**Wonders of the Human Body**

*Two OLLI instructors, one a retired surgeon and the other a former professor of Pharmacology, discuss the most complex and wondrous mechanism on Earth: the human body.*

**A POLAND:** Today, two prominent OLLI voices, a medical doctor and a professor of pharmacology. They share a compelling conversation about everything from cranberry juice to how does as aspirin know where to go. Stayed tuned, as a scientist and a surgeon train their focus on the most complex mechanism on Earth, your body.

(SOUNDBITE OF MUSIC)

**A POLAND:** Welcome to in conversation: the voices of OLLI. OLLI, O-L-L-I is an acronym for the Osher Lifelong Learning Institute located at and networked with the Palm Desert Campus of California State University San Bernardino.

(SOUNDBITE OF MUSIC FADES)

**F ABRAMSON:** I wanted to be an athlete. I wanted to be a pro golfer. That is because I grew up in Columbus, Ohio, Jack Nicholas’ home base. I started playing when I was eleven or twelve and I just only about three to four years ago.

**A POLAND:** Well young Fred Abramson didn’t grow up to be a pro golfer, but rather a professor of Pharmacology at George Washington university Medical School. Dr. Abramson how now retired to our desert. In place of golf courses, he enjoys teaching OLLI courses, classes in the sciences. Today, he is chatting with Dr. Kevin Sweeney, a former surgeon in San Francisco, who now diagnoses course proposals as the chair of OLLI’s curriculum committee. He is also an original member of the Osher program here at the Palm Desert Campus.

**K SWEENEY:** I kind of grew up wanting to be an architect. My parents had helped design and built their own house. So, when I went off to college, instead of picking a college that was good for architectural studies, I selected a college that I wanted to go to and thought I’d enjoyed. Once I found out they did not have an architectural school, I either had to switch careers or switch schools. I did not want to switch schools. So, I started taking courses that all of my friends were taking which were biology and science courses. So, I took a dental exam and medical school exam. I would have put all my money in the world that I would do well in the dental exam and I totally bombed that. I did well in the medical exam and the rest is history. If you asked me to list all the possible careers in medicine that I would’ve gotten into, I would have put surgery at the very bottom and of course that is what I ended up doing.

**F ABRAMSON:** Hey Kev, I got to share an experience with you. I took all these aptitude tests as a freshman in college and architecture was high up there so, in terms of the things that I like to do, the test I don’t know how it work but it shows your inner thoughts even if you aren’t thinking about them which is a weird thing. Sciences was number one, I was on the correct path. As for the design thing was farther down. So far, I can’t design anything still.

**K SWEENEY:** Well the science part of architecture was definitely not my thing. I did not enjoy physics at all. It was the drawing and the art part that I liked and I think I could’ve done.

**F ABRAMSON:** Well with that background you could have designed really pretty buildings that fell down.

(LAUGHTER)

**K SWEENEY:**  Probably true, but I did in medical school consider going into medical illustrating.

**F ABRAMSON:** That is a very interesting specialty. It really is.

**K SWEENEY:** I remember the… what was the movie?... they miniaturized the people and injected them into the body.

**F ABRAMSON:** That was Raquel Welch wasn’t it.

**K SWEENEY:** I think it might have been. I was just fascinated by that movie. I just—

(LAUGHTER)

**K SWEENEY:** It was just incredible.

**F ABRAMSON:** Sorry Kevin,I want to be something longer to live than a red blood cell.

**(LAUGHTER)**

**K SWEENEY:** Well, that is true Fred. But maybe when you are a red blood cell, that is a long time. I see the body as just an incredible machine that we know an awful lot about and an awful amount that we can’t predict. It is amazing in many ways because if we think about the past couple of hundred years when we first were able to look at a cell, or look at a bacterium, or know what was causing a disease. In Fred’s business we have been doing things that prolong life. I mean, it is probably one of the greatest things is therapeutic being able to control infectious diseases and to extend our lives. Yet on the other hand, and actually much more recently we have been destroying our body by chemicals that we put into it not to try and treat something but to try and improve the size of a chicken breast, increase the longevity of milk in the refrigerator, and on the one end we try to extend life with chemicals and good life choices. On the other end, people are smoking, eating horrible foods. It still is kind of amazing for me, even though the life expectancy in the U.S. has diminished somewhat, and we are certainly not as high as other western nations. It is still as high as it is. It is probably a testament to the incredible pharmacology progress that has been made. You can strengthen a weakening heart, improve failing lungs, and there is an awful lot we can do. Overall, the human body when you look at it from the outside you can see a variety and what happens to it and what people do to it but it is kind of a miracle.

**F ABRAMSON:** We are very, very complex organisms. Partly, because many of our cells are smaller that other animals. So, like our brains, they, may not be the biggest brain but there are more neurons and cells there as somebody who didn’t grow up not knowing anything about the body, as I learned about it as I went from chemistry to pharmacological things, to being in medical school for 31 years. It is just everything. There is so much there and you start to read as I do now, particularly to get prepared for my courses or look up things for them. Everything I learn about amazes me. My teaching philosophy is not to teach what I want to teach but teach what I think they want to teach. It is different from teaching medical school because I had to teach what I had to teach. Here I can go and have fun with facts. I have never sid that before but from what I can tell my students really like that too. I am fact based my favorite course so far is called Myths in Health and Nutrition. It starts with things that people are familiar with like cranberry juice is good for a urine tract infection then I go through the literature in how it came to be and on real clinical trials that show it isn’t true. There is no benefit to women drinking cranberry juice to stop the urinary tract infections. There are so many of these things that I got a six-week twelve-hour course full of them and I have a back log, ten of them just waiting to get in. One of my favorites relates to probiotics, that physicians, I’m sorry Kevin, are always prescribing them when an antibiotic is given and a gastrointestinal upset occurs. There are numerous clinical studies that show that it doesn’t give them any benefit. Might as well give them a placebo because it usually not always, gets better anyways. It is just a matter of numbers. There is something like ten trillion of bacteria in our gut. A dose of probiotics might be 100 million or a billion which is a big number but it isn’t even close. They have to get past the digestive system where all the acids, enzymes, and things that could break it down. That is one of many favorites. I basically don’t lecture on anything that isn’t in my favorites.

(LAUGHS)

**F AMBRAMSON:** There are too many of them that I can select at once that make me happy to get out into the world.

**A POLAND:** The conversation turned to the largest organ in the body. Which is… can you guess it? Surprisingly, our skin.

**K SWEENEY:** Yes, the skin is the largest organ of the body and it is obviously exposed to just about everything that is out there. Whether it is sunshine, the air, chemicals we put in our body or that we lather into our skin. Most people don’t take care of it. They put on a little lotion for dry skin and maybe if they are smart enough they will put on little sunscreen but there are very little people do to protect their skin. Very few people see a dermatologist regularly. It might be a little different here in the desert because people are aware of the possible damage their skin can suffer here. It is an incredible part of the body.

**F ABRAMSON:** Well I am going to talk about the skin in the aging lecture next week. There I would say that there is a fairly amount of inevitability there like our bones thinning out and it does not have to be osteoporosis but as we get older we are going to lose the elasticity of our skin and relative thickness and integrity of layers will change. To one extent or another we will get wrinkles, dry skin depending on exposure, and we will get basal cell cancerous. Skin is also a place where another of my 1000 urban legends that has to do with patches of drugs. If you have— if you are concerned about sea sickness you put a Scopolamine patch behind ear because it is inside your ear that the motion is sensed in the cochlea. The trouble is. there is no connection of blood between the skin on the outside and inside the ear. Anything put on your skin simply goes in the stomach circulation and goes around and around and sooner or later it will reach the target level. Similarly, contraceptive estrogen patches, where do they tell you to put them? On your abdomen over your ovaries as if it will directly stimulate the ovaries, but all you have to do is look at the anatomy of the blood supply of your skin to realize that essentially every other tissue of the body, except for maybe two, will go in and gets picked up by the vein, which goes back to the venous system to the heart and then gets distributed to every other tissue, through the arteries. So, things don’t get taken up by arteries or arterioles. They get taken by little veins, venioles or by the lymphatics and none of that goes to the organ that is adjacent to it. I don’t know my depths but there is probably not even a millimeter of penetration of a drug that you put on the skin that gets to the organ right next to it. It has to go around the merry go round and then it does its work. These things work very well, but it is a placebo effect more than anything else, then you should put a motion patch behind your ear.

 **K SWEENEY:** Not directly related to a skin patch Fred but, I have heard many times, and I suspect you have too. People ask me, “How does that little pill know how to get to that particular part of your body?” Whether it is your heart or your lungs?

**F ABRAMSON:** You know, that’s funny because when I was just starting to do pharmacology, my father asked me the same question.

(SLIGHT CHUCKLE)

**F ABRAMSON:** He looked at me and said, “Fred, how does aspirin know when you swallow it, whether it is for arthritis or for a headache?” and the answer is of course it does not know.

**K SWEENEY:** Right.

**F ABRAMSON:** It goes everywhere; with few exceptions every drug goes everywhere, which is why cancer drugs have so many weird toxicities all over the body. You can’t target drugs. There are lots of reasons why you can’t but it still seems like a great idea. It just doesn’t work. So yes, drugs go and do their thing where there is some abnormal physiological process going on. That is what drugs do.

**K SWEENEY:** And also, why drugs have side effects.

**F ABRAMSON:** Right. And drugs have side effects because they go everywhere and they’re torn apart. The clean drugs and it only does one thing and the thing it’s supposed to do and not nothing else, but that is totally untrue. There is not a single drug that is completely clean.

**K SWEENEY:** You see, I think you can do another course similar to Urban Legends, and that is medical things that people believe that aren’t true at all or misconceptions.

**F ABRAMSON:** Yeah.

**K SWEENEY:** I have heard a million people say that they take some drug that is 5 milligrams and take another drug of 500 milligrams and it is like there is some sort of way of comparing them even though they are entirely different drugs because people have no concept that 2 milligrams of one drug and 500 milligrams of another drug means nothing because 500 milligrams of one drug may be a high dose or it may be a low dose.

**F ABRAMSON:** Just ask all of the poor people that overdosed on fentanyl, which is like a thousand times more potent than the ordinary.

**K SWEENEY:** More potent. Yeah. Exactly.

**F ABRAMSON:** It is a microgram versus milligram kind of dosage equivalence. Of course, when you buy drugs in the street you have no idea what you’re getting.

**K SWEENEY:** you have no idea what you’re getting. Yeah.

**F ABRAMSON:** Let me ask you something Kevin, how do you approach what I would call, unsolicited but well-meaning medical advice? I am no physician but I do know a lot of medicine and I understand a lot of things and recognize a lot of things. People tell me about everything that they’re taking.

**K SWEENEY:** Oh yeah.

**F ABRAMSON:**  But, I was never offered anything without being asked. That’s because I know my limitations as a physician and all your experience, how hard is it for you to not say something when it is sort of obvious.

**K SWEENEY:** You know, I will rarely offer unsolicited advice. If someone will talk to me its usually because they either know me or are comfortable enough asking me a question. They almost always preface it by saying, “You must hate this. You must hate this when everybody asks you these questions.” I was to dinner with a friend not too long ago who I have known since college. Very, very thin, very petite woman. I just couldn’t stop looking at her neck thinking, *is her thyroid enlarged?*

(LAUGHTER)

**K SWEENEY:** There is sort of that quandary because even though it is someone I know well, I also know she has the greatest fear in the world of doctors. You know to even suggest that it would send her into a panic. So, I said nothing hoping that if there is a problem it would be taken care of. Now if I saw something outrageously horrible like you know a melanoma or something I would certainly suggest they check that immediately. Sometimes you just see something and I wonder, what is that? What is going on with them?

(LAUGHTER)

**A POLAND:** Surrounded by issues of disease and death, few medical professionals can’t help but become hypochondriacs.

(LAUGHS)

**A POLAND:** And hey how about Dr. Sweeney and Abramson.

**F ABRAMSON:** I don’t run to the doctor very often. I kind of renegade in that way but no I am not a hypochondriac. I see things in people but I’m not a hypochondriac.

**K SWEENEY:** I am guessing you’ve been in good health all your life Fred and so have I. I think that plays a part. If I had, had a million things wrong with me I might be hypochondriacal but part of it is, since I have been away from medicine my attitude is different. I mean, when I was working all the time even though I was well, everybody I saw somehow had a problem that was either surgical or someone else thought it was a surgical problem. So, it is kind of my attitude towards everybody is that it is not a question of what, it is a question of when. When is it going to happen? Well somebody has to take care of all the other people, so I better stay healthy. Then, since I have been living here and retired, of course been that nice little age period where you’re generally healthy. If the man survives their 50s without a heart attack, then you will probably live to a nice old age. That’s kind of been true. Our friends and neighbors from here in the desert have been in good health and some of the older neighbors have died but they were in their high 80s and early 90s, so it is not unexpected. So, I guess it’s a combination of being overwhelmed by disease and illness and since I did not experience it a lot of it myself, it is easy to stay sort of mentally removed. One of the things I learned early on in medical school from the professor is that the sickest kidney is still smarter than the smartest doctor.

(LAUGHTER)

 **F ABRAMSON:** Yes, I laughed at that because I have never head it before but it is absolutely right.

**K SWEENEY:** Yeah,those things stick with you.

**A POLAND:** Dr. Kevin Sweeney and Dr. Fred Abramson, two voices of OLLI and here are others on the journey of their learning and their teaching experience.

(SOUNDBITE OF MUSIC)

**OLLI MEMBER 1:** The instructor core there is one word, passion. They are all full of passion.

**OLLI MEMBER 2:** Because they are not doing it to make big bucks, they are doing it because they love it.

**OLLI MEMBER 3:** I taught briefly undergraduates, hated it. Taught graduate students I liked it. I taught post-graduate and post-doctoral students and liked that better. And this is the best experience I’ve ever had, precisely because of the students.

**OLLI MEMBER 4:** I enjoy, more than I ever have learning.

**OLLI MEMBER 5:** It certainly does helps up your game when people listen to you closely to what you say and a very fixed amount of time to present your ideas. It means to be educational and means to have some style and be able to tell your story in an effective way.

**OLLI MEMBER 6:** They are just about making this a wonderful experience for each and every student.

**OLLI MEMBER 7:** it is not intimidating it is exhilarating.

**OLLI MEMBER 8:** It doesn’t get any better than that.

 (SOUNDBITE OF MUSIC ENDS)

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**A POLAND:** This has been in conversation the voices of OLLI. Our thanks to Cal State San Bernardino in Palm Desert. Along with the communications study professor, Lacey Kendall and her media students. This podcast was produced for OLLI by Lou Gorfain and I am Dr. Arlette Poland.

(SOUNDBITE OF MUSIC ENDS)