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Skin Boosting Technique: A New Approach to Hyaluronic Acid Microinjection

Opening Announcer:

Our team traveled to Victoria Park Medical Center in Montreal, Canada to visit Dr. Andreas Nikolis, for an in-depth look of new, innovative techniques in skin boosting microinjections.

Let's hear what he shared with the team.

Dr. Nikolis:

So , what is the process of skin boosting and what does it entail?

Skin boosting is really the art of being able to place hyaluronic acid deep in the dermis or in the subcutaneous tissues in order to replace what our bodies are naturally losing over time. We know that as we get older, the middle layer of the skin loses collagen, but we also lose the hyaluronic acid that's attached to it, and this is the problem of aging. This is what leads to skin being rougher, skin losing its elasticity, and losing that glow and radiance that you would normally expect in younger skin.

So, how do we circumvent this? This science behind skin boosting is quite clear. We are able to put small amounts of hyaluronic acid deep in the dermis or in the subcutaneous tissues in order to attract a little bit of water from the tissues and improve skin hydration, skin elasticity, roughness, as well as the overall skin health, and that's exactly what it is. It's improving skin health without volumizing the skin.

So, when we talk about skin boosting, We are trying to improve skin health by placing hyaluronic acid at the appropriate depth. We do that by selecting the right hyaluronic acid and delivering it in 10 microliter aliquots. These are very tiny amounts that are placed at predetermined distances in the skin in order to absorb water. This will improve the plumpness of the skin, the radiance, and improve skin health without volumizing. The product that we select is really based on NASHA technology, non-animal stabilized hyaluronic acid. This ability to have this natural entanglement, allows for the product to behave in a different way. It allows for it to absorb water from the surrounding tissues, but not an excess amount of water. It's a very controlled process.

This equivalent product in the U.S. is called Restylane Silk. But what you'll also see here in Canada is that we actually have a second important device associated with this technique, and that is the syringe itself.

So, this is the standard syringe used for skin boosting, and what you'll see is that there is a lure lock mechanism that you have to secure, take off the security tab very easily, and then you take your 29-gauge needle which comes with it, and you place it on. You tighten the needle onto the syringe while holding the lure lock, and then you're ready to go. Now, the syringe comes without the activation of the clicker system, and you will see that you have the ability to inject as much as product as you would like when you do that. In activating the clicker system, you're able to create small aliquots of product.

As clinicians, we base ourselves on clinical evidence. The clinical trials supporting the use of skin boosting and skin rejuvenation are plentiful. Clinical trials have demonstrated that when you place skin boosters deep in the dermis or in the subcutaneous tissues, you can, in a reproducible fashion, elicit an improvement in skin appearance, elasticity, and a decrease in skin roughness, as well as improving hydration and transepidermal water loss over time. These improvements can last up to six months in the data that has been published to date. Part of the technique is actually placing the product in the right depth. We want to place the product deep in the dermis, almost at the level of the subcutaneous junction. The reason for this is twofold. Number one, we don't want to have any superficial product that's palpable or visible, and number two, studies have found that this is the right depth in order to achieve the peak clinical result.

The techniques that you can use are multiple. You can use a serial puncture technique with a 29-gauge needle, or you can actually place your needle under the skin and do a series of injections. You can also

use cannulas. The goal of deciding which treatment strategy to use is based on the patient's skin characteristics. I personally like to choose a direct needle injection technique, especially when the skin is thin and I can see those underlying structures that I would like to avoid, especially in the case of hand injections, where you have a lot of veins or tendinous show. But the use of cannulas and needles is clinically supported in the literature.

So, choice of injection technique really has to do with what you're trying to accomplish. If you have a very good visual field where you can see the veins, you know where their placement is and you know where the tendons are, you are more likely to proceed with a serial puncture technique.

Let's look at technique on a younger and a slightly older patient when treating the face, neck and décolletage region.

Okay, so – the areas in this particular patient that we are going to inject really include the lower part of the face and cheek regions, And when she actually smiles a little bit, they get worse and worse and worse, and this is the kind of thing that we're going to try to improve by improving several aspects of skin health. And the first is, with skin boosting, we will be able to improve elasticity, skin roughness, and will be able to also improve hydration, which has been shown in some of our recent work that we just published. So, as always, we begin with a sterile technique, where we really want to disinfect the skin. We will begin our injection. This is a serial puncture technique where we go in and we have one click, and that's all we need. We place the injection points approximately 1 cm apart. We're using a 29-gauge needle and we're coming right across in a very structured pattern. Again, we are placing 10 microliter aliquots of product, i.e. one click in a 1 mL syringe, really at the depth of the deep dermis/subQ junction. And we will continue in a stepwise fashion. And you can see overall that this is extremely well tolerated.

This is really our target region, and you can see again, when I push her skin forward, you can see these vertical lines that have been created over time, and what we really want to do is improve skin health. So, this time, we're going to use a slightly different technique.

We're going to create our puncture, but we're going to go parallel to the dermis. So, what we're doing is we're treating in a serial fashion in the deep dermis. This technique allows for less physical punctures for the patient and the same amount of product being instilled. Move down. Serial puncture – serial injection, single puncture, continuously cleaning the skin. Remember, once again, that the amount of product injected with each click is only 0.01 mL.

I like to massage when I am actually behind the patient for two reasons. The first is that I like to drop the head down a little bit. The second is I like to lift the chin and actually visualize the whole region and

make sure that I don't actually see anything, as opposed to just feeling any lumps and bumps. So, one of the key things is, again, using your fingertips to make sure that there is no palpable mass or nodules, and that you've placed the product deep enough that it actually gives you the wanted result. The massage should take anywhere from 2-5 minutes. It's important to invest the time necessary for the massage. I like to do before the patients leave is I actually ask them to run their hand over the region so that they can actually feel what it feels like following a massage, so they understand what is normal and what is to be expected after the fact. Then we ask the patients to continue with a little bit of ice in the region for approximately five minutes to ten minutes before they go.

In this kind of a patient, the application of the product can be done in both – by both techniques. In a patient who is a little bit older, who has a lot more wrinkling, a lot more loss of elasticity, and a lot more skin roughness, if you will, I would prefer a more single injection point technique in order, so that I can precisely place the product and really create that lifting effect when the water comes in, and I'll show you that in the next patient.

So, what you will appreciate in this particular patient who looks fantastic for 70 years, is that she has a different distribution of lines when we look at skin health. You can see that when she smiles – smile a little bit – you can see quite an impressive accordion pattern – relax – and you can even see some of them at rest. Our goal, again, is to try to improve the lower third of the face with skin boosting, and what we hope to accomplish here is a multistep result. The first is to improve skin hydration, as demonstrated in our clinical trial. The second is to improve or decrease transepidermal water loss, improve elasticity, and, again, improve a little bit of skin roughness. This is particularly the area that we're going to treat. So this is exactly the kind of patient I would prefer the serial puncture technique because she already has several horizontal and vertical lines that I'm trying to improve.

So, we're going to improve both of these types of lines and, because they're a little bit deeper than our previous patient, we're going to actually place the product more strategically this time.

So, again, we've prepared our syringe, we've activated the clicker system, and we will begin - chlorhexidine to clean the skin, and we begin in a stepwise pattern. Now, one of the things that will help is actually pinching the skin and seeing where the deeper lines are because you can actually start targeting them directly. Again, one click.

And what you'll see in this particular patient is that I'm choosing to go vertically and not horizontally because a lot of her lines are vertical. It's important to understand that I'm not chasing the lines, but I know that in treating and in skin boosting this particular patient's face, I actually will improve the skin line appearance. We'll continue to inject exactly where we need the product the most, and you can really appreciate the areas that have a little bit of skin roughness in that region. Okay, once we've

completed that, we will take a little bit of ice for the patient. So, again, to recap, so one injection point per region, and you can see I'm approximately 1 cm apart from each of the points of injection.

One of the most frequent questions I encounter when discussing skin-boosting strategies with my patients is, What will I look like following the treatment?

This is the key component in skin boosting. We will not be volumizing the face. We will not be volumizing the décolletage region or the hands. What we are doing is improving skin health. The overall appearance of the skin improves simply because we are improving hydration, we are decreasing transepidermal water loss, we are improving skin roughness, and clearly improving elasticity over the treatment regimen.

We know that the hands are the most exposed, So, one of the key aspects here is to actually try and improve the skin texture, hydration, and elasticity of the hands. And as we know, as you get older, we lose a little bit of the fat content, and the tendons start showing more. These are the tendons. So, you'll see not only that there are tendons, but there are regions that are really empty. So, you have peaks and troughs, and these are the areas that we're trying to improve. Now, when we look at the hand very specifically, you will see that this is the wrist joint and these are the metacarpophalangeal joints. We cannot pass these lines. We don't want to have any product near the joints in and of themselves, so this is the area where we would have our maximal product placement. And one of the things that's important is understanding that we're not injecting over the tendons. We're trying to inject in between the tendons and improve the whole hydration of the area. This is not a volumization treatment.

Once we've identified the regions, we're going to use two different types of anesthesia if we have to; one would be ice and one would be any type of topical anesthetic. Most patients tolerate this procedure quite well. So, what we do is, for a small amount of time, we will take ice that's already wrapped in a 4x4 and leave that in place while we draw on the other hand. You don't want to pass the joints. You can see where we're going. So, these are the areas where there is the maximal depression where she would benefit more as well from the aesthetic component. So, one is an aesthetic improvement because of the hydration effect and a pseudovolumization, if you will, just because the skin will be more taut, and the second effect is a more global effect because you're placing product right across the whole region. And we can identify exactly where the vessels are by tenting the skin a little bit. You can see it's very well tolerated. Now in areas where there is a little bit more depression, you can actually go ahead and give it a little bit more product, but really, again, this is not a volumization treatment, it's a skin health treatment. One of the key points, whether you're injecting the face or the hands, is the need to massage. And it's important that there's actually no palpable product whatsoever in the region. If there is palpable product, your product was placed too superficially, or you didn't massage enough in

the area.

And because you can appreciate the product in this area, it's imperative that this gets massaged down. and the way we do this is we take a little bit of cream and place it over the region and really just go ahead and massage. You need a little bit of time to make sure that you don't feel any of the product, and again, same technique that we did on the face, making sure that you massage everything out. There are no visible signs of the product standing alone, and no palpable masses of any kind, even though they're very tiny aliquots of product. Following the massage, we're going to give her some more ice, and we'll keep the ice in place for a good 10 minutes to make sure that there's no swelling or bruising. every time I change sides, I change needles, so there's a fresh, 29-gauge needle and we're giving 10 microliter boluses, anywhere from 0.5 to 1 mL distance between injection points. Again, you try not to inject on the tendon. You don't want to penetrate the epitendinous sheath, but you can go very close. That gives a very nice result. I usually use anywhere from 0.5 mL to 1.0 mL of product per side when I'm skin boosting. Usually as a first treatment, I end up using approximately one syringe for both hands. The treatment should be repeated every four weeks, three times, and we've seen from the studies we've concluded that the clinical improvement, with respect to hydration, transepidermal water loss, and skin roughness actually improves right after the first treatment. So, think of this as an additive treatment where every time you are actually increasing the amount of product that you're placing and the number of treatments that you are doing that the results are compounded.

So, this patient's hands are a little bit different than our previous patient, and what you can appreciate is that although she is older, her hands have a very different appearance. So, what we want to do is we really want to improve transepidermal water loss, we want to improve hydration, we want to improve elasticity, and really have an impact in skin health by decreasing skin roughness as well. This is a patient whose skin is slightly thicker than the previous patient but still thin with respect to the spectrum. I will elect to use a direct serial puncture technique. If I had even thicker skin, I would actually draw out the veins and try to ensure that I avoid them using a cannula. So, those are the major veins that she has in the region. We will begin by taking off our markings. Remember, we don't want to go proximal to the wrist joint, and we don't want to go distal to the metacarpophalangeal junction. And, again, while we prepare the patient, you have two choices. You can use ice, if you so wish, for a few minutes before, or you can use some cream to provide some topical anesthesia. We have a new needle and new syringe. The clicker system is armed, and we will begin in a stepwise fashion by injecting our 10 microliter aliquots, and you can hear the clicking in this particular syringe that tells us that we've delivered the appropriate amount. Again, in this particular patient, we actually do not see the tendon so much, but more of a veiny show, and what will improve as the texture of the skin, the elasticity of the

skin and the skin roughness improves, you will actually see the veins will be less visible because the surrounding regions adjacent to the veins will be more hydrated. Again, following the treatment, we will proceed with a careful massage of the region, and you will see, you can actually see a little bit of the product where we've placed it, and that will disappear following the massages. We are going to take some gel to perform our massage in the region. Again, you can feel, and you can even see some of the product because the skin is thin, again, gentle massage in the region, you will feel none of the product following this 2-3 minute massage. But this is mandatory in order to provide the ideal result. Most patients tolerate this quite well Always remember, change your needle tips to make sure that it's nice and sharp, and a one-puncture technique can really yield some great results. Just make sure that you space the product appropriately. I know where her veins are. I have been able to see them, and I still can see them. I'm avoiding injecting directly over the tendons because I don't want to puncture the epitendinous sheath. I can go just adjacent to them on the right or the left side of them. Again, small aliquots, 10 microliters, or 1 click, which yields 100 doses in a 1 mL syringe. The patients following this treatment shouldn't feel or see any difference immediately. Within the course of one month, we will begin our second treatment. A third one, the month thereafter. Clinical results have demonstrated efficacy and improvement in hydration, transepidermal water loss, elasticity, as well as skin roughness as early as one month following treatments

So, how frequently do you need to skin boost? Skin boosting is usually undertaken monthly for either two or three sessions, and then a maintenance treatment is provided every 6-12 months. Every patient is different, and what we have seen in our own clinical results is that there is a significant efficacy and a very high level of patient satisfaction with as little as two treatments. Every patient is unique. Every patient needs to be evaluated. And your own clinical experience and your patient interactions will allow you to figure out the frequency of treatment over time.

So, one of the most common regions that patients want improvement in is the décolletage region, and this is an area that ages over time with a lot of sun exposure and the aging process in and of itself. What you can appreciate when you actually look at this area closely is that when you actually bring the skin together you can get this vertical wrinkling that's quite evident. And it's really centralized more in the center part of the chest and moves out a little bit laterally as we move more superiorly. So, this is the area that we'd like to treat. These are the clavicles. That's our upper limit. And really that area is the area that skin boosting is quite well-indicated for. In the center, where you can feel that there are more lines, you can decrease the space between injections to approximately 0.5 cm in the region. This whole region will probably take approximately 1 mL in total of product. Again, the goal here is to improve skin health. It's to improve skin roughness, improve elasticity, and really, as we've shown,

improve a little bit of the skin hydration with the net effect of improving the superficial lines that are visible. Now, her skin is great. She has very soft skin. It doesn't appear to be too dehydrated, and one of the things that you actually have to identify when you're injecting is whether or not you have to change your needle again. Two things will allow you to identify whether or not you have to change your needle. Number one, how easy it is to inject. And the second is the number of injection points. When we get to approximately half a syringe of product used, that's when I like to change the needle tip. We're going to massage the area with a little bit of arnica gel, and we really want to be able to run our finger through this area and not feel any of the product. This is slightly thicker skin than is found on the face. The chances that you will feel the product is less, but you want to make sure that there is no palpable or visible product. In some patients, where the extent of the décolletage sun damage is wider, you can go a little bit wider into the regions that are affected as well. And, again, we will ice this region just to prevent any swelling or any late bruising in the region.

Let's discuss some injection pearls that we've learned over the years. The first is, do not underestimate the impact of a sharp needle. If you've performed a series of injections on one side of the face, change the needle for the other side of the face. The same thing goes when you are treating patients' hands. Secondly, because sometimes we use either topical anesthetic or ice, it's important to identify the areas that you want to either treat or avoid, with a marking pencil before your treatments. The third point is to actually perform a massage for each region that you've actually injected, to ensure that you have no palpable or visible product. The fourth point is that all my patients will receive ice or ice packs in the regions that we've injected for approximately five to ten minutes following treatment. The majority of adverse events related to skin boosting are mild in nature, and they are comprised primarily of pain when injecting, which is expected because you are using needles or cannulas, bruising, or mild swelling following treatment. Remember, we are injecting 0.01 mL in each aliquot. This is a very tiny amount of hyaluronic acid, but careful understanding of the anatomy in each region is paramount to a successful treatment.

When discussing skin boosting with new colleagues, one of the key questions we get is, How many treatments do I need to perform in order to master the art of skin boosting? The answer's quite simple. Between 5 and 10 treatments, you will really be able to have a good understanding of how to apply the product, where to apply it, and what the maintenance treatment regimens are for each patient.

So, where does skin boosting fit in our clinical practice? As clinicians, sometimes we underestimate the impact of skin health on the overall patient outcome. It's important to take this parameter into our whole global plan for each of our patients. Skin boosting is a treatment that actually is complimentary to volumization or sculpting of any face, hand, or décolletage region. We need to think about skin health as a separate parameter in our existing patients.

The concept of skin boosting really applies to all patients, and the reason why it applies to all patients is because as we age, we lose hyaluronic acid, and this is why products over the counter don't really work, because hyaluronic acid does not penetrate the skin in a cream format. So, we have to actually replenish the body's hyaluronic acid somehow. How do we do this? We do this by actually placing hyaluronic acid in the areas where we think it's important or where we see signs of aging or signs where the skin's losing its elasticity, or perhaps has become a little bit rougher, really in the deep dermis, almost in the subcutaneous junction. And that will attract a little bit of water and improve the outcomes.

Closing Announcer:

You just heard from Dr. Andreas Nikolis on new, innovative techniques in skin boosting microinjections. To receive your free CME credit for this activity provided in partnership with TOPEC Global, be sure to complete the post-test and evaluation at reach-m-d-dot-com-slash-c-m-e. This is CME on ReachMD. Be part of the knowledge.