Our Genetics and Health Disparities Transcript

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Introduction and Guest Welcome

All right, so we're welcoming, a great honor to welcome Dr. Constance Hilliard. Welcome, welcome, welcome. Well, thank you so much, Dr. Hall, for having me.

I'm absolutely delighted. Well, so this was how much, basically what you found is a link in Africa for some of the health, serious health problems that African Americans have here in America.

And I'd like you to take a moment to tell us a little bit about what you found as it relates to sodium and high blood pressure and kidney failure, all the things that a lot of our listeners have family members that have.

So tell us what you found and tell us a little bit of how you found it. Sure. I am an African historian because It is so critically important for African-Americans to understand their history.

But let me go back a little bit because I'm also an Arabist and the field that I began my work in was referred to as Arabic historiography in West Africa.

West African Origins and the Salt Deficiency Hypothesis

Now, the point of it was simply the reality of the fact that West Africa has in a sense two histories. One history is the trans-Saharan trade during the Middle Ages.

And some of your listeners might even have heard of the Mansa Musa of Mali, who was considered to be one of the wealthiest individuals in the world at the time.

The reason was because of an enormously profitable gold trade. And in a second, you'll see how this connects to African-American health. In any case, It just so happens that in the United States, until relatively recently, there was no study of African history.

And as a consequence, there was no real understanding of where African Americans of slave descent actually came from within the African continent. So for me, as an African historian and Arabist, I had a very special lens through which I could understand the geological environment that black people came from.

And that lens simply related to the fact that within the deep interior of West Africa, any knowledge that we would have had would have come from scholars of Timbuktu and of that particular region, and they were writing in Arabic.

But the point I want to make here is the fact that Western scholars knew nothing, I mean, literally nothing about the interior of West Africa because they were positioned on the Atlantic coast engaging in what we know as the transatlantic slave trade.

Well, the reality is that our American histories were only able to document what was happening once slaves arrived on the coast and once they were uploaded onto slave ships.

But here is the essential deal. Slaves or our descendants were actually marched in chains 500 to 1000 miles from the interior. And the significance of that is the fact that That area of Africa was so sodium deficient.

There was no sea salt. There was not even rock salt. It was so sodium deficient that those populations were trading gold from their mining of gold fields in the region for salt.

So let me just stop you for a second and see if I'm following you correctly. So the West African coast, from which most of us feel like we came from, the lands on the coast, they were more populated.

They had more of an infrastructure. And so the slaves didn't actually come from the coast of West Africa, they came from deep within, like you say, 500 to 1,000, like I'm in Cleveland, New York City is 500 miles.

So imagine walking from Cleveland to New York City in chains, right? And that interior area, like you say, the geology of it, but basically the landscape of where these interior farmer Africans came from is really where most of us came from because they were, is that true or am I wrong?

Yeah, that's exactly true. And what we sometimes don't appreciate is how sophisticated the slave trade was. Because now that African Americans, and I say of slave descent, now that we are able to find our DNA or get tested for our DNA ancestry, we can see that reality if we understand what we're looking for.

So the point is that when people talk about West Africans and Black people and so forth, The reality is that race doesn't work in medicine, and the reason it doesn't work is because you're dealing with populations that are genetically adapted to different regions.

APOL1, Hypertension, and Kidney Disease

the population of African Americans of slave descent, they will have a different genomic profile from, say, African Americans who are recent immigrants from Nigeria or from Kenya.

They will have a very different profile. And so the difference in profile will relate to the fact that anybody living on the coast of anywhere has plenty of very, very cheap salt.

Whereas there was something so particular about and so vulnerable in terms of the communities that ended up being snatched and kidnapped and marched to the coast.

And so it so happens that There are aspects of our biology that we never really understood because nobody knew anything about the specific geology of a region that is so sodium deficient that even coastal West Africans cannot live there.

Our ancestors did and not only live there, but they were highly skilled farmers because that was the market. The market was for highly skilled farmers who could create profitability on these American plantations and so forth.

So what am I saying? It is essentially that populations, our ancestral populations, we're consuming essentially 200 milligrams of sodium per day. Now, it's not as though anybody was able to measure the sodium a few centuries ago, but in a sense, we can because when you have a population that has no exposure to salt, and when I say no exposure, I mean, our ancestors had never even tasted table salt.

They were therefore getting sodium, 200 milligrams of sodium from whatever vegetables they were eating and from the animals, the poultry and so forth that they were eating.

So we know we can add it up today. And it's like, what does that add up to if you take all of the salt out of the sodium? And what you end up with is 200 milligrams.

Well, if you look at any medical texts, and you're a medical professional, you will know that it's assumed that human beings cannot live on less than 500 milligrams.

And I'm talking about people in a very hot tropical environment who are farming on 200 milligrams. What does it mean? It means that they were genetically adapted to their environment.

And that's not surprising because people on the top of the Himalayas, they are genetically adapted to their environment. So now a lot of this has come from the reason we keep kind of come together is because of this book called ancestral genetics, genomics, ancestral genomics.

And then it says the African-American health in the age of precision medicine. So ancestral genomics, look for that

on Amazon. And within it, I'm three quarters of the way through, two thirds of the way through, to be honest.

some amazing statements made really throughout, and to making your point, I mean, that the needs of some, one of the things that I highlighted, and it's a whole other talk, is that all the genetic variability rests with African in Africa, right?

And whites are a subset of that. Asians are a subset of that. But we have the largest, most broad genetic diversity of everyone. And everyone else is just a subset of us, right?

Absolutely. And one of the issues that surprised me was the fact that it's almost as though it's a secret. It's not really presented in various publications, and it's not really talked about.

But the reality is that if we're thinking about the pan-human genome, we're thinking about African people. And the reason is because our Our family, our parental DNA is rooted on the African continent.

And one of the issues that I think is so important. to realize is that even though all of us as human beings have about 22,000 genes, what we now understand is that those genes have slightly different little letters that are in slightly different positions, and they're called gene variants.

Well, interestingly, when the Human Genome Project was first launched, and that was about 2003, it was believed that there were maybe two million of these variations on our genes.

But now we're in 2024 and they are, they've been counted up to 324 million gene variants, 324 million. 324 million, right? Yeah, 324. And all of them are found on the African continent.

This is the pan-human genome. But what that means is several things. is that given all of this variation, if for instance we have a new pandemic and we're looking for any kind of natural immunities, if no one in Europe or Asia or Latin America has a natural immunity, if humans have it, it will be somewhere on the African continent.

That is the absolutely profound importance of the African genome. But what happens is that oftentimes because Black people are kind of marginalized, there is this perception that, well, whatever genes we have, maybe they're ancient or archaic, or maybe they're kind of on the periphery, when in fact, this is humanity.

And I think that is so important to understand. But at the same time, that creates a bit of a challenge. It's a challenge because we now understand that many diseases are population specific.

And when I say population, I don't mean racial. I mean, highly localized populations, just as I was referring to interior West Africans having certain gene variants that are different from postal West Africans.

So the significance of that is the fact that we will find that Europeans are oftentimes somewhat homogenous in terms of having similar gene variants. Well, Africans aren't homogenous because we have so many more.

And what has happened within the field of, say, precision medicine and genomics is that there's been so much focus on identifying the disease-triggering variants in Europeans and simply ignoring the disease-triggering variants in Africans and also in other populations, but there are 38 million African Americans in America.

African Genetic Diversity and Precision Medicine

So that's a lot of ignoring when it comes to 21st century medicine when it comes to being able to actually cure a particular fatal cancer, because once the gene variant that is triggering that cancer can be identified, then we can find some drug that will block it.

I mean, that is an incredible breakthrough, but it's not happening for African-Americans, because nobody's even looking. Right, and no one's even discussing it.

And so one of the things you talked about was the APOL gene that we have. And when you reached out to me, and I was like, wow, guess who has that gene, right?

The Hall family has that gene. Right. And I had two uncles who I've never met died in their 30s from hypertension leading to kidney failure. And in the 1950s, there was no dialysis.

There was nothing for them. Black men in Virginia. And my brother, same thing, hypertension, kidney failure in his 40s. And he's passed. And so it's something that's very real.

to our family, hypertension. I'm on blood pressure medicine. I don't hide that. I'm on cholesterol medicine. You know what I mean. And so this is something.

This is what we're living. But what people don't know is that that gene served a purpose. Yeah, that is exactly right. And I think the life saving purpose, right?

An absolute life saving purpose because It is these variants of this APOL1 gene. that was the basis for the survival of our ancestors in the interior of West Africa.

Because back to the point of medical textbooks believing nobody can even live on 200 milligrams, the reason they could was because these variants are highly absorptive and retentive of sodium.

In fact, 50% more retentive of sodium. And what does it mean? It means that you can have a population living in the tropics consuming so little sodium that they're not even eating salt.

But what does it mean when this population has been kidnapped and dragged to the Americas? and taken to McDonald's. Yeah, exactly. Because African-Americans today consume 3,400 milligrams of sodium per day.

Our ancestors consumed 200. Most populations in America, their ancestors consumed 3,400. So when we're looking at kidney disease and kidney failure and people having to almost fight for transplant organs and cardiovascular disease.

What we're seeing is what I refer to as sodium toxicity in African Americans. And unfortunately, this is not a message that has been conveyed to black people that we absolutely cannot function and survive and have long lives on 3,400 milligrams of sodium.

But I think it's also important to understand that this is not a pathology. This was a gift from our ancestors. And I feel as though once we see that we were given something precious, then we have to learn how to protect it.

We have to learn how to protect our kidneys because they serve such a vital function. And I think sometimes when you think of it that way, you can kind of move away from the potato chips and the beef jerky and so forth.

because salt is highly addictive. It's not that you can say, oh, well, you know, I'll stop eating a whole, you know, I'll reduce my sodium. Now, one other point is that African Americans of slave descent, we're all admics.

We're admics with Northern Europeans. So what it means is that none of us should go around trying to eat 200 milligrams, which we couldn't do anyhow if you're going to the supermarket, but closer to 1,500 milligrams because the daily recommended sodium level has been established for Europeans and for various other populations.

So 2,500, even though most Americans consume 3,400, the reality is that African-Americans of slave descent should not be consuming more than 1,500. And this is a message that we need to get at as young an age as possible, honestly, as young an age as possible.

They have teens now, people that are overweight, African-American teenagers, diabetes at age 14, it's type 2, right? Yes. They're also having hypertension, high blood pressure.

Yes. A third of black men at 23 have hypertension, you know, at 23. So that's a very young age and that's this salt kind of combination with the increased weight and with the increased diabetes.

It's like we're not we're not adapting fast enough, right, to this geology over here. Yeah, well, yeah, absolutely. And the reality is that it, I hate to say it, but it may take 1,000 years or two.

But the point is that all of us, whether we're, Asians have a different problem. Various other populations, Native Americans have other problems. The point is we have to honor our ancestry and learn to eat as close as possible to their diets.

Vitamin and Mineral Needs in African Americans

And that I think is a very critical message because guess what? Whites, they are eating closer to their ancestral diets, although everything has gotten kind of out of whack with ultra processed foods to be sure.

But when you have African Americans dying at four times the rate of whites and other populations from diseases that are now, we can see they're preventable, but we have to convey that message that they are preventable, particularly those diseases related to sodium.

We are just consuming 1700% more sodium than our ancestors. And no wonder we're dying. No wonder we're dying. Right. And like you say, you know, the things related to the label, you know, the label that you see on the on the on the side of multivitamin bottle or on the side of a can of soup where you shouldn't be eating canned soup.

Those things will tell you if it's more, you know, 100% of the sodium or 80% of the sodium or 100% of the vitamin C and all that is based on the white man, right?

And then they just down it a little bit for the white woman, right? But that's all what it's, that's all based on them and that they've got thousands of years of genetics that we're basing what we eat on them and we couldn't be more off base going.

Yeah, yeah, you're absolutely right. And I might also add that even though we're having a conversation, so we're talking about blacks and whites, when we really get down to medicine, that vocabulary changes a bit because even what I've talked about in terms of the our ancestors, 200 milligrams.

If you are an African American from Kenya or from Nigeria, a recent immigrant person to somebody like my ancestors who were dragged here, You're coming from a very, very salt rich environment.

And so you will most likely have none of these problems. You'll have problems that are more characteristic of Europeans and Asians and so forth. So it's not that we have to think of it strictly in terms of race, but We are nevertheless communities and most people who would self-identify as Black are in fact coming from the ancestral population that I've talked about.

And it just becomes one of the things I was telling earlier, the person like if you could, you can do out. It's not, we're not, they're not paying 23 of me, right?

I did 23 of me. They can tell you everything, but they can't tell you your face. right that's right genetics they can they can't tell you you can't do a genetic test and they can tell you you're black or white or asian they can tell you whether you're related to somebody black or white or asian right yeah that's so interesting there's no gene that that does you know race is a completely social construct right absolutely and the reason we say it's a social construct is simply because Human beings made it, but they pretend that biology made it.

And so when I say human beings made it, I can always point to a historical moment before which there was no such race because the black and white race in America, where does it come from?

It comes from the institution of slavery and the need to differentiate the people who were forced into slavery or if

you caught them, you could put them back as opposed to the people who were free.

But if you go before the 1650s, People still use the word race, but what were they talking about? They were talking about Irish people as opposed to English people, as opposed to German people and so forth.

Those were races. And when you even look at history, you can see how those races have had all kinds of trouble over the course of the last several centuries.

world wars and all the rest of it. And even in terms of Africans, they perceived of themselves as Yoruba people or house of people or wall of people or whatever.

And so when we realize that we can see a moment before there was any such thing, that is a reminder that we're the ones who made it up. Right, right, right.

And it was a big issue when I developed these multivitamins, genetic sequence multivitamins for African-Americans. I had somebody, well, there's no such thing as an African-American.

There's people. And it's like, I need for the majority of people to identify themselves with the multivitamin. You're right, the majority of the people from our community need to read the bottle and know it's for them.

And I know that race is a social contour. I absolutely know that. But I also know that the research showed, when I was writing the book, that we were profoundly vitamin D deficient, which we even talk about the sun, how much being in the sun, being those farmers in the sun, if you absorbed, you needed to be in the sun in order to get the right amount.

As humans, we always need the right amount of stuff. We need the right amount of this and the right amount of that. Not too much, not too little right and and and we were in again and that outside farmer area ton of sun if we if we were genetically designed to be in europe where it's much less like the sun here in cleveland we we would not get enough vitamin d which is what we're not getting when we're here and so we're profoundly vitamin d deficient that's why you're you're seeing on that on the other end as you probably read in the book Zinc, we have things that block the absorption of zinc and potassium and magnesium because we are in such a mineral rich environment.

The soil was mineral rich, the water was mineral rich, the vegetables were all very mineral rich. If we had absorbed all that like Europeans do where they don't have mineral-rich soil and vegetables, we'd be toxic, right?

We'd have too much zinc, too much magnesium. And so we were, again, genetically designed to do the best in Africa, in those inlands in Africa where we were, where there was less salt, where there was mineral-rich stuff, and we were displaced to here.

Now, you know, the tomatoes, I talk about, you know, you grow a tomato in your gardening, buy one at the store, two totally different things, right? Because there's more vegetables, and toast tastes totally different, right?

Yeah, absolutely. And you know, I just have to intrude by saying, I think it is so powerful that you have done the research to put together these kinds of nutrients and vitamins, but particularly because even though I've talked today about APOL-1, I've got to say something about calcium and about the fact that the West African variant of the TRPV6 calcium ion channel, which is the gene, the African variant is highly absorbent of calcium.

The significance of that for African Americans is turning out to be profound. And the reason is because It was presumed that because 75% of African Americans are lactose intolerant, the presumption was that we are therefore calcium deficient.

But the reality is that African Americans have stronger bones than any other demographic group in America. And what it means is that somehow or another, we're not only getting enough calcium, But what happens when we get more calcium than our bodies can process?

And this was another issue that I tackled in my book, Ancestral Genomics, because there are certain cancers that are referred to as TRPV6 expressing cancers.

Calcium, Cancer Risk, and the Need for Targeted Research

And it just so happens that even though African-Americans tend to have a lower cancer rate than whites, they have a very high cancer rate of guess what?

TRPv6 expressing cancers, triple negative breast cancer and metastatic prostate cancer and colorectal cancer. My point is that Unfortunately, there has been no serious research done on what happens to African Americans who are consuming what is considered to be the proper amount of calcium or even a lower amount of calcium.

But research in other countries have shown that the overconsumption of calcium, that is consumption beyond your biological needs, not some abstract number that comes out of Northern Europe, is cancer producing.

And what has essentially happened is that because there's been no research on the African variants of specific genes, we can look at a situation where African-American women are especially vulnerable.

They're vulnerable because not only are they highly susceptible to this very aggressive cancer, triple negative breast cancer, but at the same time, as we get older, calcium supplements are literally pushed on us by the medical industry and not only that, but even you get orange juice and it's supplemented with calcium and even you get cold cream for your face and it's supplemented with calcium, anything that is marketed to older women.

But the point I'm making is that what if that calcium supplementation is triggering triple negative breast cancer in African-American women. These are the kinds of issues that are so, so critically important.

And it does get back to the fact that we have to really understand that research has to be done so that we can see what adjustments have to be made. And Dr.

Hull, just as you're talking about the vitamins and so forth, it's not, oh, well, we should be healthy with whatever Europeans are healthy with. We need to have those particular nutrients that work within our biology, because when we don't, the consequences can be very, very drastic.

Very, very drastic. Wow, that's just so, so eye-opening. And it's also amazing to me, not amazing to me, but guess what I left out of genetic sequence multivitamins?

There's no calcium in it. of us having a calcium deficiency. And that wasn't like I randomly did it. It was like there's no evidence. What I decided to do was I was going to put what research showed we needed and I was going to leave out what research showed that we didn't need.

And that was calcium. I didn't know anything of what you just said, which is just amazing and really earth-shattering. And that's why it's so important we get this information out.

Because it is. People are put on calcium, take tums, take a calcium drink two, three times a day. That's what we tell everybody. And the problem the problem is because of racism and slavery and all that we spent a lot of time trying to be the same yeah absolutely we don't have tails we don't we don't we're just the same we have the same intelligence we have the same that But we're trying to be the same as this small subset of what we really are when we're really the diversity of the world and we're trying to be the same as Australia, right?

And so that's what the actual problem is. And so they're basing, we're basing what the nutritional needs of the indigenous people of Australia, imagine feeding the world that way.

That's similar to what we're doing in terms of white Americans following, you know, following the nutritional parameters for white Americans and applying it to us.

And we're not only not getting what we're supposed to get, but we're potentially getting some of what we're more of or too much of what we're not supposed to get because we weren't genetically designed to optimally operate in that environment.

Book, Public Health Message, and Closing Remarks

Absolutely, and I think part of the problem is that oftentimes people talk in terms of color blindness, and it's understandable that if you mean by color blindness you should not be discriminating against minorities and so forth and so on.

I mean, that is wonderful. That's absolutely wonderful. But when it comes to health and medicine, what colorblindness ends up being is whatever is good for whites.

But this is just one tiny population in the Earth's demography. And that population has specific needs. Other populations have specific needs. And my focus in doing the research for ancestral genomics was trying to move us away from a one size fits all medical paradigm because that one size fits all or that color blindness isn't real.

It's whatever people of Northern European ancestry need for their particular health. Right. And we have to be more directed and more specific about what our needs are.

Well, this has just been an outstanding conversation. I thank you so much for coming on and talking about this. So tell us now, where can we find a book?

Where is the best place to buy it? Oh, OK. Ancestral Genomics, African American Health and the Age of Precision Medicine. It's at amazon.com. And actually any of the various websites that are selling books and so forth, it can be found, but it's definitely at Amazon.

And I just feel as though there's some issues, health issues, profound health issues that can be prevented, but only if we have the knowledge to do so.

And that's what I've been trying to convey. Well, it just shows that history, you know, knowing your history is just not, it's not just an It's the key to almost everything, right?

How to stay free, how to stay healthy, you know, just really trying to build off of that. Are there any social media things that you're on that people can look for right now?

Well, I'm in the process of putting together a small podcast. So folks will have to wait a few weeks for that. All right. Well, it sounds good. Well, very, very good.

Constance Hilliard, PhD, Harvard trained, just an incredible mind and incredible perspective that we could all benefit from. Thank you so much for being on our show.

And thank you so much, Dr. Hall. It's been an absolute, absolute delight. Thank you. So that's…