

UNLV Podcast: Ep 11 - Healthcare / Interview

Ben Demalbot: It's hard to believe we only have a few episodes left until this first season is over. With all the topics we've covered so far, it would only be fitting if we dive into health care. From [Uno Vee 00:00:12], I'm Ben [Demalbot 00:00:13].

[00:00:30] How would you feel to live 110 years old? In our first segment, Jennifer [Soulaz 00:00:32] and Melika Powell sit down with associate professor Doctor Jefferson Kinney, to discuss everything from Alzheimer's to neuro trauma.

Melika Powell: Great, we just want to say thank you so much for taking some time out of your day to meet with us, we really appreciate it.

Dr Jefferson: Sure, happy to do it.

Melika Powell: Thank you.

Jennifer Solice: We sat down with Doctor Jefferson Kinney, the associate professor and chair of the neuroscience area in the department of psychology at UNLV.

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Dr Jefferson: The primary research in my lab is actually working on Alzheimer's disease.

Melika Powell: In 2005, presidential candidate Hilary Clinton pledged to spend 2 billion annually to fight Alzheimer's disease and research a cure, and it's not hard to see why. According to the Alzheimer's association, more than 5 million Americans are living with the disease today. With someone developing it every 66 seconds.

What is the average age that they diagnose patients with Alzheimer's?

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Dr Jefferson: There's actually two different kinds of Alzheimer's. There's a genetic heritable version called familial Alzheimer's, and the average age there is late thirties, early forties but that's a very small percent of the Alzheimer's patients. Most patients, once you start getting to age 65, the number of diagnoses just keep on increasing each year. Depending on whose data you actually buy, somewhere between probably 5% to 8% of 65 years or older individuals have Alzheimer's disease, but by the time you get to 85 years old, you're talking about 30% to 40% of the population.

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Melika Powell: There's still a lot of discussion and disagreement about what pathologies drive Alzheimer's, right?

Dr Jefferson: There is. There are two core pathologies that have been known for quite some time. The first are what are called the plaques. These are clusters of proteins in between cells. Alois Alzheimer, the guy who originally characterized the disorder, identified these over 100 years ago. The tangles, or the second core pathology, what is probably fair to say is exactly what each of those is doing to contribute to what you see in an Alzheimer's patient. That's still a fairly sizeable question, but the last four or five years it's gotten a lot clearer. There's a lot better data and it's a lot cleaner.

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Both of them are driving aspects of it, and now the neuroinflammation is actually accelerating both of those pathologies. Put that together and you have a pretty combined series of events that's devastating to a brain.

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Melika Powell: What is the main focus of the work in your lab?

Dr Jefferson: We work on a couple different pre-clinical systems, which is just really a fancy way of saying trying to study the cellular and molecular mechanisms that are responsible for what you see in Alzheimer's disease. In a very general sense Alzheimer's is characterized by a couple core pathologies, and one of them that's really grown, at least the insight into has grown a lot in the last few years, is that there's what's called inflammation in the brain. There's an inflammatory response that looks like it facilitates pretty much everything that you see in Alzheimer's disease.

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What we're trying to figure out is ways that that immune response can be altered or manipulated for a therapeutic possibility, and then the other half of it is just trying to understand what the inflammatory response is doing that contributes to what you see in Alzheimer's patients.

Melika Powell: Are there ways you can see this inflammation as a way of diagnosis? Can you see it in an MRI?

Dr Jefferson: Not an MRI. There are PET scans that can be done that you'd look for the resident inflammation in the brain, is a cell called a microglia, and there are markers that lets you see them for a general activated state, and in fact some people are trying to use this as a diagnostic way, because diagnosis of Alzheimer's disease still relies massively on how they present clinically rather than a scan or a blood test that allows you to confirm a diagnosis, but there's progress in that.

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Melika Powell: They don't really know until you start exhibiting symptoms?

Dr Jefferson: For the most part, yeah. There are a lot of approaches right now looking for better diagnostic markers, but the only way that you're absolutely certain is a clinical presentation that then is confirmed later.
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Melika Powell: UNLV and the Cleveland Clinic Lou Ruvo Center for Brain Health were awarded an 11 million dollar federal grant to advance the understanding of Alzheimer's and Parkinson's disease last year.

Dr Jefferson: We put together a pretty sizeable, it's like a 600 page proposal, to establish this center of excellence. The center itself is called The Center for Neurodegeneration and Translational Neuroscience, which is a very diffuse way of saying we do research that studies from cell molecular all the way up to clinical populations, with the primary targets being Alzheimer's disease and Parkinson's disease.
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Over a couple years we worked on this grant, and fortunately a little over a year ago it was awarded.

Melika Powell: You want to shorten the length between research and clinical treatment?

Dr Jefferson: That's a good question. It's not just shorten the length between the basic research and the clinical research, it's that for quite some time, people like me that do basic cell molecular work would focus on just the cell molecular and not have a lot of interactions with a lot of our clinical colleagues, and vice versa.
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That hasn't been as productive as everyone would like, so a more efficient way is to take what clinician researchers are seeing in patients and tie that directly to what we're seeing in our pre-clinical systems should shorten the distance between finding things that overlap well and seem like good candidates versus things that may be an interesting scientific endeavor, but aren't necessarily rendering what's really going on in patients.

[00:06:00] The Cleveland clinic facility, the Lou Ruvo Center, it's world renowned, so the drive to collaborate with them, it's not a hard sell. It's more along the lines of, we should find as many ways as we can to work with these people because they are leading the charge in terms of the clinical work on Alzheimer's disease, Parkinson's, some work on Multiple Sclerosis or MS, and then they also have some projects for the traumatic head injury studies, so the football player studies that's out in the popular media.

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Jennifer Solice: With all these brain injuries going on in football, are any of them tied to later in life getting Parkinson's or Alzheimer's?

Dr Jefferson:

Yeah, so that's actually what's just starting to come out in, that's what there's a lot of this attention on ... The official term for this Chronic Traumatic Encephalopathy, so it's basically it's called CTE. What's basically come out of this literature is that repeated head trauma is associated with a greater likelihood of neurodegenerative disease, that can be [metoric 00:06:55] it can be Alzheimer's-like, it can be nonspecified dementia. What a lot of this literature is trying to figure out is whether or not repeated small traumas are more deleterious than two or three massive concussions.

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It looks like both actually contribute and are a problem. I know this is now expanding to a lot of other fields. There's a study at Cleveland Clinic going on right now with professional fighters, so the MMA fighters, to see whether or not repeated head trauma there leads to neurodegenerative disorders. It seems pretty clear at this point that it does. It's just a question of how much of it, what's too much if there is too much. That will be spelled out in the next 10 years.

Jennifer Solice:

These are basically, what you're saying is, they're routine tackles that ... A player wouldn't have to leave the field for getting this kind of routine tackle?

Dr Jefferson:

Yeah, I think that's one of the big questions. If someone suffers a massive hit to the head, whether it be in football or they fall off their bike and actually have a substantial concussion. It's a bruise to the brain, you're going to end up altering normal function. The bigger question is, does two or three massive concussive injuries that gets you taken off the field, is that worse than 50 or 100 small impacts in the course of an hour long game, or a week's long practice, is that doing similar damage?

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There's a lot of, without getting too far into some of the details, how much your brain torsions around within your skull ends up putting strain on a lot of neurons in your brain, so a concussive injury really is just blunt force to neurons, simplified. There's a lot of ways that you can do that same force that doesn't necessarily result in a full concussive episode, and we're going to find out, and it's the-

Jennifer Solice:

[crosstalk 00:08:44] yeah, it's very interesting research. I just watched a video on it, on CTE, so it's interesting to see how it comes.

Dr Jefferson: There are a couple really good groups that have now dedicated their entire programs to this, so the Harvard group is the one that started this, so Cleveland clinic here, and a few other who are taking professional fighters, professional football players, professional boxers, that have either retired from the sport or now they're getting to the point of doing imaging, so scanning them while they're actively involved in it to try and see the progression, and a lot of that will answer what is the risk. What is the things problematic?

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[00:09:30] I don't think there's any doubt anymore, given the studies in the last couple years, that repeated head trauma leads to an increased risk of neurodegenerative disorders. Now it really becomes a question of how do you better protect it, or more importantly, what's the feature of the trauma that actually leads to a progressive dementia later in life. There's a number of these former football players and boxers who, their neurodegenerative disorders are extreme, but so far you can't say it's tied to these traumas that could have happened otherwise, and that's what needs to be figured out.

Melika Powell: Seems pretty agreed that that's the cause. Then we get movies like Concussion, with Will Smith out of it.

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Dr Jefferson: Yeah, so it's where the science meets the practice. To somebody like me, the notion that repeated head trauma doesn't lead to problems later in life, that's not really much of a question to me. The real question is, what type of trauma, how frequently does it have to be, how severe does it have to be, that results in a pathology. One of the other things that, and I don't know how much this really frames in this discussion, but there are people who live to be 110 years old or 105 years old, and the official term is a successful ager, who don't show any Alzheimer's pathology.

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There are people likely that have had repeated head traumas that will not develop any of these pathologies either. Either because they are better protected, or something that we have no idea about, but on average, if you repeatedly bash your brain into your skull, there's going to be consequences. I don't think that's the question anymore, I think it's how many times, how frequently, and what intensity actually leads to that.

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Melika Powell: Do you feel that there's enough focus on brain health in our current health care system?

Dr Jefferson: That's a good question. Is there enough? Probably not. I think that within the last 10 years there's been a massive increase in that, and that ranges from everything like the professional, the NFL studies of repeated head trauma. Is there enough, probably not, but is it progressing well, absolutely. It's just a question of how long it takes enough of this information to filter out and actually lead to practices that a lot of people employ.

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Melika Powell: Is it progressing as quickly in Nevada or Las Vegas?

Dr Jefferson: I don't know. We've probably progressed as fast as anywhere else, but I don't know if that's because we were further behind than a lot of other places, or if it's just on a general national level, it's just increasing. A lot of it dictated by how much we actually understand about the brain. Every few years something comes along that revolutionized how we understand how the brain works, and how it responds to damage or trauma, and the understanding of these diseases, so it ends up causing a complete shift in the way you go about brain safety, brain health, whether or not you put helmets on kids, whether or not you take certain things in your diet to promote better brain health.

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A lot of it is data that isn't all in yet.

Jennifer Solice: The department of psychology and it's work in mental health care is an important part of UNLV structure, and with researchers like Jefferson Kinney, our faculty members conduct cutting edge research in mental health care. This was Jennifer Solice-

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Melika Powell: -and Melika Powell. Thank you so much for listening.

Ben Demalbot: We've interviewed a lot of seasoned professionals in this first season. This time, we decided to find someone a little earlier in their career. In our last segment, guest interviewed Katie Griffin has a quick chat with an honor's college sophomore to discuss what it's like at UNLV. How does it feel to be pre-med and what his hopes are in the future.

[00:13:00]

Katie Griffin: All right, so I'm here today with one of our amazing honor's college students. Can you go ahead and introduce yourself?

Fadi Azar: Hi, I'm [Fadi Azar 00:13:10]. I'm a sophomore here at UNLV, biology major, pre-med.

Katie Griffin: Awesome, so what brought you to UNLV?

Fadi Azar: I was born and raised in Las Vegas, so UNLV was always my hometown school, always something I was thinking about. Then about my junior year of high school, started touring around campuses, and I came to UNLV and it was just, it was a fun time. The environment, the community, just everything that was going on. It felt like I wanted to be a part of it.

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Katie Griffin: Was there something in particular that really brought you here that made it feel like home the first time you came on campus?

Fadi Azar: Just a sense of community that kind of overtook the sense of competitiveness when you get to college, because a lot of colleges really hone in on competitiveness and trying to be everyone better than the rest. When you come here, it's all a very collaborative environment between the professors, and advisors, and students, and it was a different feel than most of the places that I've been to, so it was a fun time.

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Katie Griffin: That's great to hear. You said that you're a pre-med student? What made you think about going into that field?

Fadi Azar: Medicine's always run pretty deep just in my mind. My mom was a dentist, my uncle's a dentist, and just medicine's always been that goal for me since I was young. It just made sense. I can't really pinpoint a part of my life where I was like, I want to be a doctor at this point, but it was just something that was within me, and I just thought someday I see myself being a doctor.

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Katie Griffin: Awesome. You're also a student in our honor's college. What's that like?

Fadi Azar: It is absolutely incredible. The sense of just, I'm saying community a lot, but just community and just partnership and every advisor trying to help you out and every student who's older than you trying to help you out. You walk in there and it's just a different vibe with great people who are all very ambitious, and it's very hard not to be successful when you're surrounded by a lot of people who's one goal is to be as successful as possible.

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Katie Griffin: That's awesome. Is there a particular activity through the honor's college or through UNLV at all that you're really excited to be a part of?

Fadi Azar: [00:15:30] Next semester at the honor's college I'm trying to run the tough mudder, and that's a obstacle course that the honor's college runs together as a team called the honor's rebellion, and it's a military style obstacle course over 10 miles, and it's just a very teamwork-heavy activity and it's very physically demanding, but everyone does it whether you're not athletic at all or a school athlete. Everyone has the opportunity to do and it's just, it's a very fun collaborative environment and I'm excited to do that.

Katie Griffin: [00:16:00] That's awesome. We love hearing about the honor's college and tough mudder. It's a huge challenge for a lot of students and as a sophomore, so far you have two years of college under your belt, right?

Fadi Azar: Mm-hmm (affirmative)

Katie Griffin: What's been your biggest challenge so far?

Fadi Azar: [00:16:30] My biggest challenge? It'd probably have to be, just the adjustment, because when you're jumping from high school to college it's an adjustment. Just with the professors, with the lifestyle, with just everything. Having classes at different times with different people, different professors, and just jumping from that place where you were to where you are not. The honor's college really kind of helped me with that, just with the community and with also professors inside and outside the honor's college.

[00:17:00] Just because they foster the environment of you need something, I'm here. If a student needs something ... Being a Vegas native, it's a little weird to think about, but it really does help, because a lot of people like to think of being a Vegas native being a down side of going to UNLV, but it's really not, because when you live here and you know the people and you know the community, being around the same people sometimes and just knowing where you are and knowing the people around you and knowing, "If I know this person, I can have a connection to this person, and this person, and this person." I've met so many incredible people who I'd never though I did just through coming here and just knowing people here.

Katie Griffin: That's awesome, and I really like how you talk about the sense of community. I think that's something that the new UNLV school of medicine really wants to be a part of the Las Vegas community as well.

[00:17:30] I'm curious if knowing about the new school of medicine was any factor in your decision coming to UNLV?

Fadi Azar: When I was applying it was still very much, not a rumor, but just still in the planning stages, so we knew it was coming, I just didn't know when, so it was definitely in the back of my mind, thinking about there might be a home town medical school. Somewhere I can go instead of going somewhere else, so it was definitely there. Then as it got closer to my admission, and then when I got admitted and came here, the more real it got, the more exciting it got, because here a lot of times the [claiming 00:18:06] dean comes over, or people come over and do orientations, and listening to their plan for it all is extremely exciting because they're trying to do amazing things and a lot of people don't really know about it yet.

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Katie Griffin: Yeah definitely, and we're really excited to be a part of it here at UNLV.
[00:18:30] What are you doing to prepare yourself for medical school one day?

Fadi Azar: Study, study, study, but just beyond that, it's just extra-curriculars are really important because whether it be UNLV school of medicine or another one, particular UNLV's, that sense of community, again, it's very big on being in the community, so knowing the community, knowing what makes it tick, knowing who needs things and who doesn't, just knowing what Las Vegas needs as a whole is helping me prepare for the medical school. Because whenever you're sitting down and listening to a presentation about it, it really is community-based.

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Everything that they're doing is for the needs of the community, because it's no secret that Las Vegas has a shortage of physicians, and them just coming here and really founding the medical school based off of our need for more doctors and curriculum based off of community involvement instead of having rotations with them, a hospital having it within community clinics and just learning about what the community needs and how we play a role in it really is really cool to see.

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Katie Griffin: That's awesome. You could be a PR person for the school of medicine.

Fadi Azar: If they want me to.

Katie Griffin: What about after med school?

Fadi Azar: After med school?

Katie Griffin: What are you thinking? What's your long term plan maybe 10 years after you graduate? Where do you see yourself?

Fadi Azar: [00:20:00] 10 years after I ... Every doctor I talk to always tells me whatever you think you're going to be doing now, scrap that because it's going to change once you get to med school, but generally I want to be a pretty successful physician. I hope it's in Vegas because Vegas really does need a lot of physicians, and just the environment's a fun place to be.

[00:20:30] Beyond that, it's really up in the air. I know I want to be helping people, I know I want to be involved with the community that I'm in, but 10 years is a very long time. Just hopefully doing something good.

Katie Griffin: Definitely. I think you'll be doing something good no matter where you go.

Fadi Azar: I'm glad.

Katie Griffin: You have a bright future ahead of you. What are you most looking forward to when it comes to thinking down the road?

Fadi Azar: [00:21:00] Definitely getting started on my career and just taking that next step, because all throughout the 12 years of school before college and the four years of college, then four years of med school, all of that just setting you up for a goal. Just getting to that goal and actually waking up in the morning and saying, "I'm here, everything that I've done is for this and going to work every day", is something that's going to be a really cool thing for me, because it's really hard to work this hard without having a certain goal in mind, and having that goal and just looking towards it for so long, it's going to be extremely cool just to wake up and say, "I'm here."

[00:21:30] Ben Demalbot: Thank you for tuning in to today's episode. If you like what you are hearing, let us know by subscribing on iTunes, Google Play, or wherever you listen to your favorite podcasts. Also, be sure to leave us a rating and review. We want to know what you think. If you want to learn more about our host, please check out UNLV.edu/podcasts. Once again, [00:22:00] thank you for checking out this week's installment of UNLV, Different, Daring, Diverse.