Losing Your Hair? Discover the Latest Breakthroughs in Hair Restoration with Dr. Alan Bauman Transcript

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Introduction and Hair Loss Basics

And if they say to me, I'm starting to lose my hair at a rapid rate, it's not at all like opaque as to what it's like, clearly super therapeutic testosterone strongly associated with alopecia.

Well, it doesn't have to be super therapeutic. You could just be sensitive to DHT. And that's one of the things that is variable in the genetics. Right?

So someone who is going and losing their hair in their 20s at an aggressive rate may have normal physiologic levels of DHT and and T. So but what's happened is they're very, very sensitive to it.

That's what they've inherited. Or they could be a converter high converter. Meaning that their five alpha reductase enzyme, either type one or type two, is overactive, and that you can elucidate through genetic tests, as we do, that very commonly in your office.

So if someone comes in and is thinking about going on hormone optimization therapy, and they have hair loss in the family and they may be experiencing a little bit of hair loss, Everybody.

I'm Doctor Ed Park, the host of the Recharged Biomedical podcast, and today we're very fortunate to be joined by Doctor Alan Bauman. Alan, thank you for joining us.

Hey, Ed, great to be here with you. Awesome. So, you know, Alan's a pro because when you search Alan Bauman for other celebs, come up and they're all using him as a search term.

So he he is the leading authority out of Boca. He's done over 11,000 transplant surgeries, but he's got the full gamut of treatments. He has like caps.

They do obviously medical finasteride, minoxidil. But he trained early on in New York as a hair transplant specialist. So tell us about the boards and the societies that you're on.

Yeah. So it's been an amazing almost probably 30 year journey now since I first saw a hair transplant procedure being performed up in New York. And I did a one year fellowship up there, became board certified.

So American Board of Harris Asian Surgeon Fellowship trained is my background, but I'm also a member of the American Academy of or I should say, American Hair Loss Association's organization, the International Alliance of Hair Australian Surgeons, which is a kind of a top level group.

I mean, proximately 50 to 100 surgeons internationally. And it's just been an incredible, a fun and exciting career thus far. I plan to do it for another 25, 30 years for sure.

But yeah, it's it's associates that you also work with. I do, so we have my medical associate doctor, Jamie Rose. She's amazing. She's been doing hair transplants and regenerative treatments for over ten years.

She's actually a trainer teacher of regenerative procedures, not just for skin and also for hair. I was lucky to grab her and get her into the practice about a year ago, and she sees her own book of business here at Bauman Medical.

I also have a nurse practitioner. She's incredible Trina, and she handles a lot of female consultations. Also male consultations. She does a lot of scarring types of alopecia and inflammatory alopecia is in her medical

management.

And I also have a internationally trained certified psychologist in my scalp clinic, which is a part of Ballard Medical Care. So I have about 30 team members now.

We all kind of squeeze into this, 13,000 square foot facility in Boca Raton, Florida. I also have satellite office now in New York. Ron, you're not counting virtual Allen, right?

Your avatar. That's right. Exactly. Yeah. You're very training in. So let me. Virtual twin is behaving himself. That's why I'm seeing know he can work while you go take a vacation somewhere.

But that's amazing. Yeah. The ability for an avatar to answer frequently asked questions in a personal way. That's amazing. So I'm really do much surgery, you know, because he's inside the screen.

But, you know, in terms of knowledge, hopefully we've imparted him with enough information so that he can at least get you through hair loss 101, 201 and all of that.

You know, in terms of let's just start, let's just start because let's I like to assume the audience knows nothing. So let's just kind of do like a rapid fire type of let's get on the same page to store.

So alopecia is the term for hair loss. And so there many times the types of alopecia. And so men and women can have different kind of variations. But in general what is the cause of hair loss and for that matter hair dye pigmentation do you think.

Yeah. So for sure alopecia, hair loss can be caused by anything you get, you know, get a rock to the head and you'd have a scar there. And there's no hair that is actually a scarring alopecia.

But most people that we see in the practice are suffering from andro genetic alopecia. So that's typical male and female pattern hair loss. There is quite a bit of autoimmune hair loss in my practice that usually appears differently than male and female patterns.

Usually a sudden spot that appears and then as those follicles lose their immune privilege, the follicles stop producing hair, and that requires some treatment to bring them back.

But most patients are going to be coming in men, for example, with receding hairline, thinning in the crown, preserving the areas around the size in the back.

Women, it could be a little bit more subtle, more of a diffuse loss in the frontal zone. And it can proceed to receding hairline. But there is a male pattern that can also be recapitulated in the female, but they can have different patterns.

Is that what the implication of my point is, is that hereditary hair loss, the genetic component of hair loss, looks different in men and women.

Hormones, Genetics, and DHT Sensitivity

So in women it's more of a diffuse loss at the frontal area, meaning that their part line looks wider. They often experience a decrease in ponytail volume or more shedding, but eventually you can also recede the hairline.

And we see that a lot these days with folks that are on hormone optimization therapy or hormone replacement therapy, a lot of women coming in with aggressive female pattern hair loss, that almost looks like male pattern from the use of testosterone replacement.

Yeah, it's a little extra testosterone can mimic that. Okay. So that's why we go into that hormonal aspect. Can you resolve a wives tale? Does your hair inherit through your mom or your dad or both?

Neither depends. So I guess it's an old husbands tale that it was your mom's dad that was the cause of your baldness. But what we know today, and even through genetic testing, we elucidated that there are hundreds of different locations in the genes, like SNP single nucleotide polymorphisms that determine hair color quality, texture, even how fast you're going to lose your hair, and metabolic pathways that might influence how you respond to certain therapies better than others.

So there's not answer is all that stuff is hooey. Okay. All right. Yeah. You can get it from online and outside okay. To whoever needs to be blamed first. Okay.

So when you talk about testosterone, of course, the big I don't know where you rate the minoxidil is the Rogaine you get from Costco. And finasteride is the testosterone blocker.

What is it about testosterone, the figure that causes accelerated hair loss? Well, what we know, and let's just talk about male pattern hair loss, because we know specifically that male pattern hair loss is triggered by DHT, dihydrotestosterone, which is a testosterone metabolite, right?

Created by the five alpha reductase enzyme. And the reason we know that the DHT is the bad guy is because if we inhibit DHT production, which can be done pharmaceutically as you mentioned, Propecia or finasteride is the most commonly known way to do that.

An oral drug can also be done topically, but if you lower the DHT significantly, I'm talking like 60, 70, maybe sometimes even 80%. You can protect hair follicles like a lot of hair.

You can get it from 90% success, right? So it's more of a preventative thing at 90% for further hair loss. But is it going to actually help you regrow in most cases?

Well, actually two out of three male patients on finasteride are going to get some regrowth. Now, maybe not all areas, maybe not the areas that are severely depleted because once the follicles beyond repair, once it's miniaturized, beyond repair.

No hope except transplanting you. Yeah, we need to do a deep dive on the anatomy, but let's just get minoxidil out of the way. Okay? So lots of different mechanism.

It somehow improves the circulation or something. Describe how minoxidil theoretically works because I haven't heard a word. Great. Actually. Yes. So well, here's the thing.

Minoxidil can be a game changer for people. It is a direct hair growth stimulator because it stimulates the follicles to turn on. That means go into a growing phase and aging phase and start producing hair.

And also it keeps them in the growing phase. So it's an antigen promoting and prolonging agent. So if the follicle is dead and gone, you're out of luck.

But if it's weak, the minoxidil can be helpful. Now, the reason why Rogaine out of the supermarket doesn't work all that well goes back to our previous discussion on genetics.

So there's an enzyme that converts the minoxidil out of the bottle into minoxidil sulfate in the skin. And if your pathway in that category is weak, you're not going to get a rate response from minoxidil over the counter and you need to switch to a prescription.

That's a good way to save money, right? So if you're converted into minoxidil sulfate, there's a single nucleotide polymorphisms test that's available to now.

But why would oral be better than topical. So well if you are a sulfur transferase deficient or you're prone to low social transferase activity, which would inhibit the results from over-the-counter Rogaine, then you got to do one of two things.

Either add a booster to the prescription, which means something like no acid known. For example, retinoic acid is something that we often prescribe in combination with minoxidil as a topical or as you mentioned, take it orally, which is amazing.

A micro dose of oral minoxidil can really produce a lot of hair. Growth on the scalp also can also increase hair growth in other places too a little bit, but it is a game changer.

Okay, so now there's a couple. There's a new FDA approved one. I wasn't sure the mechanism. And they also some people use an antifungal. Tell me about those other two options. Yes.

So you're talking about ketoconazole, which is an interesting molecule, ketoconazole in the form that you would see over the counter at nice zero. And that can also be prescribed at 1%, at 2% or over the counter at 1%.

Antifungal treatment typically was used for people with dermatitis. Right. Because it's an overgrowth of the mouse. These here fungus on your scalp a change in the microbiome and overgrowth of that fungus causes a lot of havoc inflammation, itching, dryness, scratchy big flakes, nasty yellow flakes.

Right. So if you use ketoconazole for that, you can essentially kill disrupt that that and then or is there a hold on. Yeah. Hold on. It's just it's that we're just talking antifungal as a mechanism at first.

But the but the weird thing or interesting thing about ketoconazole is that it's also an anti androgen. So it plays both roles. And one of the things that became like a social media trend many years ago is women using vaginal creams on their scalp to grow hair.

They could use a lot of those antifungal creams that they were using below the belt also has those antihydrogen properties to it. So it was kind of a weird thing, cutting ropes, but they were using those creams on their scalp and getting some improvements.

So that begs the question are, is female hair loss androgen dependent? Possibly. Yeah. So this is a yes. So we got the medical stuff. By the way. Let's talk about the light caps okay.

Because I know some people get some benefit. How would you put down the spectrum of efficacy. Or is it dependent on the condition. Well it depends on two different things the condition that you're treating and the condition of the hair follicles for sure, but also the power of the laser.

People think, oh, I'm going to go get a laser cap off. And this is a gummy. This. I thought it was LEDs near infrared. So are they different? Are there different offerings for a spectrum of light?

Yes. So LEDs would be a non laser device. So that would be like little blinky red lights that you have on the side of your VCR. Okay. Yeah. They're updated on masks too for rejuvenation.

Right. Right. So red light in a low power on the face can do some good stuff, but you're going to need a laser if you want to generate hair regrowth. And so the medical devices this is important are not going to be found on Amazon.

And they're not going to be $500 I'm sorry to say. I mean, the difference between a $500 TV and a $5,000 TV when you go to this is when you go to the store is very clear, right?

It's clear as day which one has more pixels, which one has more features and so forth. And the same is true with medical grade, low level laser therapy devices, so that it's Alman Turbo Laser Cap is the premier award winning device that was designed and engineered by smart people.

Yeah, I know, for the elite physicists. Yeah. Anybody making money, there's going to be six Chinese knockoffs. So was there one company that went, was there one company that went through an FDA process, or is this not for approval? Yes.

No, it is the FDA clearance. We're talking the laser cap company went through the clinical trial work. They went through the whole gamut. They have achieved the FDA, the original laser cap was mentored by Doctor Michael Raman in Cleveland, Ohio, in his dad's basement.

Minoxidil, Finasteride, and Ketoconazole

Obviously, that has been evolving quite a bit into the turbo laser cap, which is the premier device, award winning device that we ran. I of knew about.

That's a $5,200 device. Okay. But it's no replaceable. You can have it forever. Yeah. So that way it becomes your least costly treatment over time. If you compare that to a lifetime of prescriptions, powerful prescriptions, you'll spend far more on that than you would on a good quality laser.

So please make that investment. Yeah. So but in terms of you have to be honest, you're not in the profession. You're just like an on LLC. I'm telling you the truth. Hopefully.

How effective is it or is it just it depends and see how it goes. No. The laser is extremely effective because red light therapy is going to increase blood circulation, decrease inflammation, which is very healthy for the skin, but more importantly, it gets converted into ATP.

ATP, as you know, is the fuel created by the mitochondria in all of our cells. And hair follicles are the one of the highest metabolic cell populations in our body.

They're constantly making this long strand of keratin dead fiber on our skin, you know, called hair at a rate of about a third of a millimeter a day, which means, you know, by the time someone is done listening to our 30 minute conversation here, they've already grown about 2.5ft of hair on the scalp.

If they're healthy. So are you saying red light therapy works great energy production, inflammation. And the first thing was what the blood circulation and inflammation have done.

More importantly, imparting energy right doesn't do anything for stem cell itself, signaling or regeneration. Well, the hair follicle itself has a stem cell population.

The hair follicles made of mesenchymal stem cells. So anything that you do to stimulate your stem cell population, whether it's platelet rich plasma or red light therapy, using a low level laser or even nutritional supplementation that trigger stem cell activation, even things like microneedling, the high powered lasers we have now, fractional lasers called follicles that are non ablative, can stimulate the hair growth.

So peptides also can stimulate that stem cell population and increase the reduction to a lot of different. And I agree with you. There's a multi therapy.

Yeah. If the therapy wins the day when it comes to hair loss. But when it comes to like CEO hairlines you know I think the gold standard was if you t follicle unit transfer like the strips right from back here to here.

But now do people do that a lot or do they do the follicle unit extraction or follicular unit extraction. What you're describing is the history of hair transplant surgery.

And all of us were trained in the strip harvest back in the 1990s. But we always thought maybe there's a better way, maybe there's a less invasive way to get the job done with less downtime, less discomfort, no linear scar, no stitches or staples back to the gym in 3 or 4 days.

And that is funny. So that's what we do today exclusively at Bauman Medical. Only a few. We do not harvest a strip anymore, and we have all kinds of ways to accelerate, not just the recovery from the process, but also the regrowth from those transplants as well.

Is that occurring? It's actually not the surgical aspect, but it's the artistic application, because kicking one one follicular unit out at a time and moving it from here to here, here to here, and there's not robots.

You're doing this yourself under the microscope. It's all manual. Yeah. I mean, that's what the looks are for, my friend, is so that we can see what we're doing.

When myself and my team is executing a procedure of this type, it is a labor of 20 men. Our love. And during the day. And many of our patients will do multiple day surgeries.

Yeah. You know, I've seen people in the aftermath and sometimes they come for exosomes to help the vascular clarity. But a person doing that, like the follicle itself will fall out.

Right. But how long will it take to end graft and what percentage of the units will which ones will get rejected. Yeah. So I can't speak for other physicians, but over the past 14,500 procedures, we perfected the growth rates.

So I can tell you that what we're doing now is giving us 99% or more regrowth from their seizure, for some of that has to do with the technique. Yeah.

Of course, the other part of it is the storage solutions that we use, which could include things like hypothermia sore. We also use cold storage. So it's four degrees centigrade.

It's a thermoelectric tray. We also use red light therapy laser light on top of the grafts. More recently we've been soaking the grafts in exosomes. Wow. Amazing.

So there's a stem this in that base unit near the matrix where you have those mesenchymal cell drive hair follicle stem cells. Right. And you got the melanocytes.

And so even though the the hair itself will die and fall out and stuff, as long as the, the terrain of the scalp is healthy and healthy. Aftermath to end graft and re vascular eyes you're good right.

So you have what what do you see for them with exosomes. But after beforehand you try and improve the vascular of the implant that the recipient site.

Yeah a lot to unpack there. So what we're transplanting is the actual follicle. That is a collection of 100,000 cells 30 to 100,000 cells in a an almost like a tube fashion.

That's about a half a millimeter wide and about five millimeters deep. And that is a graft. And so what that the job of that organ is to produce the hair which is dead, and that will create the hair once the follicle is engrafted, as you said, three to 4 or 5 days, it's very difficult to disrupt the crusting and the scabbing flakes off.

After that, the hair sheds out right after that, and then it regrows, usually in a few months. But we've had some ways, like I said, that can accelerate that.

We've been seeing some accelerated regrowth in eight weeks or so with some of the techniques that I just described. So once the follicles settled in and the blood supply is reconnected, that's what the body's charged to do.

The follicle will essentially go through a rebooting, rebooting phase and then regrow a new hair permanently in that area. I mean, you know, they teach us that the face and scalp are highly vascularized.

But I would imagine in the case of, like, I got hit by an unripe avocado, I got a scar back here. I would think that if somebody has scarring alopecia to a very severe degree, that their subdermal muscularity is maybe not that receptive, are there?

That's yeah, that's a great question because we see patients oftentimes with scarring alopecia, either from previous

transplants or from injury or trauma burn victims.

I deal with a lot of military folks that have been injured in the in the, the combat field, so to speak, to combat theater. And they come back and their scalp as it need to be treated.

And so I have an entire scalp clinic, as I mentioned, over fully trained and internationally trained and, certified tri colleges to optimize the scalp before we even get going with the transplant.

Oftentimes we need to cool down inflammation, improve the blood flow, and we have a whole stack of therapy and treatment for that, including nitric oxide and microneedling and things such as penile growth factors and red light here at the author.

How nitric oxide vessel dilation. Nobel Prize winner people get flushed if they use it for whatever reason. You're saying, how is that an application?

I guess it would increase the vascular clarity of the scalp, but you can't be on like Viagra for days before your transplant, right? So how do you utilize that?

So obviously nitric oxide lozenges, for example, will temporarily increase that production. And they could potentially even increase the bleeding at the time of the surgery.

So we really kind of hold back on that a little bit in terms of the loss. And just so before the procedure and then after the procedure is part of the kit, but we also have nitric oxide releasing gel.

So this is the kind of a two chambered gel for, you know, Doctor Nathan Briand from the world of American Academy anti-aging and some of the biotech conferences.

So the two chamber. Right. So that gets activated in a little in a little cup, if you will. And then we apply that directly to the scalp where we're doing the transplant.

And that does not increase the bleeding, but it does improve the circulation to that area dramatically.

Laser Caps and Red Light Therapy

And so I've found accelerated healing with those nitric oxide releasing agents, especially the fact that you're doing it by the book, but you're also adding spices and alternatives and poly therapy to enhance your success.

Because all about success, right? Anyone can do a surgery at once. Defer for sure. I mean, look, even, you know, using transplant during the delivery of peptides and growth factors, either preoperative to optimize the health of the scalp and to increase that vascularization, the micro circulation is really critical, especially for patients who are over 40.

You know, we got to take a very close look at those patients, especially when you get into the 60s and 70s. It's really, really critical to take a look at what the vascular already is and should we be doing something to optimize that before we really go out at full tilt with transplants?

Okay. Well, amazing. So but by and large, I think it's pretty much accepted that few is the way that people are doing it for the last at least 15 years.

And so you're Baumann Medical and Boca Raton. And so what can a person expect to pay for a reasonable amount of movement of follicles from the back to the front or the top?

Well, I mean, as you know, add it's not as simple as that. If someone's out there with a hair thinning problem, first of all, they may have a huge amount of density.

That's just not working well. Maybe growing thinner, weaker, shorter, wispy or hair. It might be someone who is at risk for male or female pattern hair loss in the future.

Not everything is a hair transplant emergency. So at that moment, what is an emergency is to stop the progression of the hair loss. So we always say time equals follicles.

If you were prone to hair loss and you're not treating it, you're going to lose a chance to preserve and protect those hair. So the decision point for those folks is really what are the preventative therapies that we're going to do?

What are the lifestyle factors that are inhibiting hair growth? Are you on some kind of, you know, dietary regimen, some really restrictive diet or weight loss program?

Are you doing intermittent fasting or fasting too much, too often, shifting follicles into a resting phase? Are you having some kind of scalp inflammation or whole body inflammation?

What is your stress management skill set? Are you dealing with cortisol exposure? Prolonged cortisol exposure that'll knock your hair out. Change the color of your hair as well.

Not so good. So we want to optimize these for these things first. These are lifestyle factors. And I take a very holistic approach. You first. You're still a doctor.

You're not just a tech researcher. Yeah. And it's not a cookbook. So at that moment then what are the things that we're going to do. We talked about those types of treatments, but maybe there's some nutritional modification that we can do optimizing the scalp health or blood flow.

They're looking at low level laser light therapy or peptides. And then we can get into medications or other regenerative treatments like PRP, exosome therapy, Tad trans epidermal delivery follicles with the laser for hair regrowth.

I mean, those are all great options, but for you need a hair transplant. I love a surgeon that's not selling surgery. That's great. Well, let's pivot a little bit to general hair topics if we can.

Sure. So, you know, this is an evergreen topic. Everybody in their life is going to have hair loss and deep pigmentation if they get old enough. So in my schema over the last 18 years and I've been taking the TR 65 and I still have black hair, I have a little bit I need some exosomes here.

But I had a patient that was 114 years old and she start growing some black hairs on her head. Similarly, I was like 15 years ago. So a dad in here in her family, I went to a reunion.

She had like 100 relatives and they're like, yeah, she's going black hair. So I'm like, I from the very beginning, I've been a believer that stem cell ecology in the hair is just another, you know, manifestation of aging, if you will.

So it's pronounced something in that androgen is causing aging or terminal differentiation. Let's call it loss of stem. This I as you have experienced multiple brands of exosomes.

And so I've I've seen hairy pigmentation. I've seen haricots. So I think people are starting to get into that. But you know the regrowth of like I had a lady 93, who regrowth her eyelashes without let's Hannah post an eyebrow and was pigmented.

So I don't ever think that aging is not a reversible thing. So if you think about it, do you agree that somehow it's a stem cell ecology thing and it's really we're all if you look at that, premature aging models, if you look at Ron's a piano with the mice turning on the enzyme hair, people love hair.

I mean, I prefer cognition, you know, general health and well-being. But when people see their hair get darker for no reason, that roots or regrow, that is like the game changer, right?

Do you think it's a simple problem, an aging problem, or do you have a different view? Yeah, I you know, I feel like it's all the above, honestly, because I will tell you that some of our medical therapies that a lot of which we just describe, whether it be laser light therapy or even just plain old minoxidil, can help re pigment and maintain pigmentation in the hair.

So I have seen that. Now is that really affecting the melanocytes populations? I'm not so sure. I don't know, but I think anything that helps out with the health of the hair follicle or the increase in blood flow to the area, or the health of the scalp, is going to make a better environment.

One of the things that I like to do is use peptides for pigmentation. And I think copper tri peptide, you know, copper GPC, which has been around for 20 years, great for healing and skin, also great for hair regrowth.

I believe that that has something to do with maintaining pigmentation. I have a patient who swears that the use of that particular peptide over 20 years has helped her maintain her hair color, but I've seen it also in patients that are using our peptide formulations, which also includes zinc, Vineland and PTB, and methyl val innate.

And so those kinds of combinations together topically at home or applied using a trans epidermal delivery device like ultrasound has really seen we've seen some pigmentation with that, no question.

I mean, when I started to use Ted back in the early days of the pandemic, that was trans epidermal delivery. I was a device that we use on the scalp. We have it here today that the properties of that serum that's getting pushed through the skin, we saw not only improved hair growth, but also improved pigmentation.

Some patients. So that was really, really exciting stood out to me kind of skin, penetrative aspect or just a serum. So. Well, what happens with ultrasound?

Yeah. Ultrasound is a specific wavelength that disrupts the stratum corneum. So the stratum corneum is that tight layer, that tight junction under the skin that keeps the water out right.

Gives the moisture and thermal transcutaneous or epidermal delivery. Is that what Ted is or a trans is. Yeah. Trans epidermal delivery of the growth factors.

And Pepi is the same. Okay. Yeah it does two things. It does. It disrupts the stratum corneum so that you can get product through. And then it actually pushes it through.

It's amazing. No needles. Well you're kind of extraordinary because most people say, you know, it's hard to get a man to understand something of his salary depends on him not understanding it.

But you've been welcoming to these other modalities the peptides, the Ted, the exosomes, even storing your transplants in exosomes. So tell us about follicular banking and what is that and how do the exosomes help maintain stem this or improve that.

Stem Cells, PRP, and Regenerative Treatments

Like, you know, I think just just your, you know, comment on your your previous statement is that it's all about for us changing people's lives. So if we can help someone, whether it be slow their hair loss or improve their hair, whether it's improving their hair thickness and volume or restoring a hair line or coverage, that's a life changing thing that they experience.

And for us and my team, I'm speaking on behalf of my entire team. That's the payoff for us. We want to see people looking good and feeling good and feeling confident.

When you grow confident from hair. See what I did there? You know that's that's the payoff for us. So, you know, that's what it's like to be a part of the practice.

And I mean, of course, yes, there's a cost to get into the practice and to do these treatments and procedures. But, you know, when it changes your life so dramatically.

I've seen it. I get up every day. I see patients who are coming in from the results of their treatments and procedures, surgery we did a year ago or six months ago, and then the results of their medical therapy regimens, their hair homework assignments.

You know, we're seeing those changes happening on the data first, you know, the measurements of their scalp, the team seeing the hair caliber changing.

And then we see it in the mirror. That's the exciting part of it. Yeah. So the second part of your question is about hair follicle stem cell banking. And the reason why I think that that's it really important for us to discuss at this moment.

Well, and it's not because we have hair cloning because we don't have that yet. But I hope that within the next decade, with AI powered research, that we're going to have hair follicle multiplication, and I want my source material for my clone to fire particles to be my 53 year old hair follicles, which was, you know, almost three years ago.

So, I mean, no, of course, that's the way I would make those babies, you know, so you don't have to make a lot of crazy. I mean, I was just in a Hong Kong stem cell conference, and they're taking regular cells and using the Yamanaka factors to do differentiate.

So the the upshot is they can make a and they know every chemical to add to stepwise differentiate. So they can make sperm and an egg out of Liam Neeson and Pam Anderson.

You know not the current ones but they can get it back and regrow that crazy Baywatch bear and whatnot. So yeah, I mean, it would be pretty trivial, I would think, to learn how to do you know, self-identified IPS and then differentiate a hair fork.

So that's what we already know. Yeah, we already know that those hair follicle stem cells in the future are going are they're already being differentiated in the laboratory into cartilage, neural tissue, pancreatic tissue, cartilage.

All of these and even natural killer cells to fight against ovarian cancer. All of that research has already been done online. I listen, I smell from the fat, from the follicle.

Ed no, but yeah, from the dental pulp. Oh, it's all just stem cells. That's like my suspicion. Not knowing anything is that stem cells have an incredible ability to differentiate forward and back.

And that's what the Yamanaka factors tell us. And and when you do a deep lift or a little shallow dive into hair, they're also looking at signaling molecules and gene expression of things like stem cell factor 20 knots.

Yeah. These are all part of the music theory, the language stem cells that we don't understand. But you know, when you see it in your own life, like 114 year old woman has no ability or reason to lie about her hair pigmentation.

You see it so often it just makes you a believer that stem cell ecology is just a manifestation of aging, and aging is differentiation and depletion. But it's absolutely true.

What you're saying is that those growth factors that are coming from those hair follicle stem cells now in the laboratory, they actually are creating secret, tone based personalized therapy from your own hair follicles.

So that's the in-between step right. So we have the hair follicles banked for the future. Hopefully we'll get to cloning. But in the middle now we have a therapeutic intervention by multiplying by culturing those hair follicle stem cells in the laboratory and collecting the secret tone.

That's all the the juice, right, that comes out of the hair follicle stem cells. And then sending that back to the clinic, it's going to have Doctor Ed Pak's name on it. It sits in the fridge.

And when you come in for your therapy right now, we can deploy that back into the scalp. As a hair growth treatment, eye has up to 30 times more powerful than PRP.

We know that already. I think it's coming because you know, it is the treatment that's now at, you know, not now, but like, you know, taking from here to put here is like robbing Peter to pay Paul.

You lose density. I mean, I assume you have some kind of visual capture for follicular density as a measurement in your practice, right. Do you take pictures within AI powered microscope?

I mean, that counts hairs, but we also have sophisticated global photography that tracks coverage of the hairs. And you can lose 50% of your hair without it being noticeable to the naked eye.

So like when you tip down and you look at your crown area and you can see the scalp shining through, and it has to me able to tell you that, you know, you're about almost 40 to 50% depleted in that zone.

I know I gotta get some action. So I was back there, you know, because maybe he had tripped on a bone. Okay. You know, I, I remember we had a conference a few years back.

I showed you a picture of my guy, and he's like, doc, you know, you're my plantar fasciitis. When I can you do up my hair, I go, I don't know. So we put some exosomes in there.

But it was there actually some amniotic fluid exosomes. I remember showing the picture. I go, hey, Alan, do you think this is from minoxidil? He says the minoxidil is doing this even though he's been on the minoxidil.

You're like, no way. There's just no way. So when you see that kind of regrowth, it makes you a believer. But, you know, the flip side is a patient will come to and say, what are the chances?

And you just kind of go from your low numbers and I go, I don't know what, three out of 11, I don't know. So how do you explain to people that sometimes it works, sometimes doesn't maybe need to sign up for multiple treatments?

I'm usually like a one and done guy. How do you work with a patient in their expectations? I mean, obviously you're not just a one. Yeah. Let's go. Yeah.

It all starts actually with an accurate diagnosis and evaluation. So I'm brave. Traditionally train your medical college back in the 1990s and you know, 80s and 90s.

And what we learned is that you can definitively say the diagnosis 85% of the time through medical history. Right. And then examination. So those are the old school skills.

So when we spend about an hour with each patient, we're not just measuring their scalp with AI powered scope. We're finding about out about their medical history, the hair loss in the family, the mom's side and dad's side mucking about their medications or supplement regimen, their lifestyle factors.

What are the things that are going to impact their hair? So when we quantify how much hair they have in each zone and qualify the not just if they have hair or not, but actually the thickness of each individual hair, that gives us the best chance of prediction if they are successful with the treatment, like if they're if they're going to do something at home, are they going to do something in the office? Or combination of things?

Will they be successful in protecting and enhancing their existing hair? And so by eliminating the risk factors, improving the things that are going to help them with their hair growth, and then adding in the therapies that they will actually be compliant with that they're actually going to do and, and basically make it first line, second line, third line therapies before we start to stack them.

The measurements, the measurements at critical intervals, at 90 day intervals tells us our progress. So some areas might respond amazing. Other areas might be lagging.

And so we can elucidate that through the measurements as we go along. And it's not a guess. It's not if I hope in this. And that is actually data that tells us what's working and what's not.

Yeah. And if a treatment can't be complied with, they can't do a topical because they don't want to mess up their hair or whatever, or they have scalp irritation.

Then we switch gears and then we go to something different, whether it be an oral medication or an in-office treatment to stimulate that existing hair.

But we always work least invasive to more invasive, and we always work in a stepwise fashion using multi therapy, adding things on scientifically as we track the regrowth happening.

You know, I love that. I think that first principles get the diagnosis and then you know if there's DIY stuff nutritional stuff. Absolutely. But let's back it up a little bit just to a general hair topic.

Right. So everybody knows somebody who's gotten chemo and what happens. They get upset, they get brain fog and they get hair loss because those are three metabolically active stem cells.

But what happens after the hair grows pile right. Oh yeah. Oh yeah. Don't forget the bone marrow. Bone marrow. Get social. Yeah yeah. Information from. Yeah.

So wherever your stem cells are they'll get nuked by most or some types of chemo. But the hair grows back the gut re epithelial is what you're saying.

Yeah. No, it's nobody would want chemo if they didn't have it. But but it's a it's a message that even in the absence of scarring alopecia, you can get stem cells back.

You could regrow hair. And so there's always unfortunately. Oh really either permanently alopecia people after chemo. Yes.

Hair Transplants and Follicular Unit Extraction

Chemo induced alopecia post chemo alopecia is very, very common with a drug called tax tier, which was used in women, typically of childbearing age, who had breast cancer.

And it was a follow on treatment. And unfortunately, there is a significant risk of post chemo alopecia with that drug. And that is a permanent hair loss situation.

It came out in the clinical work that they did in Europe, but the controversy was that they kind of forgot or hid that information to the from the physicians here in the United States.

So a lot of physicians were prescribing it without knowing or being able to inform their patients. So it was a big controversy I made about ten years ago, I would say, kind of called the review or not sure just to name some.

It was tax, right. Oh, so like Brexit taxi. You know the Taxol when they use with platinum. Yeah I'm not sure but you should check it out. And so those permanent those a lot of those women have been in my practice for years.

Some of them needed cranial prosthetics because they had no hair left to transplant or anything. So it is impossible. Yeah. Okay. Well, you know, if you need it for, for of Tufts or Beehive, you know, that's one thing.

But, you know, just go in with your eyes wide open. That post chemo alopecia is a possible thing. A lot of what we do now, if someone knows that they're going to go under chemotherapy regimen and they're going to they're

destined to lose their hair, have a high degree of suspicion that they will, as we recommend cold caps during the infusion.

And what that does, it cuts down on the circulation to the scalp. That does actually preserve the hair. And then the other thing we do is try to stimulate the hair growth so that the stem cells become more active and more resilient to the insult of the toxin of the chemotherapy.

So there are a lot of things that we can do. And we have a lot of patients who are in the regrowth phase from chemotherapy. And I'll tell you, you know, some get an amazing and great recovery without much effort whatsoever.

And then for others, it's a long battle to bring it back. Yeah. Now, are you seeing as I'm seeing a lot of immune dysfunction in the post-Covid era, people have gut dysbiosis, massive activation, autonomic dysfunction.

But also, you know, just general autoimmune problems. The rates are going up. And as a manifestation of that, alopecia, especially in women, seems to be strongly correlated with immune dysregulation things.

Oh my God, are you seeing this pattern too or am I not? No, you're not imagining it. And we we're on the front lines of the Covid hair loss situation.

I treated over a thousand Covid related hair loss patients. A good percentage of them are what you just described. Patients who have been diagnosed with alopecia areata, which is the autoimmune condition.

Many of them had been in remission, meaning that they didn't have any patches coming out. You know, for many, many years, 5 or 10 years. And then all of a sudden during the Covid, either lockdown, infection or vaccination situation, that's when they had a reactivation.

So whether it was the stress, whether it was the vaccine, the mRNA, or whether it was the Covid infection itself, the spike protein, you absolutely. We absolutely saw a dysregulation of the immune system and a huge epidemic of alopecia areata.

Just reemerge out of nowhere now going on into the future. From there, we saw a lot of accelerated male and female pattern hair loss and a lot of scalp dysregulation in terms of inflammation that we had under control, this frontal fibrosis, alopecia that was all related to inflammation and immune response sometimes got triggered from all of those three things.

As I said, either the lockdowns of stress, of lockdowns, the Covid infection itself, which we knew post febrile alopecia was a thing. It was coming, and we saw a lot of it long Covid, which means that a long phase of reactivation of these symptoms over time, like a telogen effluvium, chronic telogen shedding over time.

And then, of course, the vaccination, which just, you know, dysregulated immune systems up the wazoo all here and there. Yeah. And causes unknown risks of hair loss. Yeah.

And we had so bad. So we won't go further into it. But I do think I'm glad you're, you're seeing the same thing I'm seeing, which is a lot of I mean dysregulation, weird neurological stuff and alopecia.

You know, I had a case two days ago, a patient with. So we should talk on just a little bit about the anatomy. So there's like the stem cells and then there's these phases.

So the reason your hair grows long certain places and shorter and others you're never going to get dreadlock arms usually it's because of the antigen the telogen and the cardigan.

So really just the antigen is the growth. Matilda's in his wrath. So your hair on your head like, you know, two feet of hair or whatever in the last hour.

That's because it's always an antigen. And if your hair is resting like Bob Geldof shaving his eyebrows, you know, it'll grow back. Not as fast because it's usually resting, right?

So if a person has all their hair fall out or, you know, turn white, this can actually happen, right? Because like pregnancy, no can cause telogen effluvium high dose birth control can cause it.

One of the things can cause synchronization is people will be in a souring. I'll tell you, doc, my hair is falling out in clumps, but they don't tell you.

Doc, my hair didn't fall out at all for two months. So what causes this synchronization of Aids? Yeah. So actually the the synchronization. Yeah. The loss yeah is a very, very common symptom.

We often see sometimes seasonal shedding. That's something it happens more often in the fall than any other time of the year. And we've seen some reports on that in the dermatologic literature.

Any time you start a powerful hair growth treatment, actually sometimes you can see some shedding phase as the new hairs come in and push out the old ones.

But the hair follicles are very highly sensitive. Oregon not just to nutrition, but as we've discussed, inflammation and overall stress. So if you're let's say you've been hospitalized, you've gone through something traumatic, either physiologically or psychologically.

Excessive stress can synchronize that shedding phase and cause of the flu. And it's as we mentioned before, with Covid, high fever can cause post febrile telogen effluvium.

So six weeks after, let's say, for example, a high fever, you can see a synchronized shed. Women notice synchronized shedding after childbirth as the hormones crash from pregnancy levels down to normal levels, and then additional shedding can occur as they enter into perimenopause and menopause, fasting or, even jet lag can also cause some shedding phases to occur.

So the idea energy and carriage intelligence that these hair follicles cycle on and cycle off, you got about 100 to 150,000 of them on your head. About 80%, 85% of them are in the growing phase at any given time.

And the rest of them are either turning off or turning on at some point. And so 100 to 200 hairs shed per day is actually normal and natural. Most men with your and my hair length, you're not going to see much shedding.

Like you're not going to collect it in drain. You're not going to see it unless you have a very tiny screen. But women who have long hair, curly hair especially, they often see and track their shedding over time.

So shedding is a very, very common symptom that we deal with here in the office. I mean, patients will sometimes come in with little hair and baggies labeled by the day, you know, and I encourage them to do that if they have the wherewithal and the and the fortitude to actually package up their shed hair so we can examine them.

But, you know, shedding can be an emotional sign as well, or trigger an emotional response as well, because it's a sign of the physical loss of the hair.

And so there's almost like a grieving and and fearful phase that occurs when shedding happens. But it is part of normal daily life too, isn't that. Yeah.

So I would tell most people not to worry unless there's visible esthetic concern. But yeah, a lot of times when taking the test 65 over the 18 years I've seen synchronization to, I'll be like, what is going on?

I'm getting thin. But then for the next two months it'll just be solid and growing. So I think you can get that synchronization from the to or stressor way. You know, I mean, the bottom line is that if you if you're seeing a synchronized shed and this is for for your followers and listeners today that you're seeing something happening

and you think it might be affecting your overall hair volume, that is the time to get measured so that you can establish a baseline, because brushing your hair on your own, as I mentioned previously, 50% changes in your hair.

Look about the same in the mirror. And that's actually the reason why, historically, a lot of women never really got good care, let's say, from the medical community, because they were looked at as they have hair, not bald.

So when are they need treatment? But that's there's a lot of in between losing your hair. Yeah. Yeah. No. It's really weird that hair is such a pervasive sign of aging and maturity and but yeah, I do.

I do think, you know, that's really true about the stress. I had one patient and her husband just texted me back. He's not sure, but she was happy.

Scalp Health, Scarring Alopecia, and Recovery

But every hair fall on her body flower, eyebrows, eyelashes, hair, arms. So if your body, your spirit receives a real shock. In this case, it was, you know, her child was murdered.

Golly, I don't know if it's an autoimmune thing or I don't even know what that means, but every hair on her body was gone. Have you seen a lot of case?

I'd never seen one of alopecia. Totally. Have you seen that? Well, yeah, I have alopecia to account. And universalis patients in my practice. Alopecia totally is when they lose the hair all over the head, including eyebrows. Eyelashes.

Yeah, yeah. Alopecia universalis is when they lose it all over their body. The good news is that there are FDA approved drugs now for that, which we didn't have years and years ago.

So the Jak inhibitors, Janus kinase inhibitors, which, you know, obviously come with some warnings, but they are very effective in shutting down the alopecia areata, Taco's universalis, antibody to a specific hair antigen.

Right. It's just a phenomenon or explaining universalis to me. Like, how can every hair and every hair follicle loses its immune privilege and gets attacked by the body, so need to have the cellular immune system?

Is there a known auto antibody like you don't. Graves disease is known auto antibody. I don't think it's that. I don't know. I'd have to do a little bit of digging on that.

But you know, we just know that like even a small patch of alopecia areata, the hair follicles shut down in a very, very specific round circular zone.

And the way to treat that little small area it traditionally has been with steroids like cortical steroids or steroid creams. I'm not a huge fan of that, by the way, but I've had great success many, many patients, thousands of patients over the years and treated with PRP.

And they do very, very well with PRP, which also, as you know, has an anti-inflammatory effect, but with much lesser side effects than cortical steroids.

But what? But the initial part is inflammation. And then it brings in the stem cells and then it's anti-inflammatory. So if you do PRP they'll say don't take aspirin.

You know. No it's our it's you don't want to do one or the other. I wouldn't do corticosteroids and PRP because the corticosteroids actually inhibit the work of the PRP.

So you got to go one path or the other. Most people in my practice, they're keen on the regenerative pathway. They don't want to have the side effects of a steroid injections in their skull.

You know, the necrosis in the divots that they find and all that's out there. I go anywhere is a theme team. And I mean, I get a lot these people with a back pain that degeneration because, you know, they're improved and known to cause toxicity to the stem cells that produce bone and cartilage.

But anyway, so wrapping it up, we're all if we're privileged to live long enough, we're all going to experience deep pigmentation and we're all going to have hair loss.

But there are many things in your lifestyle diet, immune privilege, immune health, even down the line. Surgical. There are many ways you can diet prevents it, slow it and understand it.

Right. So it's inflammation, it's blood flow, it's aging. And hopefully we can mitigate all three things in some way. Right. Well absolutely. You know there's plenty of other triggers and causes to nutrition and such.

But you know the bottom line is that yes, the take home message, I think for anyone out there who is experiencing either an excessive shed or change in their hair volume or texture or even color, obviously, if you're seeing your scalp shining through, a part line is widening, you've got to move your hair around to cover some more areas.

You see scalp, or if your hairline is receding, or if you started some kind of new regimen, whether it's hormone optimization or strength training or even a dietary program, you know, you're on a restrictive diet or fasting regimen.

If something's happening to your hair, that is a sign that you need some help. And that's what we do here at Bauman Medical. And of course, Bauman medical.com is the place to get all the information about hair loss and hair restoration.

We have hundreds of hours of video content that you can consume about all different problems that trigger hair loss. The treatments that we do, the success stories that we've had, information about, everything that we've talked about here in this short podcast, but also everything else that you would need to know how to get started on a good hair restoration journey that is data driven.

Not like guess if it's working driven and not a TikTok trend, but actually with scientifically proven treatments that work right? So you do use exosomes in your part of your not only for storage, but as treatment.

Two Subcu or Microneedling. So exosomes are amazing right there. The stem cell messages. That's why we use them because we don't have to put anything cellular into the body.

We can actually use those. The exosomes which contain the messages of tissue regeneration repair. So there's a lot of ways to put exosomes into the body.

You can microneedle and use exosomes right on top of the skin. Exosomes are very tiny, so they're nanometers in size that they should go right through the skin pretty easily.

As I mentioned earlier, we do soak grafts in exosomes and we can deploy them back into the scalp. And one of the best ways to do that now without a needle is with Ted trans epidermal delivery, so that you can increase the permeability of the skin, which may or may not necessarily help all that much.

But more importantly, use what they call the pressure, the acoustic pressure, to force those exosomes into the locations where they're needed the most.

Like right, like a Star Trek hypo like that. No, no. Okay. The there's ultrasound, but there's a pressure in a spray. It's not an ultra. The ultrasonic delivery device by Alma is a very sophisticated device.

It's used to prime the skin, but also to deliver the product to the skin. And so think of it like a small hammer tip. You know, like if you had a small toy hammer, it was like a circle, right?

Like a metal circle. But that circle has a concavity to it. And when you rub that on the skin with the serum at the

appropriate frequency, right, the frequency of sound is what disrupts the stratum corneum.

You can immediately see the skin turns a little bit pink from that. Then you apply the serum at that moment, which could include the exosomes, and you would increase the power of that device, the strength or intensity.

And you rub that on the skin again, it pushes it. And there's a lot of science and data behind this. I'm actually one of the first to use that in the world of hair restoration.

Back in the pandemic, I became one of the first non research sites, actually outside of the original research facilities that they did the clinical trials, pilot studies on the device here in the United States.

I became the first clinical site outside of the original research sites. Okay, I have a question for you. Just as we wrap up, last question I forgot to ask.

Sorry. So many men are on and some women are on testosterone replacement, and this can vary from palettes to weekly injections to, you know, oral. I do recommend that everyone has some kind of DHT blocker topically to prevent alopecia.

Or is it just see what happens? No, I wouldn't, I certainly wouldn't recommend a broad statement like that that everyone should be on something. Because, you know, what we know today is that this is personalized precision medicine.

And so if you are someone who is obviously experienced aggressive progression of hereditary hair loss, either male or female pattern hair loss from hormone optimization with testosterone, well, yes, you should come in and get evaluated and figure out an anti androgen option.

Chemo, Autoimmune Hair Loss, and Expectations

Anti-Aging options range from nutritionals like saw palmetto to finasteride, which can be done topically or orally, or even do pasteurized, which is a stronger drug to prevent the conversion of testosterone into DHT, which is of course, the trigger for male and female pattern.

Hair also is certainly a trigger for female. I mean, the point of people taking super therapeutic testosterone is to gain muscle mass and improve their metabolic effects.

I would assume you wouldn't take an oral if you're trying to juice up with an injection and then taking a pill that's like pissing in the wind, right?

You want to just use it topically or because, you know, I wouldn't say that. I mean, I yeah, I've never been on testosterone, but my premise is that I see a lot of people taking it.

And if they say to me, I'm starting to lose my hair at a rapid rate, it's not at all like opaque as to what it's like, clearly super therapeutic testosterone strongly associated with alopecia.

Well, it doesn't have to be super therapeutic. You could just be sensitive to DHT. And that's one of the things that is variable in the genetics. Right?

So someone who is going and losing their hair in their 20s at an aggressive rate may have normal physiologic levels of DHT and and T. So but what's happened is they're very, very sensitive to it.

That's what they've inherited. Or they could be a converter high converter. Meaning that their five alpha reductase enzyme, either type one or type two, is overactive, and that you can elucidate through genetic tests, as we do, that very commonly in your office.

So if someone comes in and is thinking about going on hormone optimization therapy, and they have hair loss in

the family and they may be experiencing a little bit of hair loss, we'll always do that genetic test to see if they're likely to be a high converter to DHT, or not to taste genes.

And yeah, because I guess the ultimate example is testicular feminization, right? Where they have total engine insensitivity and they have these beautiful like these women that are models are super feminine even though they have testicles. Right.

You've heard these TFM like they have beautiful hair, right? So they never get any effects off the DHT. Yeah, yeah, yeah. I mean that's those are interesting cases for sure.

But yeah, just circling back, I would never recommend a blanket approach, to someone. Hormone optimization because as you just mentioned, some people can do very well with great hair growth, with all kinds of DHT going on and others, you know, you just like, bring the DHT up a little bit and all the sudden, boom, they've got some aggressive hair loss happening.

So it's not just the anti androgen therapy looking, you know as kind of a take home here, but as what else can we do to maintain the function of those hair follicles, whether it's a peptide or another pharmaceutical like minoxidil or is it a nutritional supplementation or is it a laser treatment or, you know, whatever.

You know, it's a combination approach to make the follicles more resilient to the tissues. T if you are affected, or you might just need a little bit of hair transplantation to get the job.

Okay. I mean, because I was thinking about getting some testosterone, but I'm thinking like, am I going to lose my hair? Am I going to get gynecomastia?

So but these are all things that, you know, I'm just basically trying to get some help on lay off and on. I was scared to death of hormone replacement, but I guess people swear by it.

They love it. Well, I have to say, I mean, you know, obviously a public forum here, it's no shock that, you know, we've been as a biohacker and a health and wellness person for, you know, almost 30 years.

We I'm doing all of those things and so on protecting my hair. I'm I mean, look at the amazing my hormones. You know, I'm it's a delicate dance and certainly a battle, but I believe that my dad, who was totally bald by the time he was 30 and that I'm already gained, you know, an additional 25 years, you know, of hair growth from my regimen, which is preventative on the hair side, but also I'm optimized on the other side.

And I would not super physiologic physiologic in terms of hormone replacement, but just enough to optimize my life and and my brain and my body to the point where I want it to be, you know? So I think it's a delicate dance, you know, and it's not always so easy to achieve.

But that's why you need help and guidance. I think you look marvelous. So you should go for it. Ed, I I'm still for it. Even better than your avatar. I think you're doing a better than has.

So yeah, I know it's, We'll see. Stay tuned. I don't know, but I definitely need to get someone to poke me back here with something. All right? And Laura is always over.

Dear Ed, come on down to Florida. It's a very nice place to visit. I also have a satellite office in New York City, so you can visit me there as well, if ever you would like.

You know, I'd be happy to take care of you and any also any of your other followers or friends from this program. If they have any questions, you can always reach out to me directly.

Message me to DM me on social media. I'm on all platforms of course, and even through the website they can go to Bauman medical.com/ask and they can always ask a question.

So like when you wake up in the middle of the night and my avatar is not available yet, but go to Bauman medical.com/ask and then type in your question Ed.

And then put in your phone number and I promise I'll get right back to you I love it. I'm sure your avatar is awesome as as are you okay. Excellent. Doctor Bauman, such a privilege.

Thank you for all the education. I hope that people got something out of it. And it's Bauman medical.com and Boca and in New York City. Yeah. Thanks. So great to be here with you.

Appreciate you. Thanks L.