stability increase and the modest to significant reduction in penetration, I chose not to use that ingredient in my formulas.

You have an ingredient called ascorbyl palmitate, and ascorbyl palmitate is the famous C Ester of Perricone fame. One of the most famous things about it, in my assessment of the literature, was that it doesn't work! The reason it doesn't work is the palmitate that attaches to the ascorbate attaches so in a way that the skin doesn't have a way to break it apart. In other words, they never break apart. The vitamin C is never bioavailable, such an important term in C. Talking about vitamin C bioavailability, not there with ascorbyl palmitate.

Now, ascorbyl palmitate has a cousin, and it's called ascorbyl isopalmitate, but you won't usually see that on the label. What you'll see on the label is THD ascorbate, tetrahexyldecyl ascorbate. It's quite a mouthful, but to me, this is another marketing... I don't want to say scam because I don't even think the formulators realize it's a scam, but it is also not bioavailable by all the information I have read and reviewed on it. It was such a funny study the first time it came out because they didn't just test THD ascorbate on the skin. Oh, no! They did half THD ascorbate, half L-ascorbic acid. And I'm like, what? You're trying to show us how great this version of C is, but you don't even use it on its own in the testing? Nuts,

ask DR. BEN

PODCAST TRANSCRIPT

right? Well, that's just one of many "aha moments" you get when you dive deep enough into all of this stuff.

I'm just trying not to be tricked as a formulator, right? I want to put together ingredients and I have to spend a certain budget on my products and get the best possible result. I have already expressed to you, my goal is for your skin to permanently rejuvenate with daily, twice daily, applications. So, I don't want to buy ingredients that are super pricey and don't even reach the skin and function like a vitamin C. Ascorbyl palmitate and THD ascorbate are in that camp.

There's another one out there called 3-O-Ethyl Ascorbate. I think this one's decent. I might even throw this in a product or two. It is another stabilized form of C. It is a little bit bigger, but not horribly bigger, and a decent molecule. Again, I don't know how well, how stable, these formulas are on their own, but we're about to talk about stability in a second. I already mentioned ascorbyl glucoside.

So, let's just talk about stability for a second and vitamin C and what its role is because the ultimate goal for you using vitamin C is not for it to squelch free radical activity. Your skin is already managing your free radical activity just fine. If you're using mega doses of vitamin C, you are over-exfoliating your skin, so you are going to sun sensitize your skin. That's why I'm not a fan of formulas above 10%. I've even worked to figure out ways to address the 10% issue that I can get into when we talk about other antioxidants.

But yes, there's a Catch 22 to vitamin C. You can use higher strengths to "encourage more collagen manufacturing." Remember that's its main role is in collagen manufacturing, but it adds such high strengths that you're wounding your epidermis, that's going to deplete your collagen and diminish the effects. If you're using a high enough strength where you're exfoliating your epidermis, then that is also going to accelerate aging because of the sun damage that increases under that environment. You need your epidermis whole and healthy to bounce those rays off of the skin. That's part of the way the skin functions, is it literally reflects UV light. Obviously not 100% of UV light, or we'd all be golden in the sun, but it does reflect UV light.

So, the oxidized C is the question mark that everyone has. And I told you that my favorite form of vitamin C is L-ascorbic acid, and that's because it is the most bioavailable. And because I believe oxidized C may be the best version of it.

What I mean by that is, because when vitamin C oxidizes it penetrates better, it gives you more bioavailability. Now, you might have been brainwashed into believing that oxidized C has lost its function but oh, no! The science will tell you that is not true at all. In fact, vitamin C continually gets recycled in your skin over and over again by a molecule called glutathione. So, when you send an oxidized molecule of C into your skin, it doesn't act as an antioxidant on the way down because it's already been utilized, right? It's already oxidized, so it can't play that antioxidant role just yet. But yes, once it gets introduced to glutathione, a very prevalent molecule in your skin, it becomes regular C again, L-ascorbic acid. Now, it can go either make collagen or act as an antioxidant and then get refreshed again and then go make collagen again. I estimate there's about 100 life cycles to vitamin C.

ask DR. BEN

PODCAST TRANSCRIPT

So, what that means is, if you're putting oxidized C from a bottle... let's say that it's gotten darker over time... on your skin, you can expect better penetration into the dermis. Then, 99 life cycles out of 100, like almost a complete, fully active form of C. The only difference between oxidized and non-oxidized C is I get 100 life cycles out of unoxidized C and I get 99 life cycles out of oxidized C, but I get better penetration from oxidized C. So literally, I do think the best molecule for your skin is oxidized C.

Now, I try to keep my C stable but, when I put it in formula, I put it in formula with the amino acids that the skin uses to make collagen so that when C oxidizes in the formula, it's actually oxidizing and making sticky amino acids that do amazing things. This is our patented formula called Catalyst, [Catalyst AC-11](#), specifically, and it is incredible because of the activation of amino acids that goes on in the bottle, while it's sitting on your shelf, it's still forming these amazing hydroxylated amino acids.

Then, finally, I'll tell you in that category is AKG, alpha ketoglutarate. Alpha ketoglutarate is a hydroxylater, so it works a lot like vitamin C does. It has fantastic properties, so I tend to blend AKG in with C and that makes that formula even more potent because AKG doesn't have the irritation potential of vitamin C. So, you can get all the benefits of really high-level acting collagen and elastin manufacturing, but none of that downside irritation factor, so it's good on sensitive skin, for the most part. You might have to use our weaker strength, which is our OTC [DNA Repair C Serum](#), but it is a rockstar when it comes to remodeling scar tissue, tightening the skin by 110%. We did clinical trials on it. We tightened the skin by 110%. We made facial capillaries disappear because we healed them. We saw a tremendous increase in radiance, and improvement in fine lines, and a tightening of your eyelids, an actual tightening of your eyelids all from a C. So, you don't see most Cs doing all those things, and that's because we really wanted to maximize the efficiency of the C, get the amino acids that C wants to activate right there in the bottle, so they're ready to go when you apply it topically.

Alrighty. So, there's the story on Cs. I think, for me, it makes a lot of sense to have your C have amino acids with it. I would not put Cs with retinols. I would definitely not put Cs with alpha hydroxy acids. Yeah, I mean, that story about ferulic acid is sort of nonsensical for me. I don't think ferulic acid has any grand role in your skin. Again, you don't need mega dosing of antioxidants. Like I'm not a supporter of focusing your skincare as just an antioxidant-based skincare because your skin manages oxygen already. It determines how many molecules of oxygen it's going to send up to the epidermis. When it does, it sends them up with an antioxidant bodyguard. So, unless you're spending hours in the sun or significant time in the sun, I should say, you don't need extra antioxidant protection. Your skin has it covered.

Other antioxidants and why I like them and why I don't. So, I made a list. I'll just run through it real quick. We have alpha lipoic acid. We have glutathione. We have dismutase, L-ascorbic acid, of course, as we just talked about. Ferulic acid, as we just talked about. CoQ10, resveratrol, polyphenols, like catechins, green tea often contains a lot of polyphenols or catechins. Flavonoids, niacinamide, vitamin E, and chlorella. Those are some of the ones that I am most familiar with and that are the most famous. Notice I did not include in there vitamin A. Now, vitamin A gets included in antioxidant lists all the time. It's actually a pro

ask DR. BEN

PODCAST TRANSCRIPT

oxidant. It is a free radical generator in your skin when the sun hits it. So, I do not think of vitamin A as an antioxidant.

Well, what distinguishes these antioxidants? How much do you need? What makes them better or not better? Well, first of all, some of them are larger, so they're harder to get in, so you always want to look for antioxidant serums that have a penetration strategy. I chose liposomes as my penetration strategy. I think I have 18 antioxidants, liposome delivered in our [Replenish](#). But I don't recommend Replenish like out of the gate for a lot of people. I mean, it's definitely a fan favorite for many because they're so bought into the school training. Estheticians are taught and brainwashed that antioxidants are a critical part of skincare. I just think that's less true than most. I do, however, recognize that certain antioxidants play multiple roles, so they have the potential to be an antioxidant, but they also have a potential to accelerate collagen manufacturing. Those are the ones that I get excited about.

So, of the list I just mentioned, which ones have been shown to increase collagen and be an antioxidant? Like this should be... Get your pens and papers out for this one. Alpha lipoic acid. In particular, I like the version R-lipoic acid. It's proven to be more active in the skin, more effective at collagen stimulation, but alpha lipoic acid is one of those ones, it's an antioxidant and a stimulant. Now, it can be overstimulating for people, so you want to be careful about the dose you use. We use liposomes to help deliver that sucker, to increase its dermal delivery. That's the main focus for me. If I can move things past the epidermis, great. But if I can get them to the dermis faster, then they have less chance of being corrupted in the epidermis by sun exposure or something else.

The next one that stimulates collagen after alpha lipoic acid from that list is L-ascorbic acid, as we already talked about.

The next one is CoQ10. CoQ10 works in your Krebs Cycle, which is a very important energy-generating cycle in your cells. That is going to create ATP, which is critical for making collagen. So, CoQ10 has an indirect way of stimulating more collagen.

You have the next, and only other one on the... Well, no. There's two more on the list that have a dual role. Niacinamide. So, niacinamide is the B3 vitamin, and that has great collagen stimulating effects. Many studies showed that. I think that's because, not because it's an antioxidant that works on amino acids, but because it dilates the blood vessels of the skin, which increases the food supply and that naturally will increase collagen production and elastin production.

Last but not least, chlorella, not very commonly used out there. Known to be an amazing super food, but not only is it protective of UVB damage and protective of elastin molecules, but it is a collagen and an elastin stimulator by the research. So, I'm a huge, huge fan of that.

All right! Moving right along into the category of peptides, one of the most hot categories for the last five plus years because why? Is it because they're so amazing? Oh, the bad news is unfortunately not. This is a marketing campaign that most dermatologists will acknowledge, and it has a lot to do with something called the 500 Dalton Rule. Remember that rule. It basically says that ingredients that are larger than 500 daltons have a really hard time penetrating the skin. So for a lot of these peptides, they're not actually making it to

ask DR. BEN

PODCAST TRANSCRIPT

pass through the stratum corneum, they're stuck in your epidermis. They can cause plumping. They can certainly get stuck and draw water to them and make your wrinkles look a little bit better. That's where the confusion lies, is people were like, "Well, they did a clinical trial." Well, yeah. They did a clinical trial where they put a peptide in a Petri dish onto a fibroblast cell, and when they dropped the peptide right onto the fibroblast cell, the fibroblast cell is like, "Oh, I recognize that ingredient. And that makes me want to do this."

Whatever the study said they did, fine. I might believe it in a Petri dish but if that peptide is then dropped onto the surface of your skin, it's not going to go anywhere. It's going to be stuck on the outed surface, never capable of going in and being bioavailable as the study implied. That's where the peptides have sort of tricked the world, if you will.

Now, when it comes to peptides, there's some rules of thumb that you should know. First of all, I do use a few peptides. I use ones that I've tested to be, or have clinical evidence to be, bioavailable and functional. Typically, the peptides I choose are working at the epidermal cells like dermal epidermal junction cells because I don't expect them to penetrate much farther than that. And I'm okay with peptides as a plumper, which is the main function they have. They actually plump your epidermis by drawing water to it. So, every day you apply peptide serums, the main role that happens is this accumulation of protein in your skin, which draws water and causes a plumping effect.

So, how do they design these, with all these fancy names, like Matrixyl 3000, and acetyl hexapeptide-3, and Heptapeptide-3 and -18, and Tripeptide-3, and palmitoyl oligo peptide, and hexapeptides, and heptapeptides, and octapeptides...and then you can just get a straight amino acid, where that's a peptide. When you see the term hexapeptide, what that means is they are six amino acids on that molecule. Pentapeptide is five amino acids, tetrapeptide is four, tripeptide is three. Obviously, octapeptide is eight.

Then you get down to two and you might have a dipeptide, or they might just say peptide. Sometimes they'll say oligopeptide when it's two. But you've got to look that up if you're not sure, because it really does matter. If they don't have three chains or less, the chance of them penetrating are really low.

Now, the other little secret nugget I'm going to give you today is that palmitoyl peptides typically penetrate better than acetol peptides. So, you have a better shot of getting a palmitoyl tripeptide, or palmitoyl oligopeptide into the skin and actually creating some benefit if it's got three amino acids or less. That's a good rule of thumb for you. Look for palmitoyl over acetol. Look for one, two, or three chain molecules. The final thing I will say on this category is that I'm a huge fan of amino acids. Now proline, lysine, and glycine are the most critical in the skin manufacturing game. So, I try to use those in a variety of ways, either through my skin nutrition powders, which you can add to your daily routine, you know, a pack-full group of immuno acids that can have some great benefits.

But a lot of people ask me, they're like, "Well, wait. So, all these studies I see on this peptide, they're not real?" It just depends. They're more likely than not real. You might say, "Well, how am I going to know? I'm not a physician. I'm not an esthetician. How am I going to know if a study on a peptide is real or not?" Well, look and see if it's a Petri dish study. In other words, they dropped it on a cell. Or if it's actually an in-vivo study, not an in vitro, an in vivo study, number one. Number two, look to see if it's got three amino acids or less, because if it

ask DR. BEN

PODCAST TRANSCRIPT

doesn't, then chances are the way they did the study is they measured surface volume. In other words, they measured the surface wrinkle and they notice, "Hey, if I keep rubbing this protein on my face, my skin starts to plump up, and when it does, that wrinkle looks better."

So, like I said, I'm a much bigger fan of peptide plumping for wrinkles than I am for, say, vitamin A or alpha hydroxy acid, but it's still temporary plumping in most cases. That's why I try to do my best to not formulate with peptides because I don't want to waste my money on a formula because I'll have to charge you for that ingredient, right? So, I don't want you to waste your money. Everything for me is about bang for the buck. And I think you're going to find with [Osmosis](#) that we live up to that mantra, and I am trying to create the most effective skincare for the best price. We do that by me being very careful, as a formulator, to not put wasted expensive ingredients in there. Right now, peptides are definitely at the high point on the list for, yeah, formulas that are temporary.

So what happens if you use a peptide serum repeatedly for a few months and then you stop? Your wrinkles get better. They're going to get better usually within the first three to four weeks, you're going to get maximum benefit. It's what I call a plateau effect. So you've filled up your epidermis with proteins because you keep rubbing them into your skin every day, twice a day. That protein starts to accumulate some water around it. The wrinkles look better. Full stop. That is why people tend to like their peptide serums. The problem I have is like, they're just really pricey a lot of the time and that's not worth that plumping when you know that it is temporary. That's why I'm not a huge peptide guy, but that should cover us, guys, for The Most Important Skincare Ingredients: A Shoppers Guide. If you have any other ingredients you want me to review, I'm happy to do it.

I think that bioavailability is one of the most important aspects of formulating. I generally find that that is left off the table in discussions between old-school chemists and new entrepreneurs thinking skincare is easy.

So, signing off for now. Thank you so much for joining me and I hope to see you on another Ask Dr. Ben in the near future.

I hope you've enjoyed this episode of Ask Dr. Ben, please leave a review if you can, and subscribe to the show on Apple podcasts, to get access to all of my upcoming episodes. My website is, osmosisbeauty.com and you can find me on Facebook @Osmosis beauty, and you can also follow me on Instagram, @Osmosis_beauty. Thanks for listening.