



# Serum Seminar

The definition of a serum is shrouded in mystery, but its effectiveness is perfectly clear.

By Amy E. Hamaker

## THERE'S NO QUESTION

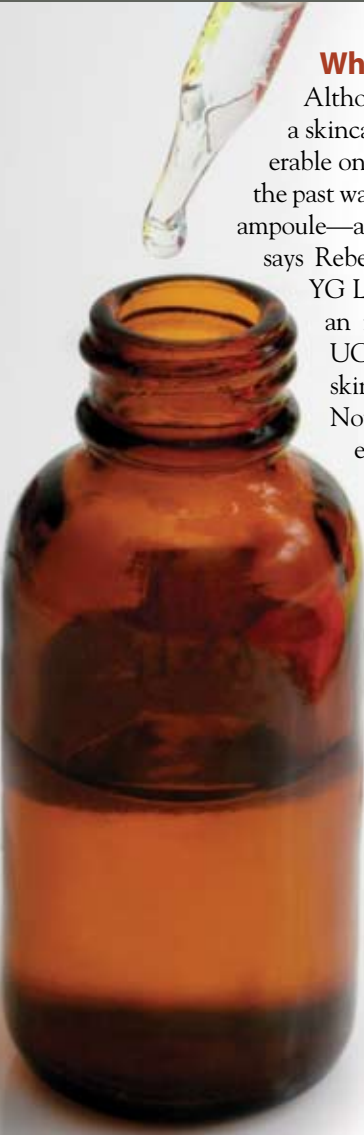
of the reigning position of the serum in today's skin care. Serums can be found as a part of almost every skincare routine, yet this class of products remains somewhat of a mystery. Take a quick glance at a dictionary or encyclopedia under "serum," and you won't find a single mention of its relevance to skin care.

"Technically, in its intended medical meaning, a serum is an amber-colored fluid usually derived from a blood source that's used to treat bacterial infections and burns, and is used for traumatic shock," says Glen Lockhart, president of BiON Research ([www.bion-research.com](http://www.bion-research.com)). "Webster allows for a fourth definition, which includes a vegetable extract. I think that 'serum' was one of those words that seemed medical and significant and so it was borrowed by our industry."

So, how did a product category without a solid history grow into one of the most important elements of a skincare regimen? The answers to what a serum is and what it does may differ, but knowing some of the basics can help you and your staff better recommend these all-important items to your clients.

## DESCRIBING A PRODUCT AS A “SERUM” USUALLY MEANS THAT IT HAS A NONOPAQUE, LIQUID FORMULATION.

### What’s in a Name?



Although there isn’t a strict definition of a skincare “serum,” the idea itself is a venerable one. “The standard idea of a serum in the past was the European concept of the glass ampoule—a single, sealed dose of ingredients,” says Rebecca James Gadberry, president of YG Laboratories ([www.yglabs.com](http://www.yglabs.com)) and an instructor of cosmetic sciences at UCLA. “We still see ampoules in skincare lines coming from Europe. Now, the standard varies. Sometimes emulsions are considered serums, and sometimes they’re purely water-soluble gels. It really has more to do with a company’s own definition of a serum, using formulating skills to stabilize the product and select the right delivery vehicle.”

“If you look at skincare products throughout the industry, you’ll notice that there isn’t real uniformity in the names that are assigned to products,” says Gül Zone, president of DermAware ([www.dermaware.com](http://www.dermaware.com)). “I’ve seen lotions and 100% lipophilic systems labeled as serums. Some skincare companies will call anything of low viscosity a serum, but that alone isn’t a good representation of what the product truly is.”

There are some similarities between products that are called skincare serums, and it’s from these similarities that

we get a better understanding of this loosely knit category. “We use various physical forms when we make topical preparations: lotions, creams, ointments, gels, solutions and suspensions,” says Ben Kaminsky, founder of B. Kamins, Chemist ([www.bkamins.com](http://www.bkamins.com)). “In skin care, a serum is usually categorized as a liquid preparation of varying, but light, viscosity that contains numerous therapeutic ingredients, including humectants to promote moisture retention, water-soluble sunscreens, cell-forming ingredients and skin-bleaching materials.”

Delivering hydrophilic ingredients (those whose structure will attract water to the skin) is a hallmark of skincare serums. “Some ingredients that would work well in a serum formulation include ascorbic acid, peptides, hyaluronic acid, vitamin B-3, vitamin B-5 and botanical extracts,” says Zone. “Serums are often recommended for dehydrated skin to replenish moisture, and they’re also great for individuals who cannot tolerate oils, such as those with acne or an oily skin type. There isn’t a particular skin type that wouldn’t benefit from their use.”

### Common Points

If this all sounds a little confusing, it is—the diversity of opinion on serums makes them difficult to describe. However, most manufacturers agree that there are some common points among formulations labeled as serums.

**They’re thinner.** Describing a product as a “serum” usually means that it has a nonopaque, liquid formulation. “A serum is completely hydrophilic, while a lotion is lipophilic (having a tendency to dissolve in fat-like solvents) in most cases—an oil-in-water emulsion,” says Dr. Dieter Kuster, founder, CEO and senior chemist for CA Botana ([www.ca-botana.com](http://www.ca-botana.com)). The lack of waxes, emollients and silicones in serum formulations are what give these products their low viscosity. “There are some serums that have emollients, but these are really meant to be applied as one of the last layers in a skincare regimen, rather than earlier, when most serums are applied,” says Dr. Mark Lees, president of Mark Lees Skin Care ([www.marklees.com](http://www.marklees.com)).

Robert Posner, co-owner/vice president of ABBE Labs ([www.abelabs.com](http://www.abelabs.com)), notes that serums’ liquid formulations can give them a serious advantage when in a client’s hands. “People tend to gravitate to serums because they’re easy to use and have a light, elegant feel on the skin,” he explains.

“There’s a correlation between what the eye sees and the skin/fingertips feel as a product is being applied, and a client will use less of the product to get results because it spreads so easily on the skin.”

Serums fit easily into the hurried lifestyle of many clients, says Victoria Colangelo, senior vice president of Mana Products, parent company of Your Name Cosmetics ([www.yournamepro.com](http://www.yournamepro.com)). “When women have less time, they look for easier applications, and serums can be the right choice,” she says.

**They’re deeply penetrating.** A low viscosity has another advantage—deeper and faster penetration into the skin thanks to the lack of waxes, which stay in the stratum corneum layer for a longer time. “Because serums are thinner in consistency, they’re believed to penetrate the skin’s upper layers more readily, whereas thicker lotions and creams tend to stay closer to the skin’s surface,” confirms Diana Howard, Ph.D., vice president of technical development

for Dermalogica/The International Dermal Institute ([www.idi.com](http://www.idi.com)).

This is why in a skincare routine serums are usually applied first after cleansing and toning the skin, layered beneath other products such as moisturizers or sunscreens, or aided in penetration by applying occlusive masks that trap body heat. “Serums should be applied before products containing ingredients

## A Future Made to Order

What’s next for serums? One company is taking its targeted nature and bringing it up a step through customization *for each client*. Bionova ([www.bionovalab.com](http://www.bionovalab.com)) has a serum line in development that will be created to order through a client’s answers to an online questionnaire, taken at computer terminals installed at selected spas in the United States and Europe. The line is expected to be launched this fall.

that can bar penetration, including certain types of silicones (like dimethicone, phenyl trimethicone and dimethiconal) and fluoride compounds (like Fomblin and perfluoropolymethylisopropyl ether), which provide a heavy barrier for the skin to protect it from penetration by other substances,” adds Gadberry.

***They have higher levels of active ingredients.*** Dr. Howard Murad, founder of Murad ([www.murad.com](http://www.murad.com)) and an associate clinical professor of dermatology at UCLA, notes that serum formulations are generally more concentrated in ingredient strength. “If you see, perhaps, a 1% concentration of a certain ingredient in a lotion or cream, you might see a 2% to 3% concentration of the same ingredient in a serum formulation,” he says. This heightened concentration doesn’t have to be limited to a single ingredient; a serum might contain one or two ingredients at a higher level, or multiple blends of ingredients aimed at a particular skin condition.

“Serums normally work as a ‘booster’ for creams

and lotions because they usually contain a higher concentration of the vital or active ingredients,” says Dar Reiss-Depp, president of Thalgo Marine Beauty ([www.thalgo.com](http://www.thalgo.com)). “They’re concentrated and penetrate deeper within the epidermis for maximum effect, which is why their application is administered in small amounts.”

## Too Deep?

Deep penetration is one of the advantages of serums, but that advantage can quickly turn into a drawback with ingredients not meant to be driven deep into the skin, making serum formulation a challenge for manufacturers. “You don’t

want certain things to penetrate—sunscreens or certain preservatives, for instance—because of the sensitivity they can cause,” says Dr. Mark Lees, president of Mark Lees Skin Care. “If formulations aren’t blended properly, liposomes can pick up these ingredients and cause allergic reactions.”

## SERUMS CAN BE BENEFICIAL TO ALL SKIN TYPES.

Pevonia ([www.pevonia.com](http://www.pevonia.com)) suggests its serums as part of a homecare regimen because of their higher ingredient concentrations. The company believes that this prolongs the effects of professional spa treatments.

Water solubility of active ingredients is key; other actives must be encapsulated. Because of their clear nature, light-sensitive actives must be protected from damage in serums. "Very sensitive ingredients in them like antioxidants must either be stabilized chemically or through packaging, or stored in a dark, cool place," says Gadberry.

***They're for every skin type.*** Although serums are often formulated to work in conjunction with treatments for more mature skin that shows signs of aging, deep wrinkles, dryness and irritation, Kuster notes that serums can be beneficial to all skin types. "On oily or acne-prone skin, a specially formulated serum will work well because of its oil-free character. Serums are also being used on younger skin for prevention, correction and maintenance."

### **For the Future**

All experts agree that serums, as a category, will only grow. "There will always be a role for serums in skin care," says Zone. "What will change as new technologies become available are the ingredients that we deliver in the serums. We're looking at new delivery enhancers and different manufacturing processes to give serums even greater power and penetration."

Murad believes that serum formulations will grow more geared to the individual client. "As serums evolve, they'll be much more targeted to specific locations or specific problems," he says. "We're looking at more opportunities for serums that address specific needs—for just the eye, lip and neck areas, for instance."

Advanced scientific processes like nanotechnology and DNA repair are also poised to affect serums' future. "Nanotechnology is the up-and-coming darling of formulations for serums as well as for creams and lotions," notes Reiss-Depp. "According to Dr. Mark

## “WITHIN THE NEXT FIVE YEARS, WE SHOULD SEE EVEN MORE PRODUCTS THAT **REPAIR MITOCHONDRIAL DNA.**”

Ratner, author of *Nanotechnology, A Gentle Introduction to the Next Big Idea*, nanotechnology is the fastest growing industry in history, with predictions of reaching \$1.2 trillion by

2015. We've been using this technology with the process and medical patents of micronized marine algae in our serums, which permits a virtual total suspension of marine algae

and the dissolution of their mineral salts and trace elements in water.”

The addition of cell receptors (technology that allows molecules that are formed in the mirror image of the receptor to enter the cell, much like a lock and key) will allow serums to target specific cells for greater efficacy. “We're just seeing the advent of serums that will offer cell-specific DNA repair (a serum that can target melanocytes but not fibroblasts, for instance),” says Gadberry. “And within the next five years, we should see even more products that repair mitochondrial DNA.”

“As we begin to work with cell receptors, we'll be able to begin to regenerate meaningful collagen fibers, which in the past might have seemed impossible,” adds Kaminsky. “There's opportunity for some really impressive advances in skin care, especially for environmental aging, that are less invasive, safer and healthier than standard treatments.”

As your clients learn what serums can do and as manufacturers explore advanced ingredients and technology options, this adaptive category will remain popular, no matter how undefined its definition remains. “Department-store brands have begun to adopt the serum formulation,” says Colangelo, “and because of the focus on cosmetceutical and dermatological skin care, serums will be getting much more consumer press.”

“We've come a long way in our understanding of the skin,” adds Posner. “The future of serums really depends on skilled formulators, advanced manufacturing methods and active ingredients that really do something to make these products as good as they can be.” ●

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