



The Solari Report

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The Corruption and Compromise of the NSA With Brigitte Mouchet & Dr. Vesna Skul





Solari Wellness Series

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Brigitte Mouchet: This is Brigitte Mouchet, and this is the second episode of the Solari Report Wellness Series. For today's discussion, I chose a topic that should be of interest to everybody. It has been the object of a lot of hype and therefore, needs some demystifying. The topic is: Longevity – Healthy Aging or Growing Young?

Our guest today is Dr. Vesna Skul. Dr. Vesna has been helping her clients live healthier longer lives for many years, using a holistic approach to health and wellness. Some of the ideas we are going to discuss with Dr. Skul include the future of medicine, but also what we can do today to increase our lifespan.

For many decades, Dr. Skul has been recognized by Chicago Magazine as one of the Best Doctors for Women in Chicago and Top Primary Care Doctors in Chicago. She was ranked as one of The Nation's Top Doctors by US News. She was awarded the Top 5% of Chicago Metro Area Physicians by Super Doctor and Regional Top Doctor by Castle Connolly year after year.



Dr. Skul is also a wonderful human being. In her spare time, she enjoys hiking, listening to classical music; she is a certified raw organic chef and an avid organic gardener.

Dr. Skul is also involved in a med tech startup, bringing to market a very promising solution for personalized acute and chronic pain management, which also offers cellular/tissue/and nerve repair and regeneration.

Dr. Skul is a firm believer in personalized medicine and has a pretty good idea of what the future of medicine will look like. Dr. Skul, welcome to the Solari Report Wellness Series!

Dr. Vesna Skul: Thank you so much, Brigitte. It is lovely to be here.

Mouchet: It is a pleasure to be with you today.

In the next few decades, life expectancy in the developed world is supposed to increase to 110-120 years. I'd like to hear from you how realistic or likely you think this is, and what are the greatest promises for health span improvement. At the same time, we are hearing that children being born today have a shorter life expectancy than their parents. Could you clarify this for us?

Skul: You are right, Brigitte. I think that human organism definitely has a potential to live well into triple digits, and lifespan of much longer than our current actuarial 80-something is a possibility despite the recent release of those grim statistics that you mentioned regarding our children. In many ways that reflects our epidemic of obesity and antecedent chronic disease development that we are seeing in individuals of much younger age.



As we are making huge strides in precision or personalized medicine through advances in technology – such as complete genome sequencing and the ability to use this information preventively, understanding the importance of our genetic makeup and the potential to alter the expression of those ‘bad genes, and enhance optimum function – we also have to be keenly aware that our modern world with all its beautiful new technologies and conveniences and such is very likely adversely affecting the potential for our long-term health and well-being.

Why? It is because of toxins and stress that all of us are a part of. For those children not to become actuarial truths of those grim predictions that they are not going to outlive their parents, I think that the basic tenets of healthy living need to be respected, and we need to readopt them. Many of our habits – consequences of the fast-paced life of the post-industrial era – need to change.

Why not learn from centenarians around the world from the blue zones? They all have things in common that I will try to summarize for us here:

First, we absolutely must insist on a clean environment and stop its pollution. I mean pollution from anything that we contribute to, including personal care, anything that we put in the air, in the water, plastics, and pesticides.

Second, we must put a stop to glyphosate and poisoning our food supply, and we must eat real food – not food look-alikes, but real food. We should eat a rainbow of food, and it should be mostly organic and mostly plants.



Third, we must not forget to move, but we surely should not become victimized by every fad that comes along of an over-exercising frenzy that most people will do for five minutes and then abandon. A purposeful exercise which gives us pleasure and accomplishes a task should be our daily goal.

Next, we must not forget to sleep. Americans are absolutely chronically deprived of sleep. We should also strive not only for seven to nine hours of sleep, but good-quality sleep. We should sleep in a clean environment free of toxins and electro-smog in thermally temperate temperatures.

Finally, we must not forget the importance of relationships and social belonging. We should practice some form of meditation, mindfulness, progressive relaxation – all with the intent of activating the parasympathetic tone and counteracting the daily assault of stress. Returning to prayer and actually seeing how a prayerful life actually extends one's ability to fight some of the serious illnesses is becoming studied by even allopathic medicine. It seems to have a positive effect.

In summary, managing stress and adequately getting rid of toxins daily is the sound foundation of a paradigm that I am teaching to all of my patients. We should all be 'living long and dying short'.

Extending healthy lifespan should be the goal, but without the goal of debilitating and chronic illness.

Mouchet: That makes a lot of sense. I definitely agree.



We also hear about other serious threats to our health coming from EMF radiation, for instance, especially from 5G. Do you think that our bodies have a chance to adapt fast enough, or at least children's bodies, or do we need to take more drastic measures to protect ourselves?

Skul: While the FCC claims that the degree of daily exposure of an individual to various forms of EMF are safe which, by the way, the average individual in the US is exposed to greater than 10 hours per day to screen time, be it from phones, tablets, computers, TV screens, radiation from smart meters, radiation from fluorescent and LED lights. However, much different data emerged and continued to be built upon after an international task force released a Bioinitiative Report in 2012.

This report has been formally updated as recently as three years ago. Dr. Ron Powell, a physicist from Harvard who formerly worked for the government, wrote a report summarizing those findings in 2015. Dr. Li addended it with more additional research just this summer.

The report essentially presented why there should be a rationale for biologically-based exposure standards for low-intensity electromagnetic radiation versus thermal ones. What that means is that currently, unless you are frying yourself staring at your screen or sitting in front of your smart meter, the FCC is saying that you are safe. That is old news based on research of 30 years ago.

The United States, unfortunately, has not been quick to jump on board of some of these recent discoveries, and I think that the impact of EMF is really profound. Some of the European countries such as France and Israel banned Wi-Fi from their elementary schools earlier this year.



For those who are questioning whether this is being overly aggressive or overly fearful, there are over 1,800 new studies which report abnormalities ranging from gene transcription, from direct toxicity to our genome, and to our single- and double-stranded DNA damage to condensation of chromatin, and loss of the DNA's capability to repair itself in human stem cells, reduction of free radical scavengers, which are the molecules that are helping us deal with oxidative stress, to effects in neurotoxicity in humans and animals, carcinogenicity in humans, serious impact on human and animal sperm – both morphology and function – and affecting offspring developmentally and behaviorally.

I often wonder, in my 35 years of practice, why we have seen in the last decade so many healthy young couples having challenges conceiving. I am quite certain that EMF is playing at least some role in some of those circumstances.

Then when we consider the statistic that 92% of the world's population lives in the environments where outdoor pollution exceeds the World Health Organization's ambient air quality guidelines, it is a bit difficult to think that in the life of one generation, namely our children, we can see the adequate adaptive genetic mechanisms to solve this enormous problem or burden of electro-smog that we have created for ourselves.

If we were to help these kids overcome the odds of their shorter life expectancy, we basically need to look at both their genes and the environment. We are much more likely to affect some positive change through environmental actions because it will take us a while to see what happens with gene manipulation and how that research affects us and decreases our risk of exposure.



I think that environmental control is really, really necessary and very urgent – just like you said.

Mouchet: Do you have any particular recommendations for effective protection against EMF?

Skul: Now that I have told you that we have created our urban doom and gloom, and we really should all be walking around in aluminum suits or armor, which is not very feasible. However, there are definitely things that we can do.

First of all, I think that we need to define and figure out if we are at imminent risk of EMF. There are devices which are commercially available. One that I use and recommend to my patients is a very moderately priced device called Acousticom. It detects safe and intermediate and dangerous levels of radiation. Typically, as we move around our home, you can see those levels vary relative to the distance from the source.

In an urban environment like a high-rise in Chicago, for instance, being near a window where surrounding buildings and towers – both cellular and TV antennas – are emanating a lot of radiation, where our own in-home Wi-Fi affects us. The faster the network (the 5Gs that are propelling all our devices) are creating unsafe amounts of radiation. Try to move them to where you are not so close. Besides the distance, there is also enclosure.

There are a few commercially available stainless-steel cages that one can buy, but they are still not 100% effective because there is still room around the devices where radiation could still occur. _____



Using simple things like aluminum mesh that is available in any hardware store can protect those devices and make them much safer for us while not impeding their intended efficacy in emitting the signal or, in the case of a smart meter, allowing the power company to get the adequate reading.

Mouchet: Good. So, I know that you like simple solutions, and it seems like this definitely works because you are measuring it. You also think that it is effective for 5G, right? Do you already have 5G in Chicago?

Skul: Yes. Enclosing it definitely decreases the radiation. Again, it is also dependent on your proximity to all the devices. Whenever possible, I counsel my patients to work on their computers that are wired instead of wireless because exposure is much less.

Mouchet: Could you help us understand the biology of aging and what the factors are that influence the aging process? This may become a bit more technical. Maybe you could start by defining and discussing DNA methylation and an epigenetic clock. Then perhaps we could discuss the latest discoveries in epigenetics.

Skul: Biology and the science of aging have given Nobel Prize to several wonderful researchers in the last decade, Dr. Elizabeth Blackburn for the discovery of telomeres in 2009, Dr. Paul Modrich for DNA changes in aging and how those contribute. Among those DNA changes, methylation is a process currently believed to be the most prominent molecular marker for monitoring aging and predicting life expectancy. However, the mechanism underlying this age-related DNA methylation change is still mostly undiscovered. There is a great article that was published this Summer on this topic, which elucidates that a bit, yet the scientists are still working on the mechanisms.



As far as the epigenetic clock, UCLA geneticist Steve Horvath led a team of 65 scientists in seven countries to record age-related changes to human DNA, calculate the biological age of human blood, and estimate a person's lifespan based on that. The higher the biological age – regardless of chronological age – consistently predicted an earlier death in an individual.

Drawing on 13 different data sets, including individually and then different data from landmark studies of Framingham heart studies in the 1970's and more recently in the late 1980's and early 1990's with the women's health initiative, a consortium of 25 institutions analyzed the DNA and blood samples from more than 13,000 people in the United States and Europe. They applied a variety of molecular methods, including an epigenetic clock developed by Horvath. They measured the aging rates of each individual.

The clock calculated the aging of blood and other tissues by tracking methylation – which is a natural process that chemically alters the DNA over time by adding a methyl group – and by comparing chronological age to the blood's biological age. The scientists then used the clock to predict each person's life expectancy.

Interestingly enough, in that process and in that experiment, they discovered that about 5% of the population seems to age at a faster biological rate resulting in shorter life expectancy.

Mouchet: Are there any known reasons for this?



Skul: We are not aware of any at the moment. As we elucidate this, maybe it will become clearer. Those preliminary findings may explain why some individuals, despite following a nutritious diet, exercising regularly, drinking little to none, and not smoking, seem to die young despite all that. However, you have to put all that into perspective. When risk factors are given statistical weight in all these analyses, risk factors like smoking, diabetes, and high blood pressure still predict mortality much more strongly than one's epigenetic aging rate, and in this particular instance, that small cohort of people in whom we saw shorter than expected life expectancy.

As the population ages – and ages rapidly – we expect that by 2050 the number of people over 60 will actually double, from accounting for about 11% of the population to 22%. As a medical community, we really have to urgently find some interventions that would prolong healthy living, and not just existence, by five to 20 years.

As Horvath points out in his work, he says that we don't really have time to follow a person for decades to test whether a new drug or a new procedure will work. By using this epigenetic clock formula, they can actually evaluate the effect of anti-aging therapies in as little as three years.

This gives us hope to put into action – besides the environmental and lifestyle modifications – these new therapies much more quickly than what it normally takes to approve a drug or a therapy, which is an average of seven to 11 years.

Mouchet: If we look at the epigenetics, what have we learned, and what are we still learning about the aging process?



Skul: When I was in med school, we didn't know what epigenetics was. I really wasn't in med school with dinosaurs; it was only about 35 years ago. Even in the early years in my practice, we didn't know what epigenetic possibilities were.

Epigenetic processes affect the expression or activity of genes without changing the underlying DNA sequence. They are believed to be one mechanism by which environment can then interact with the genome and not necessarily change it.

There are a lot of studies – very recent this year – that look at twins, and there are changes in the development of certain conditions based on environmental exposure. There are some studies that also look at genetic material, mainly one published in October of this year on maternal transmission of epigenetic memory via sperm. It talks about how the father's behaviors and health and developmental issues can be transmitted via sperm to the offspring.

We somewhat knew it was important to prepare for a healthy pregnancy and healthy children, but we didn't really know that paternal contribution can also bring in those factors that were not previously measured.

Mouchet: That is interesting. I suppose that is true for women as well, especially during pregnancy.

Skul: Some of the older data that was probably an impetus for researchers to look at the male contribution to this environmentally-induced cellular memory behavior that can be conferred via sperm and egg also looked at the female egg contribution to genetic memory.



So, yes, both women and men who are planning to get pregnant need to do everything in their power to clean up the slate, be on their best behavior, and embrace the healthy behaviors way before they are contemplating conception.

When you look at that in the US, over 50% of pregnancies are not planned. That makes us think we are not giving our children the best position right from the get-go, and there needs to be a more conscious effort to prepare for a healthy pregnancy – which is one of my conversations with my younger patients regarding mapping out their health and wellness and health behaviors as to how to positively affect the outcome of, not only healthy pregnancy and healthy baby, but that baby's life expectancy and health.

Mouchet: That's great! So, if we look at all of this, what is the promise for us concerning increasing our lifespan and staying healthy based on everything that we know at this point?

Skul: Newly-developed techniques could propel this already advancing field rapidly to complement modern medicine and outcomes. As we said, epigenetics, the study of mechanisms by which genes are turned on or off without altering their genetic code or DNA sequence, is one of the ways that cells regulate gene expression.

Epigenetics has helped scientists better understand very complex and diverse biological processes such as cell differentiation, genomic imprinting, X-chromosome inactivation, and operates via two mechanistic processes. A histone modification – for instance, methylation, acetylation, ubiquitination, phosphorylation, and all of these 'lations' – are processes whereby the body or the cells alter their proteins.



Older theory of aging had to do with free radicals and their neutralization. We need oxygen to survive, but oxygen also oxidizes us and makes us ‘rusty’, so to speak. Thus, the free-radical theory on aging is still prevailing, but the DNA changes in proteome or nucleosome changes are now really becoming a hallmark of this aging process.

Then if we can change these proteins from being made or denatured, we can possibly have an effect on the extension of life or prevention of certain diseases.

The second mechanisms whereby it can be measured in health, and it happens, is the direct methylation of cytosine base pairs. This is what we talked about in the beginning – the methylation of the DNA.

So, by altering those proteins by chemicals, we can affect the aging and the disease expression. Accumulations of them within the cells can lead to more rapid development of certain diseases, particularly neurodegenerative kinds.

If we can affect them through these biochemical reactions, based on our genes – but not altering our genes – we can figure out what it is that makes people age faster or slower, and then we can put in roadblocks or facilitate traffic in the positive direction.

Mouchet: Just to summarize a little, according to epigenetics we are not totally determined by our genes. We can use lifestyle and other things like supplements, meditation, and other things to influence their expression. Is that right?



Skul: Absolutely, Brigitte. Our genes provide the canvas, and the environment – complete with our best behaviors, dietary choices, prudent supplementation, and stress management – helps paint the healthy or (if we choose) not so healthy pictures.

Another way of saying this, and this is one of the quotes that one of my favorite people in this field says, Dr. Jeffrey Bland. He is the father of Functional Medicine, and he says, “Genes load the gun, and environment pulls the trigger.”

Mouchet: It seems like we are starting to understand how aging happens, but we still don’t know exactly why. Because we understand how we age, we are able to affect and possibly reverse the aging process. Is that correct?

Skul: Yes, in a sense. Molecular biologists have been debating and fascinated by some interesting phenomena in single-cell organisms (like bacteria) and some invertebrates (worms), and have put forth some elegant theories of ‘cellular immortality’ that actually may have some application to humans. Clinical applications definitely don’t seem to be around the corner just yet, but we are getting there.

Mouchet: It also seems like we are able to make changes to our lifestyle and also use some chemicals to affect our gene expression. Anybody at any age could make those changes and see a positive effect, right?

Skul: I always told my patients, “It’s never too late.” So, yes, you are absolutely right. There is no age limit at which point some of the very well understood interventions of improving life quality and likely affecting longevity should or should not be implemented.



If you've never walked to your mailbox, if you've driven to your mailbox 300 feet, then walking 300 feet on day one to pick up your mail is a victory.

I have a little vignette. Years ago, I had a patient who was morbidly obese. We worked on helping him lose weight through lifestyle. One of the components thereof was moving. He was motivated because at age 40, he became a first-time parent. He literally was driving from his garage to pick up his mail.

Little by little, small changes led to the fact that when his baby girl was five years old, he was in the Guinness Book of World Records for the first individual who has climbed the vertical mile going up and down the Eiffel Tower in five years. That was a huge difference from driving to the mailbox to climbing the Eiffel Tower as to complete a mile.

In his health parameters, all the chronic disease markers have disappeared. I have remained in contact with this person, who was destined to actually fail because, unfortunately, obesity has such a high rate of recidivism. In 95% of people who lose significant amounts of weight, they regain it back. But we have remained in contact, and over the last 25 years, he had fluctuated by about ten pounds and had clearly added at least a decade – if not more – to his life.

So better nutrition and physical activity play a huge role. Physical frailty due to sarcopenia is frequently a reason for the elderly people's demise or premature death. So, strengthening the skeleton and muscle, therefore, reversing sarcopenia or low muscle mass, has been shown in many studies to contribute both to an increase in longevity and improvement of the quality of life.



Fancier, newer technologies will also likely work across the ages, but we will know more about those in due time. There is absolutely nothing stopping us from controlling our hand as to what goes in our mouths and controlling our purchasing power of clean versus not-so-clean dietary and personal-care products, and nobody is stopping us from taking a step into being physically active.

Mouchet: I agree. I also say that it is never too late.

Skul: Absolutely.

Mouchet: If we look at some technologies in this field, what do you think is really promising?

Skul: I've been looking at the field of medical genetics and gene sequencing for over a decade. I have initially started screening some of my high-risk patients with genetic assays, which were for clusters of certain cancers to help them make a therapeutic decision as to a proactive action if there was a clustering of certain cancers, particularly breast cancer, ovarian cancer, reproductive cancer, and other types of genetic syndromes where colon cancer was included or other internal GI organs or endocrine organs.

For years, we were able to identify the high-risk individuals and look at these specific genes that may affect certain illnesses. More and more in the last three or four years, there have been a lot of companies that are bringing to market technology of complete human genome sequencing, and then from within realizing what our genes look like.



Looking at a couple of methods that have epigenetic assessment and intervention, which makes it a possibility. Two such assays are one called ACE and other called CRISPER, and they have the potential to enhance the epigenetic research and its clinical applications dramatically.

What do I mean by that? They really come to us as tools that the scientists will have to explore better fundamental questions about how a particular person will react to a specific medication or how they will react to a specific cancer drug or analyze the health of an embryo obtained naturally or via IVF, help with tumor diagnosis, and are an assay for the presence of certain markers of neurodegenerative diseases like Parkinson's disease and Alzheimer's disease.

So, the range of diseases that may be treatable by epigenetic protocols may explain why companies are emerging such as Gotham Therapeutics and Epigenomics. They have launched multi-million dollar drug discovery programs that focus on discovering epigenetic modulating drugs and relying on these assays and the technology to help them be very precise and very specific.

If epigenetic research utilizing these new technologies will successfully shed some light on disease prevention, diagnosis, and therapy, then the research can expand to study epigenetics related to human behavior, moods, aggression, violence, and things like adultery and sexual preferences, risk-taking, happiness, depression, and even spirituality. They may all be affected by gene regulation, including epigenetics, via mechanisms not yet precisely defined.



Using that science for this subgroup of patients and outcomes and endpoints, it may be a little shakier and less certain than helping people overcome an illness and/or prevent one. While all of this is elegantly unfolding and helping us pick designer drugs for the treatment of certain conditions, there is also much evidence that diet, sleep, fasting, exercise, and managing stress regulate gene expression. We keep coming to that. It is very, very important that we need to make those recommendations while also exploring the way those behaviors – that are common sense – are actually able to affect the epigenetic expression.

Mouchet: Do you think that these new technologies have a chance to be available to everybody any time soon?

Skul: That is a loaded question, Brigitte, in our 2018 America and our healthcare system. Our country truly has a potential to be an absolute leader in healthcare and healthcare innovations, but at the moment it has to figure out how to afford access to care to its population, even at a basic level.

So, while the last decade has certainly seen huge strides in making many of the diagnostic and therapeutic interventions available to the general population, it is still hard to predict the timeframe for these innovations to be universally available.

For instance, I can tell you that I have knowledge and awareness and ability to interpret over a dozen elegant, beautiful tests that I can have my engaged well patients – not necessarily patients with a disease but people who are proactive and wanting to stay well –



– use to assess their current state of well-being and to help predict the future looking at the microbiome and looking at their hormonal evaluation and the specific, if not full, gene sequencing.

So, while it's definitely there and technology is there, and it has scientifically been proven that it's working, these are all still considered 'experimental' by insurance companies and third-party payers, and therefore, only available to a selected minority.

So, the paradigm of our healthcare dollars, which are still primarily spent for disease management, has got to be abandoned, and focus needs to be shifted to health maintenance and education prevention research and development. Then maybe we can see some of these new technologies penetrating into the mainstream and being more available to the population at large.

Mouchet: Definitely. Should we talk now about your vision of the future of medicine? What do you think it is going to look like?

Skul: I believe that in the not-too-distant future, we will adopt a standard of care intelligent family planning through careful preconception counseling – not only genetic screens in high-risk populations, but longitudinal mapping of parental behaviors and habits leading to conception, and taking effort to really 'clean up' their house and their lifestyles and environment, starting with one's own home, choice of a clean wholesome diet, perhaps suited to their own genome because we can figure out from the genetic determination what is the best diet for you, and that might not be the same that is best for me, complete with appropriate exercise, which will then yield the highest success rate in achieving natural or supporting pregnancy from assisted intervention.



So, with pre-conception care and planning, the baby is born, and at birth babies will not only have the opportunity to have their own cord blood saved, but they may have it genetically sequenced to alert the parents to any possible future health challenges and allow them to then select a lifestyle most suitable for that baby and promotion of health and prevention of disease.

Then at some point in adolescence or young adulthood, banking one's own stem cells may become a norm. There is also research underway to create induced pluripotent cells in the laboratory and have them available to address many health problems in an adult's life if one does not get to bank their own stem cells.

Sadly, a lot of the medical community still believes that this is far-fetched and very far from clinical implications, but I do believe we are onto something with looking at the pluripotent (meaning ability to assume the characteristics of any tissue to where it is injected) stem cell that can be either generated in a laboratory, which is not here yet, but currently sources include placental tissue because placentas don't know who they are; they don't know that they are a baby or a mother, and therein lies the beauty of their cellular content, which can currently be used in orthopedics, joint repairs, and regrowing tendons and regrowing muscles, etc.

Should one develop evidence of malfunction in adulthood, primarily through acute injury, but also as a consequence of some chronic maladaptive behaviors, the emerging science of energy medicine and neuromodulation also comes into play and can provide restoration of normal processes through a complex exchange of information between the environment and the organism on a cellular level.



That is kind of a broad brush and generalization of what I see happening in the not-too-distant future, Brigitte.

Mouchet: What solutions do you think will bring the most significant benefits?

Skul: At the present time, while I think that the jury is still out on universal use of some of the already available diagnostic tools, either because they are considered experimental or still not affordable to many people, a common-sense approach always wins in my book. So even in the absence of knowing one's own complete genome, which would bring about the greatest benefit because we could be precise in terms of preventive strategies or early intervention, we should adopt the universally proven approach to extending our lifespan through lifestyle choices. Never, never wrong is to adopt clean living practices.

So, there is a huge body of evidence supporting that approach, and all that it takes is an informed patient and an appropriately educated healthcare professional to guide the patient through the maze of information and misinformation on the subject.

For decades, I've been telling my patients that the Mediterranean type diet or modified Mediterranean is the healthiest diet on the planet, and in the last 18 months there have been huge three studies supporting not only that, but actually giving statistical improvements on longevity – enhancement of one's life by a significant number of years or percentages, and prevention of neurodegenerative diseases.

Clearly, our lifestyle choices play a huge, huge role with the greatest benefits.



Mouchet: Nice. And if you look at the new technologies, therapies, or drugs, what would be your top picks today?

Skul: This year and part of last year have brought us some very interesting new and revisited old longevity breakthroughs:

1. The first one is thermal effects on the body: Uses of heat, such as in a sauna (and it doesn't have to be any particular sauna, although infrared frequencies seem to be the best in this). By increasing the heat-shock proteins in the body, it prevents clustering of proteins within the cells that can cause degeneration such as in Alzheimer's disease and other neurodegenerative diseases, and activates the FOXO3 gene (the anti-aging master gene) which is increased with heat.

If you have the opportunity to sit in a sauna once or twice a week, or better yet, if you have one in your home, that may actually prolong your life.

2. The use of platelet-rich plasma or growth factors derived from stem cells (PRP) is not just used for a decrease in wrinkles, but also to enhance recovery from injuries and stimulate hair growth. That would be another pretty impressive discovery.

3. Increasing muscle mass is another one. We have alluded to that before, but it is directly related to decreasing aging. Melov and colleagues showed that strength training reverses gene expression in 179 genes to their youthful level. Just a little weight work, and it doesn't have to be to the level of becoming a bodybuilder, about ten minutes three times a week will sufficiently increase the muscle mass to also positively correlate with the age of one's brain. In other words, it will make our brains go younger according to the Journal of American Geriatric Society.



4. In terms of a plethora of nutritional supplements that are out there, identifying a few winners as it relates to oxidative stress and prevention of disease and increase of longevity, definitely supporting healthy glutathione levels is key. This tripeptide consists of glycine, glutamic acid, and cysteine, and it sharply decreases as we age. Basically, it hits the basement shortly after 40, and it is one of the most potent antioxidants.

Research done at the University of Michigan, Denmark, and the University of Naples in Italy all showed that the higher levels of glutathione in octogenarians (averaging 87 years of age, but patients ranged from 60 to 100 years of age) was found to directly correlate with a decrease in all illnesses.

In other words, glutathione steadily decreases in 40-year-olds and older, but if we can increase it through ingestion of cruciferous vegetables, un-denatured whey protein, and/or a supplement with a precursor (namely N-Acetyl Cysteine) glutathione will serve as an incredible antioxidant. Part of the theory of aging that we alluded to that deals with oxidative stress is that it is very important to keep us young.

5. Another supplement is an herb that dates way back and has been used in Traditional Chinese Medicine since 100 years before Christ. It's astragalus. Its rediscovered value has shown that it has immune benefits, benefits in wound healing, brain health, in decreasing inflammation, it improves insulin sensitivity, but in a couple of studies last year, it also showed remarkable benefit in slowing the shortening of telomeres. We have alluded to telomeres as becoming a measure of cellular aging, for which Dr. Elizabeth Blackburn received a Nobel Prize in 2009.



Just to refresh everyone's memory, you can think of telomeres as the little plastic tips on shoelaces. With every cellular division as we are aging, the tips become shorter. With every assault – from oxidative stress or other toxic influences onto the DNA – the tips become shorter.

So, the DNA strands that are tightly held together may unravel if the telomeres become so short that they can't really hold them in place. That's when the external influences can really get to work and alter and damage our DNA, causing all sorts of mutations on a chromosomal level and expression of disease.

6. Another nutritional support category is oligomeric proanthocyanidins (OPCs). Those are the extracts from dark-skinned fruit that render the dark-skinned berries, in particular, extremely powerful in their antioxidant power when mixed with some other ingredients that detoxify on the cellular level and enhance the production of nitric oxide. Those have been some findings that are really correlating very positively with increasing longevity.

7. An old habit of cultures where fasting was a religious or spiritual practice has come into vogue. Although I do not support any diet per se, the intermittent fasting diet may actually just be a habit of eating and timing your food. By fasting intermittently, scientists have found that telomere length also increased.

The animal studies in Spain showed that when they reduced the caloric intake in mice by 40%, they lived 20% longer. Are humans mice? No, we're not, but Dr. Richard Weinrich actually had similar observations in a long 19-year study in primates to whom we are a bit more similar and I think that is gaining more traction. Fewer calories and leaner bodies have already been in previous observational studies associated with greater longevity.



8. Whole Body Vibration is actually very interesting because in a very easy manner, standing on a device, we are exposing a body to vibrational force that help increase bone mass and strength while increasing muscle mass and toning muscles.

9. In that similar category but a bit different are other devices. One that I am particularly familiar with is the one which we are actually using in my practice for acute and chronic pain management to help patients who are battling opioid crises improve. Dynamic neuromodulation actually enhances the functioning of nerves and muscles, and it does strengthen the skeleton and the muscles as well. It may have other anti-aging benefits also.

10. We already talked briefly about stem cells and pluripotent stem cells that are currently acquired from tissues such as placentas, and there is work on them being manufactured in a laboratory to replace the human sources. It seems to bring about a potential for repair.

11. Rejuvenating with stem cells, while the practice is not yet supported as a standard of care, many clinics outside of the US are offering it from rejuvenating skin to healing every organ in the body and reversing age by 10-15 years. That is still to be seen, but clearly, in aesthetic medicine, it has been in use. Those stem cells range from human stem cells, derivatives from human skin such as in purified skin protein or botanical skin cells, but many anti-aging researchers believe that the human origin is more effective.

12. Last but not least is good old coffee. If you are like me, having grown up in Eastern Europe where coffee was part of post-meal delight, I enjoy my morning cup of coffee, and I enjoy another cup of coffee.



It all boils down to, “Something old, something new, something borrowed,” from ancient cultures, and incorporated into our lives using common sense and awaiting new things to come our way.

Mouchet: Nice! Thank you. So, there are lots of options.

When we look at the solutions, there are some that are definitely benefiting all the areas of the body, like solutions focusing on mitochondrial health, and then there are solutions targeting very specific areas like the skin, for instance, with techniques like microneedling. Obviously, the skin is such an important aspect of aging.

Do you have any preference for one versus the other?

Skul: I believe that support of a healthy, youthful body from enhancement of cellular well-being and energy production within the cell’s energy powerhouses – the mitochondria – to the expression of that well-being of a healthy body through the body’s ability to perform optimally in a physical sense or with cognitive challenges is also a key to the youthful appearance.

The cliché of ‘beauty from the inside out’ really isn’t a cliché; it is very true. There are definitely thousands of procedures out there that are directed at our vanity. The quest to ‘look younger’ is really not what my patients are seeking these days; the phrase should be ‘look and feel younger’ and ‘look and be younger’.



All of those procedures have to be substantiated by scientific proof of efficacy. Many actually do work, and they are supported. So, when it comes to youthful looking skin, whether we use microneedling – which is intentional injury to trigger cell repair to ultimately increase elastin and collagen production – and combine it with treatments like PRP (platelet- rich plasma) complete with many growth factors that enhance that process, or we intentionally deliver heat via laser technologies with the same intent, there are definitely going to be some temporary beautiful, beneficial effects.

The same is true of thousands of anti-aging skin care topical products that are currently on the market and continue to flood it daily with their various claims. But no one should really deceive themselves that those often very costly products and procedures are the answer to longevity.

My team of medical aestheticians and nurses indeed have an outstanding library of before and after photos that truly altered the person phenotypically in their appearance, but without internally supporting them with a good choice of macro and micronutrients, particularly paying attention to micronutrients that combat the oxidative stress of daily exposure to toxins and daily targeted physical activity, none of those results are anything more than a false sense of ‘slowing down the clock’.

So, I guess it really is impossible to tease out and separate the importance of one from the other. In the end, we are really the sum total of everything that goes on internally and externally.



Mouchet: I agree. I'm sure that everybody would like to hear now what the best way is to support mitochondrial health and also the health of the key systems in our bodies. There are lots of supplements out there. What are your favorites, and what would you recommend?

Skul: Our mitochondria are best supported with a diet that is rich in proteins and those need to come from clean animal sources. If you eat animals, they should be organic meats and wild-caught fish. You can also get good amino acids and proteins from nuts, seeds, beans, lentils, and eggs, which all help to increase the famous glutathione. Supplementing with NAC, alpha-lipoic-acid, nitric oxide boosters, B vitamins, magnesium, CoQ 10, and NADH do the same.

Making mitochondria happy with glutathione-inducing or glutathione-rich foods is the key.

My favorite way to look at supplements is to try to make it very simple. It is a complicated and confusing world out there. Supplements are a multi-billion-dollar industry. There is no regulation and a lot of confusion.

So how do I make it simple for my patients? I create for them a core of foundational health supplementation, which really should include the following: We should support the healthy brain and endocrine system aging. We should balance the two arms of our immune system, and we should address the ever-so-important gut health – as you have already discussed on your first program, Brigitte – because the gut is kind-of where everything is and where everything happens.



With that covered, we may then need to add in some specifics as we discussed regarding mitochondrial health and good oils and perhaps additional vitamin D3 and K2. But in general, with that approach, we are covered.

I only recommend supplements that are manufactured in FDA-approved facilities and follow the cGMP guidelines of production. As I said before, the nutritional industry is overwhelmingly confusing to most of us – even medical professionals, let alone our patients. So, I look for the science behind the ingredients and ease of administration for best compliance.

You can have a cupboard full of nutritional supplements, but if there are 100 of them, you are not going to take them compliantly. If there is a handful – typically taken morning and evening – then I'm much more likely to comply, and they are much more likely to actually exert their effect than if they are sitting there unused.

Mouchet: Definitely. Thank you for that.

In a previous Solari Report, Catherine mentioned blood transfusions from younger people being used to increase longevity or even energy harvesting from younger people as well. Have you heard about that? What do you think about it?

Skul: Hot! Hot! Hot! That is a hot and controversial topic.



My first exposure to this concept was in 2015 when I had the privilege of being in the company of Professor Radman, sitting in the beautiful courtyard of the Mediterranean Institute of Life Sciences in Split, Croatia. Professor Radman, who is a recent inductee into the American Academy of Arts and Sciences, and Professor Emeritus of molecular biology at the University of Paris Medical School, has spent over 35 years studying cellular immortality of a microorganism called *Deinococcus Radiodurans* and its resistance to oxidative stress and possible implications in human biology.

At that time, he also spoke of his collaboration with researchers from California who arrived at remarkable conclusions from parabiosis experiments in mice, connecting young and old animals' circulatory systems and essentially recreating youthful behaviors and biomarkers in the old animals.

So that totally fascinated me. When I returned home, I looked up the work of the California scientists, and fast-forwarding to 2017 and 2018 in the US scene, we are actually viewing another theory of the 'fountain of youth' unfold before us. So, based on years of this research about cellular immortality that we spoke about at MedILS in Split, researchers at Stanford led by neuroscientist Tony Wyss-Coray showed that infusion of blood from young mice reversed cognitive and neurological impairments seen in old ones.

These findings may have enormous implications if they could be replicated in humans, whose expected life expectancy carries with it the burden of both 'normal age-related cognitive decline' (and I don't know how normal that is, but that is how it is termed in allopathic medical circles) and ——



— neurodegenerative diseases such as Alzheimer’s disease, Parkinson’s, and ALS. Alzheimer’s and dementia are becoming one of the biggest public health challenges worldwide.

A new study that was published last year by the same author in *Nature*, Wyss-Coray reported that plasma from human umbilical cords and young adults also had beneficial effects on old mice. So here we are talking about mice to mice, and now humans to mice, but they also isolated a protein which may be responsible for those effects, providing a focus for research and development for new drugs that could rejuvenate age-related cognitive decline in the hippocampus.

While this is a small step, it is a step towards testing in humans, and it is done in a very scientifically appropriate way.

Then there is always this challenge where science possibly can be tied to premature enthusiasm and financial gain. Last year, in 2017, a California company called Ambrosia launched the first US trial to test the anti-aging effect of young blood in humans, but it was really not a true scientific experiment because participants had to pay \$8,500 to participate. That obviously raised a lot of ethical questions.

A company called Alkahest recently completed a more rigorous small safety trial in 18 Alzheimer’s patients with no adverse effects, but no results on cognitive performance – which are yet to be reported. Those participants were enrolled in a traditional scientific trial with that financial participation.



Earlier this year in March, there was a day conference held in Palm Beach. It attracted a group of approximately 120 baby boomers from all over the world to learn about a possibility of participation in a clinical trial testing transfusion of young blood (donors aged 18-25) in an attempt to ‘add a lot of healthy years to their lives’.

I will tell you that a lot of eyebrows in the scientific community went up, particularly when they learned that participants would have to pay upwards of \$200,000 to enroll – although that sum is still under discussion between the study principal investigator and the FDA.

So how exciting is this? Well, if we could extrapolate the data from the murine model to humans, it would be very exciting indeed. But there are many unanswered questions in this field, and many companies are looking into a similar basis of research where they would be utilizing the pluripotent stem cells from human placentas and perhaps achieving similar results.

So, while it is out there, it is still not for prime time, and it’s to be continued.

Mouchet: We have talked a lot about external solutions. We know that there are other things that people can do to increase longevity. We have talked about some of those – diet, exercise, managing our emotions, what we think, what we believe, how we sleep, how we breathe, our social environment, and others.

Based on your experience with what you’ve seen with your patients and your own experience, what are the top three things that people can do tomorrow to increase their lifespan?



Skul: It's not easy to isolate the top three because there are many wonderful things that we could do, but you have put me in the corner, so I'm going to go for it:

1. Allow your body to self-repair with better sleep. Americans are entirely tired and sleep-deprived. So, get good, quality sleep.
2. Eat a rainbow of vegetables and fruits and fatty fish. If you drink, drink alcohol in moderation, and don't ever smoke. Exercise and eat organic as much as possible.
3. Managed stress and reduce toxins. In the 'manage stress' category, (I'm cheating because I'm lumping two things together here, but I think that they are equally important) exercise, socialize, and engage in conscious breath work daily. Be a vegan for 10 days once a season to really cleanse your body with a supportive cellular detoxification program, and toxin-proof (including EMF radiation exposure) your home and your workplace.

Form a partnership with a trained medical professional to help you navigate through all those choices and through all the 'Dr. Google' information and misinformation.

Mouchet: I agree with that.

What do you think of sugar? Should we just totally remove it from our diets?



Skul: Sugar is in everything, and we get plenty of beautiful, natural sugar from the array of colorful vegetables and fruits on our platter.

Mouchet: Good. So, all of this sounds reasonable and feasible, which is encouraging. I think that this is really, really good content.

I want to thank you so much for your time today and for sharing all of your wonderful knowledge and wisdom.

If people are inspired to work with you, they can obviously find you online. What is your website?

Skul: It is www.ccwm.com. It stands for Comprehensive Center for Women's Medicine. I really cannot thank you enough, Brigitte, for allowing me to share this. This is a topic which I am very passionate about. I know we probably over-extended our conversation and our time, but I could keep going for another hour!

So, thank you.

Mouchet: Thank you. It was a real pleasure to speak with you today.

This is Brigitte Mouchet with the Solari Report Wellness Series. Please leave your comments or questions on the blog for Dr. Skul or myself, and we will respond as quickly as possible. Thank you for listening. Take good care of yourself because it's more fun to be well!



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