
Adiel Tel-Oren: Skin Science - The New Key to Anti-Aging Medicine

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Speaker 1: All right. As you can see Dr. T is here. Professor Adiel Tel-Oren, aka Dr. T is a sought after lecturer and an expert in skin health longevity skin lesions treatment and prevention, clinical nutrition, functional medicine and laboratory tests. He is introducing non-invasive precision instruments for clinical diagnosis of skin aging with powerful treatment protocols available to all types of practitioners and then as the recipients.

Dr. T is president emeritus and the professor of medical sciences, clinical nutrition and functional medicine at the University of Natural Medicine in Santa Fe, New Mexico and San Dimas, California. He will be lecturing about skin science, the new key to anti-aging. Ladies and gentlemen, Dr. T.

Dr. Tel-Oren: Everybody cares about skin's health. Everybody cares about appearance of the skin. Until now, we have focused mostly on superficial aspects of the skin such as beauty, longevity, how young do you look? And how old do you look? People occasionally ventured away from superficiality and started thinking about skin cancer and other types of conditions of the skin. Usually, they only treated those as skin-deep issues with creams, superficial steroids and with treatments that ignored the underlying cause of skin disorders.

People have ignored the fact that when you have atopic dermatitis or when you have an eczema condition, it's likely to be a result of systemic immune dysfunction, leading to inflammation in the skin and probably other conditions that are attendant ... That are associated with [heat matter 00:02:12] typically ignored in favor of treating the symptoms which are obviously visible within the skin. Being that the skin is the most visible organ in our body, we care most about it and we give it special attention. You will see that sometimes this attention is actually harming us.

In fact until sometime in the mid-19th century, nobody cared that much about skin in terms of skin hygiene and skin cleanliness. Nobody even thought about germs, we didn't know much about them. In the days when women who were about to give birth were almost always dying and sometimes two-thirds of them would die in a hospital. Those few doctors who said, "Hey, surgeons and obstetricians should wash their hands between patients, because we are probably creating some type of contagion," they were ridiculed and died miserable, because nobody took them seriously.

From that experience of puerperal fever which killed so many young and healthy women who just happen to give birth in a hospital, but not those who were giving birth in a home. At home it never happened. If you went to the hospital to give birth in the cities in Europe, you were deemed as good as dead. As a result gradually as information came, trickled in and as doctors were willing to actually accept that they were the cause of death of so many women at the prime of their life, only at that time a shift started occurring with regard to skin hygiene.

Suddenly, there was a push towards different types of antiseptic products with very toxic aspects to them, but nobody cared about that. Then when we saw also who were the people who could afford to look clean, those who had access to water. Usually in middle age Europe, only the wealthy people had access to water on a regular basis and could clean. It became a status symbol to appear clean. An appearance of cleanliness became Godliness and it became something that everybody is now trying to achieve.

Immediately in the 19th century, some marketing companies started taking advantage of that and what used to be an awareness of microbes, became phobia of microbes and later on it became today panic of microbes. As a result, companies are selling and actually deceiving the population with their sales tactics giving us so many products that we put on our skin that are supposedly keeping us clean, but in fact in many ways they make us dirtier than we were before.

They destroy some really important components of our skin structure and function, leading to major disruptions of our immune system, of our protective mechanism, of our response to various pollutants and mostly affecting our barrier function, which is the main function of our skin. It serves as a barrier against the outside environment. Every living organisms needs a good barrier, so that the outside environment will not trickle in and destroy the inside environment. They are very different. One aspect is the dryness of the outside environment and terrestrial environment that we live in. It's dry outside and it's wet inside.

We need to avoid losing too much water. For that we have to have a very tight barrier that won't allow water to go through it. That's why we have a measurement called trans epidermal water loss. We want to see if we have lost water through the skin barrier, because if we do, we are not functioning well and that barrier has lost its integrity, which also means that other barriers in our body might lose their integrity as well.

It just so happens that all microorganisms on earth share some similarities with regards to their barriers. They all have some lipid membranes or fatty areas which are very tight and hydrophobic, they don't like water, they don't allow water in. Those have to be extremely dry. Our skin's surface, also known as the stratum corneum has in it those bricks called corneocytes. Between the bricks, there's cement called the extracellular matrix. It's supposed to be together, brick and mortar, very dry, lacking water. The lower the water and the higher the fat, the better.

That fat is organized in specific layers, in structures that increase the impermeability of the skin to not allow any water to go through and to not allow things from the outside to get in when they shouldn't, not too easily. The skin is serving as a barrier structurally, but also functionally. The lipids and fats that are secreted by the epithelial cells are then joined by additional lipids secreted by

our sebaceous glands. Together, they form various fatty structures, free fatty acids, mostly short and medium chain triglyceride, free fatty acids, monoglyceride and sphingolipids.

Those are then converted by bacteria into specific components of sphingolipids, cholesterol and ceramides, which are all protective lipids that maintain a very specific PH, very acidic. That allows only certain types of microbes to grow and to protect us from excessive growth of pathogenic microbes from the outside environment. We must have this layer of protective lipids. It has to be exactly those lipids. They have to be dry, because if they get too wet, microbes can start growing within them.

If you try to hydrate your skin on the surface of it, you actually increase the risk of pathogenic microbes growing within that wetness and it's the opposite of what you have been told. We all think that we need to keep washing our face, washing our body and taking a shower again and again obsessively to be like the upper echelon or society that the Americans and Europeans have grown to emulate or to consider themselves a part of. As a result, we continuously and repeatedly destroy the whole environment crucial to growth of healthy bacteria and prevention of pathological overgrowth.

All of these things are manifested through that one test, transepidermal water loss. Until recently, this test was only available in large research universities, in facilities where they started studying only the skin. Not for clinical purposes, but for research value, to understand how the skin operates. Maybe sometime in the future it will become clinically relevant. They only studied the skin with regards to different skin products where the money is, what type of skin products should be used and how they affect the transepidermal water loss?

They used big rooms in those research centers. These big rooms had to have very controlled humidity and temperature, because how can you measure vapor when the environment is not controlled? That's why these types of instruments were only available in big university research facilities and not in any clinic. Practitioners generally did not have access to them, but recently a company in Finland started creating very small devices that can measure transepidermal water loss and here is their machine.

The whole room that used to be in a research facility is now contracted into this little hole. That's the room. If you tighten the lips of this room right onto the person's skin, you have a controlled environment. You can actually measure in grams per square meter per hour the amount of water that has been lost through your stratum corneum. That tells us about the integrity of our barrier. This is crucial, not just for the health of the skin, it's crucial for everything in our body.

As I said earlier, we have some commonalities between the structures composing this membrane in the skin and other membranes in our body which

also contain cholesterol and other sphingolipids and other fatty acids. If something is wrong with the skin's barrier, something is wrong with other barriers. Please understand that scientists who study the skin are saying that the barrier is the difference between life and death. As long as you have a good barrier between the living cell and the dead environment, that barrier will keep the living alive.

Once we start losing too much water, once we have lost our transepidermal water vapor in large quantities, that's when we are approaching approximating death. In other words, we degenerate and regeneration leads ultimately to death. We want to keep this transepidermal water loss to a very low level. The level that we would see in little children. In babies who still have fairly intact stratum corneum, until their parents start washing them excessively and putting soap all over their body, thinking it would protect them and ignoring ... That movie Babies, have you seen the movie, Babies? Where the healthiest children in the world were those who were in the dirt all the time.

Who were crawling with animals, grass and insects, for whom dirt was their natural environment and not something ugly and disgusting as we would like to make it into. Those babies did not have asthma or allergies or autoimmune disease. Those babies do not know children's cancer or obesity, they have no immune dysfunction, they have no behavioral disorders, they have no autistic spectrum issues or learning problems or focus issues. They are healthy babies. Because, they interact with their environment which keeps introducing them to a huge variety of healthy microbes that protect them.

It turns out that the microbes of the skin, the probiotics of our skin are just as important as the probiotics of the gut. Everybody talks about probiotics and prebiotics, but nobody thinks about the probiotics of the skin. It turns out that whenever you change this concentration and PH and structure and content of your lipid layer or your fatty layer in the stratum corneum, you destroy the ability of your microbes to do their job. You will not have healthy vitamin D production. You will not have any other function that you would expect of the skin.

There are many other functions we won't get into today, because we just don't have the time. What we do have is a machine that can tell us what your barrier function is like. Where else do you have barriers? In your brain, the blood brain barrier. You have barriers every place where you have epithelial cells overlying basal membranes, not just the skin, but your gut, your glands, your internal organs. Most of them have epithelial cells with a membranous tight junction layer underneath them called the basal membrane or the basement membrane. The skin is called the basal layer, where we develop basal carcinoma very often.

When we start losing that barrier, we start creating disorganization. Disorganization comes from over exposure to inflammatory components and to disaggregated immune system. When that happens, we have the chances of

replication of cells that are disorganized, that could lead to mutations and the formation of cancer. It's not a coincidence that people who have greater exposure, not just to the sun, but exposure to other issues, increase in free radical damage and disorganization in their skin. Even in areas where the sun will not shine, those people are at higher risk of developing cancer of the skin, regardless of type.

It's just a matter of time before disorganization would lead to the growth of cancerous entities. If the skin is exposed to pollutants, if it allows pollutants in, if it's exposed to pathogenic bacteria, if it's exposed to free radicals from the inside out because of what we eat, when we eat rancid fats or toxic fats, fats that contain fat soluble poisons within them, that's when we increase the disorganization and allow mutation to occur more rapidly, more frequently. Then it's a matter of chance. It's probability before cancer begins.

All of that and all of those membranes in the body could be tested indirectly through using your skin as a marker. Instead of doing biopsy of your brain, which most people refuse to submit themselves to on a regular basis, unless they already had some brain damage before. Unless you want to do biopsy of any tissue, it's easier to simply use an external instrument that is non-invasive, that can be measuring the transepidermal water loss in just a matter of 10 seconds. Then you know in which direction you are going.

You don't have to know exactly, but you have to use that as a marker for you to compare yourself against, so that you know you are improving when you start using specific protocols that will sustain this stratum corneum as a barrier layer. One of those would be to stop using soap all the time, to stop showering all the time, to stop using hot water with chloride all the time and fluoride. I always tell people, just shower for as long as you can hold your breath. You don't need more than that.

Avoid using soap on your whole body, maybe on those every few strategic areas that could end up smelly because they have the apocrine cells secretions, which means, part of the cell just secreted into the sweat leading to purification. Even that wouldn't be a problem if you have healthy bacteria on your skin. Definitely, avoid smothering your body with oil. Oily products like coconut oil which is really the best oil that there is, because you can eat it and it's healthy oil.

If you poison your skin, you are completely diluting your lipid layers with the wrong type of oil, with the wrong type of acidity and with the wrong concentration of fatty less lipids, sterols and sphingolipids and free fatty acids, it's not exactly the same structure, plus you are plugging the holes, the follicles with the oil. It's best not to put oil on your skin if you want to maintain a healthy barrier, because it will change the PH, it will change the microbes which are necessary to break down the fats into ceramides and sphingomyelins ... sphingolipids. That destroys the skin's barrier function, not a good thing.

Does anybody want to be tested? Okay, we'll have to do it really fast. Come here, expose your forearm. It only hurts from zero to 10. 10 is the worst pain you could imagine. It only hurts about eight and a half. Sorry, I have to do it again, why are you resisting? I'm trying to make it hurt less. Okay, come on. Just when you need to work ... What did I do? Oh that's it, now it will do. Okay, don't scream because we want people to have high compliance with this test.

Now, we want it to be somewhere between five and 10, but the lower it is, the better. It will be interesting to see in her case 31.8. That's a huge loss of vapor from the skin for somebody as young as you are. I wouldn't expect that. It means that her barrier is dysfunctional. We can ask in this case, whether or not she took a shower today? Whether or not she used a lot of soap? Whether or not she was in a highly dehydrated environment? Especially in the winter when it's too hot inside which is horrible for your skin. Hot inside and cold outside.

You always want to equalize, equilibrate with the outside as much as it's possible and wear more clothes rather than heat up everything or you might want to have a humidifier in your bedroom and other things of that nature and then we would have to start talking about what types of fat do you eat? What types of oils are in your food? How many of your nuts and seeds have been allowed to become rancid before you ate them? How many of your supplements contain unstable fatty acids. Mostly polyunsaturated fatty acids can easily become rancid or oxidized.

All of this discussion would lead to improvement of the outside of the skin, plus there are some products that would help in that, some protocols and some non-oily substances that are not coating and plugging everything up and are just sitting on top of your lipid barrier. If they contain the appropriate concentration of the right types of anti-oxidants can also help reverse this problem within usually 28 days which is the amount of time it takes for the basal layer to completely be ready for desquamation or sloughing off.

By the way, the stratum corneum is not a dead layer like it was once thought it was. It's not dead, it's alive. It actually interacts with the rest of your body in amazing ways. All the more to respect it and to treat it with great, great caution. It even has mechanisms and cytokines that helps the skin decide when it's appropriate to desquamate or not, to slough off. You know about this naturopathic approach to brush your skin. Have you bought those brushes? People who brush regularly are the same people who would drink eight glasses of water a day.

Following what humans have said is not exactly what nature has said. I have not seen in nature any Chimpanzees or Gorillas brushing their skin. They pick at each other, they stimulate the skin of each other, but they don't brush the whole thing. Now, I'm in the opinion that we should just leave one another alone and don't do anything to the skin, don't help anything. If you want to stimulate the skin and bring more circulation into it, brushing might not be the

best option, but just do what in nature you would do, which is horsing around, playing, sloughing yourself. You do that anyway to kill the mosquitoes. Do it more frequently and horse around with other people, play it rough a little bit.

That will stimulate your nerve go into the thorns and roll in the hay and being with the dirt. You can just wash quickly in lukewarm water for 30 seconds and you are clean. Because, cool water will not destroy the lipid membrane and will not destroy your barrier. That was just in a nutshell, talking about the stratum corneum and how it represents different tissues in our body. There's a lot more to it that we will discover and explore in a six to eight hour seminar on this topic, that teaches people how to use these machines, how to interpret them and what types of protocols to recommend, so people can engage in healthy aging, longevity of their skin, improved longevity of their beauty, but also taking care of the inside, not just the outside.

The next layer is the layer that used to be called, the living epidermis. Until now we talked about the dead epidermis that we know is not dead. It was called dead epidermis, it's tradition. All traditions die hard, we call it dead epidermis because it doesn't have supposedly living cells in it. The layer below that is called the living epidermis. It has living cells, that has nuclei that manufacture things, that have ribosomes, endoplasmic reticulum that generates ATP. Cells that actually function and creates other cells. That's the living epidermis.

That living epidermis has to be the opposite of the stratum corneum. It has to retain water. It has to be very moist. The more moisture it has, the more protected it is. Remember, we had to have a very dry layer between the outside and the inside. Now, you can have a lot of water in the inside, thanks to that dry fatty layer that separates the outside from the inside. If you look at babies, you see that they could have up to 65, 70 percent moisture in their living epidermis. As we age and lose our moisture, the numbers go down further and further until we are so dry that we can look like we are shriveled up and ready to crumble.

That's indeed what happens to us if we don't take care of our moisture level in the living epidermis. It is important, not just because of the actual water content and it's important to enzyme functions and immune function, but also it's important because it represents our ability to hold water in any of the tissues of the body that requires a huge amount of hydration by proactively sequestering water within them. For example, the cartilage, the joints. If they don't hold on to water, they erode rapidly and degenerate. Then you end up with joint replacement surgery. Bone on bone, ebonation, erosion. You can see it from X rays when you've lost a cartilage.

All of those mobile portion of the body where we don't want friction. For example, the bursae, the ligaments, the synovial fluid in the synovial sheet surrounding tendons where there's not supposed to be too much friction. That's why we have to hold on to water. Those are the areas that regenerate the fastest in our body because we keep using them, we keep moving them and that

friction continuously creates additional destruction as long as there's not enough water held in there to keep things moist, fluid and sliding and gliding.

You all know about hyaluronic acid. There are many types of proteins and long chain molecules called carbohydrates that are tied together. Some of them are called mucopolysaccharides and they are designed to hold water in important parts of the body where it's crucial to our health. Some of it is in the living epidermis. That's not the most important part of the body where we hold on to water, it's actually in the inner organs that we require to hold moisture in the connective tissues of internal organs, not just the joints and ligaments, not just in the skeleton.

It's the same nutrients that hold on to water in the skin and also similarly hold on to water elsewhere in the body. The skin again acts as an excellent testing ground, an excellent organ that is easy to access from the outside without being invasive. Without doing biopsies, we could tell you how well you hold on to the water and how your diet, higher nutrition and what supplements et cetera and what lifestyle habits are destroying that moisture content you should have.

If you lose a lot of water in the skin, you are probably losing it elsewhere in your body and you are likely degenerating faster. If you reverse that strength and improve holding on to water in the skin, you know that you are moving in the right direction elsewhere in your body. It will take some more time, the skin is faster to replicate and to regenerate, like I said, about 28 days, internal organs might take several months. In some cases maybe a year.

As long as you are moving in the right direction nutritionally, you are also supporting the water content in other crucial areas internal to your skin, inside your body. That is what we measure with the moisture meter epidermis. That one looks in the living epidermis at the level of half a millimeter to 1.5 millimeter below the skin surface. It is simply measurement of the tissue water percentage. The technology is completely different, the electronics are different. It has a transducer that sends and receives information back from the tissue and measures the percentage of moisture in it very, very accurately.

If you are healthy even at age 50 or 60, you should have high level of moisture at least 55%, 60 would be better, 65 would be fantastic for an adult. Who wants to be the guinea pig? I'm sorry, to save time I'll let people in the front, as long as they can expose their forearm fast enough. 55%, not bad for somebody who is only 20 years old. Actually for your age, you should be higher, just kidding, have a seat, have a seat. 55% means she's older than she looks because she maintains appropriate water moisture in her living epidermis. You are doing some good things.

There are different things in the diet that could affect that. I'm still researching that, because a lot of this is brand new and it has never been utilized in clinical setting. This is basically the world's first prototype of these skin science testing

kit that is in front of you. I'm still researching, but I started studying myself and wanted to see what would affect my own moisture content in my own living epidermis. I started by measuring myself in several locations. They were all decent. In all of them I had between 64 and 65 percent.

I thought, "Well, that's a good number, but I want to see what would affect it negatively." I experimented with eating a little more protein, because I knew that some of those water sequestrants are proteinaceous. Now, because I'm a plant eater, I decided to have my protein source from vegan powders, hydrolyzed rice protein which is hypoallergenic, but protein. I increased my protein intake to about 75 to 80 grams per day, which is really high for me. Normally, I would probably get up to 55 grams or 50 grams, which is already a little too much. I went up to 75 or 80 and the moisture level went down.

Too much protein in your diet actually destroys the longevity of your skin, that's probably because of all the free radicals that come from nitrogen residues. Nitrogen free radicals are very tough for the body to handle and they cause a lot of degradation to fatty acids, including those which are present just underneath the skin in the subcutaneous layer. Too much protein was a problem, maybe because it has other components within it.

I was very interested in that and it explained to me why some people I know who are very young and relatively healthy in the age of 30 or 31 came to my clinic with skin cancer that suddenly occurred as soon as they started eating a lot of protein. Changing their diet when they heard about some diets that are out there that espouse high amount of animal protein on a regular basis. I'm not trying to create arguments here, I'm just telling you about the experience.

When people join an organization that says, "Let's eat traditionally" and the tradition is just the tradition from a few hundred years ago and not traditional humans, 150,000 years ago, it's a short sighted approach which does not really look at what humans ate in nature. Those people suddenly look older, suddenly, the skin starts aging and in some cases I see skin cancers happening very early. That is a result of disorganization of the tissue from so much free radical damage.

Also most people are not eating enough mucopolysaccharides containing foods which are the succulents. How many succulent foods do you eat on a regular basis, such as cactus, aloe vera type leaves? Plants that grow right next to the salty environment of the sea. Right at the tideline. There are a lot of plants that are highly succulent, rich with mucopolysaccharides which are designed to hold water in the face of the salty environment outside. Because, the water that is salty has osmotic pressure, taking water out of the body in an accelerated fashion.

The body has to protect itself with mucopolysaccharides underneath the surface of the skin, just like those plants in salty water. Part of our evolution was in salty

water environment, at least to some extent. We developed these mechanisms that were tightly connected with the types of foods that were available back then. Kelp is a good example, dulse and many other mucopolysaccharides containing seaweeds that would wash on to the beach and we would eat them with great enjoyment because they are salty and they are mucilaginous, they are chewy, they are satisfying. A lot of calories you get from them, the nutrients that are not easily available elsewhere.

The sulfated mucopolysaccharides, sulfur rich mucopolysaccharides. They are crucial for many aspects of our health. Sulfur as you've probably heard me in some of my previous lectures, sulfur is crucial for detoxification, for youthfulness, for holding together, not just the DNA, but also the hair skin, hair cartilage connective tissue. Most people don't have enough sulfur, especially in our polluted environment. That's why I tell everybody, get that sulfur rich salt from the Himalayas. Because, it gives you non-stop sulfur whenever you eat.

I don't even bother using any other salts. I want to get sulfur every opportunity I get. The salt becomes a very good source of that. It gives you more sulfur that would also help your skin keep the hydration. Definitely eat more seaweeds if you can and if not, you have to eat other sources of mucopolysaccharides or help your body manufacture them and destroy them to a lesser extent by lowering the free radical damage that occurs in your living epidermis.

This is a very important test. I've seen people in their 20s who already have the moisture level of somebody I would expect in the 50s. The good news is that you can improve it within a month. Again, it don't mean that you improve it in your drawings, it will take a lot longer, but you are moving in the right direction. You can only compare yourself to what you were before. Don't compare yourself to other people. Every time you do something that is off the wagon, every time you go in the wrong direction, you will see it affected in the wrong direction as well.

This can be a guideline, a very quick and inexpensive way to quickly figure out if you are in the right direction or if you are harming yourself and losing your water. By the way, people who have very, very poor barrier function obviously will lose more water, because that's what we are measuring, transepidermal water loss. I have seen people with a horrible stratum corneum who had very good water moisture level, because they held on to those humectants or those molecules that hold on to water, the sequester water, they held on to them very well and they didn't destroy them.

They just destroy the outer layer, maybe because of excessive exposure, too much dryness, too much sun and me I'm talking about burning in the sun too often and too much or destroying the stratum corneum through excessive showers and cleaning materials, alcohols, antiseptic products and microbicidal products that people put on their skin. That's why only that could be destroyed, but the inner portion could still be relatively good.

By the way, the stratum corneum also has the function of using those very specific lipid structures in the right concentration and thickness to allow filtration of the correct UV lights, so that you can make the exact amount of vitamin D that you need and protect yourself from the UVA radiation radiation that could actually accelerate aging, degeneration, destruction and death of your skin. Now let's go one layer further in. The layer of the elasticity of the skin. That's already the dermis, we go deeper.

The dermis is where we have the collagen, the elastin and other structures that depend on vitamin C and different types of amino acids that have to cross link and the level of your anti-oxidants. All of those are crucial for elasticity which keeps things bouncing, which keeps your skin holding up against trauma, so that you don't bleed as soon as somebody punches you on the cheek, because there's no elasticity in the skin and you hit the bone right away or such when somebody hits you in the belly, there's some rebound that protects a little better the internal organs.

There are many reasons for us to want to have elasticity and the lest of them is that we want to look young. When you have a lot of destruction in that collagen layer and elastin level, you also are destroying in the same manner some crucial elastic portions of your inner organs. Where do you need the highest elasticity inside your body, the most important obvious place? Vascular resistance, that's what you said? Yeah. The blood vessels have to dilate and then have to contract again every time there's a bolus of blood pushing through. That's elasticity.

Very similar to the elasticity of the skin. Like I said before, the skin represents almost your entire body, but where is even more important immediately? Think about every second something that you do without even thinking about, breathing. You fill up and then you let go. You don't push the air out, it comes out by itself. That's because of the elasticity of the lung, it expands and it contracts, that's elasticity. We have elasticity in most organs of the body, but we need it. Yes it's true that the blood vessels are crucial, the lungs are and also many other components of internal organs. They are for protection and for rebound to avoid trauma to internal organs.

Also we have some elasticity in our muscles, in our tendons and ligaments to some extent and our joint capsule are slightly extendable on return rebound. All of those can be represented by the elasticity of your subcutaneous tissue, the dermis. This machine measures in newtons per meter. Now, you remember newtons are a measure of force. This sis a completely different technology from the other two machines. It has a little knob which can be pushed in and it measures the pressure in newtons of the push back after doing it five times on the skin.

It measures automatically the average of all five to give you a fairly good average of elasticity of your skin. Who's going to measure their elasticity? Come here Susan, best for last. You have to expose the same place as everybody else.

Stand in front of the camera and smile. Okay. Her number is 82 newtons per meter. That's not bad for her young age. It's actually very good. You have good elasticity. That's one thing you have kept, I'm curious about the other two parameters in your case, because it's not always corresponding.

Some people have really good elasticity, but bad barrier function or bad protein holding of the water. That's very good. This number I have not seen a limit to yet. When I measure it in babies, I can see 150 newtons per meter. In 12-year-old and 15-year-old, I could see 120, 130, 110. As you age of course the resistance and the rebound diminishes and you end up with 50 and sometimes I see 25, 29-year-old with a low level of 40 or 45. 82 is not bad at all. For anybody who is above 40 ... Yes? Well then I'm really sorry about these results.

It's good for you to know, again, to compare to yourself and not necessarily with your age group, but at the same time it's good to know what I would regularly see with certain age groups. You can compare yourself a little bit see how you do and what you have done to yourself until this point to merit a good grade or a bad grade. Sometimes a good party thing. You start doing Botox parties and all of those horrible things that people do. You could just do skin testing party and have a bragging right that you have better newton per meter elasticity than other people.

Is it something nice to compare, "Hey, my transepidermal water loss is far better than yours" and say, "I'm only going to date somebody who has transepidermal water loss of seven and below." Those are very nice ways for people to relate to each other about something that could lead to a healthier lifestyle, improving the level of anti-oxidants in your diet, reducing the level of inflammatory components in your diet, because, inflammation destroys and degrades the living epidermis and the dermis and the subcutaneous fat as well.

You need to avoid inflammatory food and each person has a different cause for inflammation. Some of you are reacting to sesame and some to garbanzo beans and some to gluten, some to corn and some to all of the above and some just to soy. Inflammatory foods are not one size fits all. You want to reduce inflammation and I recommend testing, so that you can find out, whether or not you are sensitive to something and increasing the inflammatory response wherever you expose yourself to that food. Just like I would recommend to see how your absorption, digestion, assimilation and inflammation are in your gut.

If you have gut inflammation, you are likely to have inflammations throughout your whole of your body. For example, if your zonulin level goes up in the stool, you have leaky gut syndrome, which is associated with increased autoimmune flare ups in your body, which is leading to complete mayhem and inflammation and free radicals everywhere in your body. You want to do some tests to find out what is really happening rather than just believe somebody who tells you it's a one size fits all.

Each person has different triggers, different mediators and different susceptibilities to different environmental and nutritional factors that could lead to inflammation. Which will then destroy the skin and your other tissues and you want to eat foods that have been the least processed. They have the highest nutrient density. Enough of those boxes in the supermarket, enough of those wraps, enough of foods that have long shelf life. Super foods are generally a marketing scheme. Super foods come from the supermarket, real foods come from the real market.

People don't buy enough of the real food because they don't know what to do with them anymore and they rot in their fridge. Make sure you start incorporating some real food into your diet daily, buy the food and spend the 10 or 15 minutes it takes to prepare them and make sure that a large amount of them is in its raw natural state and only a little bit of it is exposed to higher temperature and definitely not excessive temperature that would lead to the formation of horrible inflammatory and free radical agents called advanced glycation end products.

If you do all of that, your skin will thank you. I noticed that whenever I change my diet and when I have changed it, suddenly, I could be in the sun a little longer because my skin barrier was functioning so well that it filtered the rays appropriately and I could be in the sun three times as much without even getting burnt or red. Everybody can do that. You can be in the sun as much as you want or more. It can be a great revolution that the sun suddenly is your friend and your opportunity to protect yourself from various types of cancer that are far, far worse than those negligible cancers that don't kill anybody, like carcinoma.

You know how skin doctors tell you to stay out of the sun and to smother yourself with sun protection products, which also destroys your skin and add all those poisons to it, destroy the barrier and allow you to stay in the sun a lot longer while poisoning yourself and increase the risk of all those skin cancers. All that so that you avoid those negligible carcinomas that don't kill anybody to the point that it is far, far better to have carcinomas on your face than not to have any sun exposure. To the point that studies have shown that people with carcinomas on their face have much higher longevity and lesser mobility than those who don't have carcinomas.

Yes, it's better to have carcinomas on your face, I can easily take care of it by the way. I can easily remove them. With my method it's so easy to remove carcinomas without surgeries, without pain. Instantly, you can remove 20 of them without ever worrying about the word skin cancer again. It's quite so simple and easy. Even if that method did not exist, skin cancer like carcinoma rarely kills anyone. I would rather have that on my face than to have no carcinomas at all.

Because of lack of sun exposure which would lead to twice as much colorectal cancer and twice or three times as much so many other types of internal lethal cancer and all the other immune disorders of autoimmune disease, suppressed immune system, reoccurring infection, obesity, depression and other symptoms that are far, far worse that affect our [inaudible 00:56:24] so much more dramatically. That's the result of listening to the skin doctor's advice.

They are creating an epidemic of so many diseases and cancers, just to protect us from this non-entity called basal cell carcinoma, plus they cause a much higher level of melanoma. Much higher level of melanoma because ... Have you ever seen a melanoma on your face? Melanoma never happens where the sun shines all the time. It only happens a lot where the sun does not shine. Again, the skin doctors have created a huge epidemic of melanoma that only they benefit from.

Reminds you a little bit of fire fighters who didn't have enough work to do, they started arsons, they went into arsoning ... Is that what you say? They started creating their own fire. Pyromaniacs, they create fire everywhere so that they can be the heroes who save the day when they come to the rescue and put out the fire. This is exactly what the skin doctors have done. They created an epidemic of melanomas that they only benefit from, because now they are coming to the rescue heroically trying to save you and often failing.

If you see how many tens of thousands of people die every year or suffer severe disfigurement. Only the skin doctors become important because of their own advice. I tell people, "Everything that could become a melanoma 20 years from now, get rid of it now." It's easy. Just peel it off. Simple to peel it off if you have 30 tiny black lesions that can become melanoma in 10 years or 15, please take care of it now. You'll never have a melanoma, because there would be never melanocytic cells that could convert into melanoma and that's it and you can enjoy the sun to some extent without excess.

The more you treat your skin appropriately, the more you take care of your health, the more you can enjoy the sun and be a friend with her. I think that the sun is a female, but to some of you it's a male, I don't know. We want to enjoy the sun like ewe used to in nature, but not to excess and not to listen to man-made ideas. Just do natural ideas that indeed represent what nature intends as part of our evolution towards the healthy optimal physiological status that we all deserve. Thank you very much. Any questions?

Speaker 2: Will you accept appointments to do our free readings?

Dr. Tel-Oren: At the moment I'm not doing that because I want to train a lot of people to do that. Actually in the bay area in early May, we will have a six to eight hour seminar dedicated to the skin. Third of May. A whole seminar of six to eight hours dedicated to learning how to measure, how to test and people who want to use that in their practices. It could be nutritionist, life coaches, it could be

doctors, it could be anybody. It could even be beauticians because it is so easy to test. Those people will be able to then offer protocols that are based on science.

I'm not working on it by myself, I'm working with Doctor Nava Dayan, who is one of the world's foremost skin scientist who is the editor of a very large compendium of most recent scientific information about the skin, which I relay to you today to some extent. We will go much into greater depth when we do that seminar and then you will be able to implement the different protocols to improve circulation to the skin, to improve the barrier function and the water retention and so on.

I don't want to do it on myself because I just don't have the time and I want to finish with the preparation of all the protocols, so that the testing would be more valuable. I'm doing still a little bit of research so that I could have better comparative findings between different age groups and populations.

Speaker 1: We need to work with the live streaming here. Actually Dr. T since we only have one mike for efficiency sake can I have you go ahead and run the mic into the audience. Then you would be closer to the mic so I won't get it back.

Dr. Tel-Oren: So I will have some exercise. Susan, do you have another question?

Susan: Correlation between the skin barrier and the blood brain barrier and the gut barrier?

Dr. Tel-Oren: The correlation has not been conclusively proven yet because it hasn't been studied. Any place in the body that depends on certain nutrients is likely to have the same resource, the same amounts of nutrients that are designed to be distributed among all the organs that require that nutrient. If one organ is lacking in these nutrients, it's very likely that the others that require the same nutrients will also be lacking. It's simple laws of thermodynamics if you will.

If you don't have enough, it will be shown in all the places where it's required and therefore physiologically we have to assume logically that there will be a correlation. We don't know exactly to what extent, we know that the body does have preferences. If it's lower in the skin and the skin is not as critical to our [minute] survival. If we have a lower level on the skin, we know that the body is retaining it somewhere else. There's a good likelihood that in other places it's starting to have some shortages as well after a while.

Speaker 3: What's the best diet daily for better skin in house and would you recommend nuts to eat every day and which is best and ...?

Dr. Tel-Oren: I want to have 10 questions to the end.

Speaker 3: And alkaline and aesthetic foods?

Dr. Tel-Oren:

Okay, I spent two hours on each one of the questions. First of all I have some CDs and DVDs. There's a DVD of two hours talking about PH, alkalinity and it bust some of the myths out there about PH. Obviously, eating foods that result in lesser acidification within our tissues is a good thing. I'm not saying alkaline because it's not exactly an accurate terminology, I'm saying reduction of foods that increase acidity, that's more accurate terminology.

That's true on many levels. I want people to eat nutrients and not just to think about PH. There are so many things. If you email my assistant at clinic@ecopollutant.com, you can ask her for the top 10 foods ... Oh, it's over there, there's a little booklet over there too, but the top 10 foods is a whole chapter. It's also an online lecture. It's available for free on YouTube or just go thetruthaboutyourfood.com. There are 12 hours of free lectures. One of them is about what foods to eat.

It's mostly ... I'm not telling people to follow any dogma, but mostly you want to sustain an essentially plant based diet as much as possible because that's where you get your fiber and all the anti-oxidants. Avoid a lot of the excessive proteins. Today, many of the toxins that accumulate, the fat soluble toxins and also the preparation which leads to so many carcinogens. In general, I'm not telling people to be 100% anything and I shy away from using dogmatic terminologies or terms of people, because I don't want to form camps, "Oh, we are this and they are that."

In general, you want to have more and more plants. If you want to eat animals, it has to be a very, very small percentage. It has to be very, very clean and it has to be what you would have eaten in nature like termites. Termites are just as good as nuts by the way. Termites and other insects, grasshoppers are great. Grasshoppers are a delicacy, they are delicious and nutritious, but you wouldn't normally eat no more than 5% of your diet in grasshoppers.

You can also eat snails, shells, clams, lobsters, the cockroaches of the sea are also very common, easily available and easily captured. Today they are a little toxic with heavy metal and other PCBs, other compounds that you don't want overdo. Again, you go back to more plants and don't forget the seaweed we talked about earlier. Yes, nuts are good, but they must be raw, refrigerated or frozen until you eat them to avoid rancidity. They should never be roasted and don't believe that people who sell you super foods, which are sprouted, soaked nuts that have been dehydrated.

What's the point? You take a nut that is perfectly good and instead of eating it or soaking it in the fridge if you absolutely have to and then eat it right away, you soak it, allowing water to come in, meaning you are creating a breeding ground for rancidification and oxidation. Then you put in a dehydrator, which will destroy anything good that was left in those fatty acids that were in those nuts. They are sold as super foods for a lot of money. Those I would never

touch, they really harm your skin. Definitely it's coconut oil, avocado and other stable monounsaturated and saturated fatty acids which will resist oxidation.

Speaker 3: Do you still favor, for example in terms of cleaning, glycerin soaps over non-glycerin soaps and soaps over detergents?

Dr. Tel-Oren: If I had to choose a soap, it would be the most natural oil like coconut oil type soap that has been saponified and nothing else. Even that is destroying the lipid membrane. The lipid layer of your stratum corneum. Even that I would not use, only on my armpits, just in case I want to be social, which doesn't happen often. Also in my crotch region, although it's always smelling like roses. Sometimes people might not like roses. In that situation I might use a little bit of soap just in the crotch area and that's it. I promise you I do it for a short amount of time than I can hold my breath.

Speaker 4: How does exercise affect the moisture of our skin?

Dr. Tel-Oren: The question is, how does exercise affect the moisture of the skin or the health of the skin in general? If it is exercise as nature intended, which means it is not excessively stressful. Ultimately very stressful exercise leads to inflammation and to depress immune system. Exercise is mostly movement and occasional sprinting or occasional intensity is every good for the circulation. When you bring the blood close to the skin and there are many ways to bring the blood to the skin, not just walking, also slapping the skin, stimulating it, eating foods that are naturally healthy for the circulation, avoiding food that will cause inflammation in the blood.

Also machines like the Bemer machine that helps increase the circulation in the capillary or the perfusion. All of those are very good for the skin in general. Again, you bring it from the inside out. Stress is horrible, you have to fight stress whenever you can or do whatever you need to, whether it's meditation. I teach people to do my own scientific rendition of meditation that helps people to open up their blood vessels peripherally more effectively than other forms of meditation that I have studied. Many things that can improve the circulation.

Speaker 5: Just curious if you have any clinical trials or anything published on either then apparatuses or your protocols?

Dr. Tel-Oren: I personally had no time to do my own clinicals, but there are already other clinicals that were done and I'm collecting them as much as I can using both knowledge of physiology and simple logic. There are no specific studies that correlate the level of exercise, for example, with the health of the skin. Because until now they weren't sufficiently easy parameters to utilize, to measure things in the skin. Now we have it. Now is the time to do the research.

Until we finish the research, we already know what increases the circulation of the skin and what reduces free radical damage of the skin and what maintains

the health of the stratum corneum and we can easily see that. We know that the stratum corneum is designed to be dry. We do whatever it takes to improve on that dryness. We know what it takes to improve the humidity or the moisture content. We work towards that and we can measure the results instantly. These are protocols that are evolving, but they already are based on sufficient science that existed. So far nobody could have done sufficient research with these machines that are fairly new.

Speaker 5: The protocol is dieting or [Inaudible 01:11:59]

Dr. Tel-Oren: Combination. We are going to use everything we can to help people, but they will have to decide for themselves to what extent they want to invest in their own body's health. Right now, you are getting a chance to look through a certain new window into your degenerative process that you never had before. Until now, anti-aging was some type of a guess work. Somebody made a promise to you that if you do certain things, logically you would live longer. There was never a proof of that, yet everybody flocks to anti-aging conferences.

There's no science. There's only biochemist and presage that makes sense that we assume we'll do some good. Now, with these instruments we have a very easy parameter to investigate repeatedly, rather than taking the blood repeatedly which most of the blood tests are not very direct. Of course vitamin D level that's high and homocysteine level that's low are indicating that you are going to live a little longer, because you have less inflammation for example. We know some parameters that we could use, but it is invasive and more expensive to do on a regular basis. Whereas here you have parameters that are quick and easy and reveal to you what normally you would only find out through a biopsy ... Sorry.

Speaker 6: What is your opinion on itchiness on dry skin, whereas when you apply coconut oil on your skin, the itchiness goes away?

Dr. Tel-Oren: What happens once you start putting oil on your skin? This is really important and I'll give you a very simple example. Have you ever put lip balm on your lips? Did you notice what happened? As soon as you forgot to put it on your lips where it's dry as ever and you felt like you have to find that lip balm, but you never felt that way when you didn't even know what a lip balm was. As soon as you put external oils on your skin and destroy your own barrier. This barrier goes into the mouth and the oral mucosa is a direct continuation of the epithelium of the skin.

It shares many of the same immune component. As soon as you destroy that barrier and start losing stuff through it, it gets degraded and you get quickly dry on the surface. It is the very oils, creams and substances and lip balms and so on that you ... And moisturizers that you put on your skin that cause it to depend on the same moisturizers and products. That's how the companies gets you coming and going. They make you an addict to their own product and you have

to keep coming back for more, not realizing that they have created that need in you.

If you avoid putting it on, that oil and you allow yourself to itch a little bit and have somebody next to you slap you on the area that itches, it will be really good for you. Felt good didn't it. Okay, all right. Start slapping where it itches, bring more circulation in there. By the way, if it itches for other reasons, there are many other pathological reasons for excessive itching. Find out that you are not in one of those criteria. Then see what happens after a week or two weeks. Someday you will need less and less because, you start building up your own lipid membrane over the skin.

If you avoid too much showering and hot showers especially and all the soaps that we discussed, perhaps your skin won't be so dry and itchy after all. There are other reasons. Sometimes people are sensitive or have allergies or have autoimmune diseases which also lead to that. Some people have neurological issues. Neurological issues can also lead sometime to itching. Even lymphoma could lead to itching. There are many reasons where a person itches and using a temporary fix like oil on the outside might reduce it, but will cause additional harm and dependency into the future. Find out the cause rather than just mask the symptom. Take good care of your skin, it might take care of itself if you just give it a chance.

Speaker 7: Your skin looks great, what's your secret, you are saying no oil, just water, just purified water?

Dr. Tel-Oren: You mean orally or you mean ... I don't wash my face, what is that about, who intervened face washing? I don't know. I haven't seen the need for that. Is it because you need to wake up in the morning? You feel like you won't be awake, you can be awake in the morning without washing your face. I don't believe in that stuff. Look, if the water runs for a second, a little water it's not a big deal. People go through a whole routine, a whole ritual with all those products that they spend half an hour with their face every morning. They become totally hooked and they destroy you. I don't do anything, that's my secret.

I don't do much of anything. I don't fuss too much, I don't have time for it. People who fuss a lot end up needing more fussing to handle the damage of the previous fussing. Be a little bit more lazy please and a little less hysterical. A little less panicking and phobic. Allow nature to take over and be closer to nature. Don't be afraid. It's fear, it's listening to all those pieces of advice that make people use ... I don't think I have ever used SPF product.

Here's another thing, that's another secret, it's all don't and don't and don't, it's also just the dos and dos. If I had a problem, I would probably do more. I would look for stuff, I would put anti-oxidants on my skin and so on. My skin so far protects itself fairly well, because it has the tools and you have the tool too. You

just need to give them a chance. Then you will have some of the protocols that we could use to accelerate if you wish.

Speaker 8: How about redhead people who have very white skins. Do they have the same protection?

Dr. Tel-Oren: Are redheaded people having the same protection? The skin has the same natural protection. However, because of their insufficient pigmentation, they would be less time in the sun before they start having inflammation and redness. That's why there's no one size fits all. For some people being in the sun 10 minutes, front and back is all they can do until after they have done it for a few weeks they can go up to 15 minutes or to 20 as they build up a little more pigmentation for protection.

If you cannot make any pigment, you might have to result to stay five to 10 minutes and that would be enough. Because, the lesser the pigmentation, the more vitamin D you will produce in a very short amount of time. See, you don't have to be in the sun that long. You just have to avoid being in the sun long enough to get red. That's appropriate for everybody. The rest of it, the discussion about the stratum corneum and the moisture content and elasticity is true for redheaded people as much as it's true for African American. Did you already ask a question before?

Sally: No, not yet. As a woman I use makeup. I do not see myself stopping using makeup. What do you recommend?

Dr. Tel-Oren: Become a man. That's the only advice I could have. If being a woman is the reason to put makeup on, that's the only logical answer I could think of.

Sally: It's very easy for guys not to wash their face, but as a woman, using ... It's very natural to do that.

Dr. Tel-Oren: I'm a feminist I'm sorry.

Sally: Well, I'm not going to give it up. If I'm not going to give it up I'm just asking, what are some of the scientific recommend to use?

Dr. Tel-Oren: If you insist on harming your face on a regular basis, I guess you would have to have the most perfect diet. You would have to put some type of an emulsified product underneath it to serve as a barrier, not to allow the toxins in as much. You would have to clean that without using so much soap to dry your skin completely. Notice how young teenagers who have perfectly healthy skin, as soon as they stop putting makeup on, they got hooked to the makeup because they look horrible without it because it destroys the skin.

I'm willing to bet that if you spent a week in the tropics without any makeup on and allow the little bit of flashing to occur on your face, be sun kissed. Suddenly,

you would be a lot more beautiful than you are now without using any makeup. Would you agree? All right, see all the women here agree. Yes.

Speaker 9: I have two questions. The first question is for people there on cholesterol lowering drugs like statin. Because, systemically they are making less cholesterol. Does it affect the barrier function because cholesterol is part of the essential lipids in the extracellular matrix?

Dr. Tel-Oren: I assume the question is, what happens with statin takers? My answer is they should stop taking statins, because statins are one of the worst thing you can do. It increases mortality and morbidity, increases cardiac arrest, it increases cancer and it just poisons your liver for no good reason. Cholesterol is not the problem, cholesterol is just a part of a bigger picture. We need cholesterol. Without the cholesterol you won't even make vitamin D, which comes from a cholesterol derivative in the skin.

People who take statin drugs are basically sheep led to the slaughter and they are basically allowing the cardiologists to have their way. There's no scientifically valid reason to take statins in my opinion and also the opinion of many researchers. There are many books by preeminent cardiologists who also say the same thing. For some reason, they are ignored by mainstream which depend on the money making statin drugs that are supplying all the newspapers with big, big advertisements. Everybody is silent about it and people are still being destroyed. Their health is still being destroyed.

Before I forget, I want to also mention that on Saturday, this coming Saturday, in two days I will be giving a three or four hours seminar on electromagnetic radiation and fields and how to protect yourself with using science based approaches that would reduce your exposure to at least seven or eight types of electromagnetic exposure. If you want to attend that seminar, which we will give you everything you need to do what you need to do, even saving a lot of money while at it. It's all really based on physics as opposed to wishful thinking. Talk to Anna about that. Yes, I already answered that question.

Speaker 9: No, I had a second question.

Dr. Tel-Oren: You had a second one ... Let's give someone else, some of it here.

Speaker 10: Do you consider gum a skin. Everybody is supposed to brush teeth every day?

Dr. Tel-Oren: The gums are an epithelium. It's a mucus membrane which is stratified squamous epithelium, which is made to handle stress. Just like the skin is also stratified squamous epithelium, meaning it's multi layers of very, very square to thin and elongated bricks, which is necessary to protect against friction. The mouth is a place of friction whenever you chew on hard food. There's definitely a lot in common between the mucus membranes of the mouth and the skin around the mouth and outside of it as well. It's one continuum and that's one of

the main sources of probiotics for our gut is skin. They move in, that's a good thing.

If you keep washing obsessively, everything that falls on the ground, you are missing an opportunity for some really good microbes. Really, don't be so clean. It's okay to wash your hands after you've just stuck them into some woman's belly to take out a baby before you go to the next pregnant woman to do the same thing. Then it's okay to wash your hand, because you don't know what you are transmitting from one to the next and it's a very susceptible environment in the hospital.

Speaker 10: Brushing teeth then?

Dr. Tel-Oren: Brushing teeth?

Speaker 10: Yeah, what about it?

Dr. Tel-Oren: I'm not brushing the teeth all the time. I stimulate the gums. You need to stimulate the gums as much as you can and clean the teeth a little bit, because now we eat foods that are sticky and calorically rich and fibrous poor. We don't have as much as the action as we would have had in nature. Brushing the teeth, that's from the 40s, that's from the 60s. Nowadays we don't even do that. We just vibrate it at the junction between the gums at the sulcus and the teeth to stimulate. We also use sharp edges of rubber to go in between ... Again, get in there where the dental hygienist would get in there to cause a similar type of pleasurable pain.

Speaker 1: One more question. This man has been holding his hand for a while here.

Speaker 11: On your instruments, are the readings consistent under different parts of the skin or they give different readings?

Dr. Tel-Oren: Obviously different parts of the skin will give different readings because of the thickness of skin in which each varies in different places. That's why there's a standard and the standard is in the mid form in the area that is not hairy. That's why I measure right here. For research purposes I have measured several other points, close to the wrist, up to the shoulder and on the biceps. I saw that there are small variations, not too far off. Those variations are fairly consistent.

Speaker 11: Can you normalize the density that cannot be fairly the same?

Dr. Tel-Oren: Between Individuals?

Speaker 11: No, on an individual. You normalize the density of the skin because it cannot be [inaudible 01:29:07].

Dr. Tel-Oren: He's asking if we normalize for the density of the skin, if we would have the same results more or less. I haven't done that type of calculation. It makes sense that it would be, but it also depends on the level of exposure and amount of the sebaceous glands. Sometimes you have a very thin skin, but much more sebaceous glands, like some places on the face, on the chest or the upper back. The areas that are more prone to acne. It would be different in terms of oiliness. That's why we have to be consistent among all the people, that's why it's always the same spot. Okay.

Speaker 1: Let's give Dr. T a hand