

## Sawbones 362: Gamer Danger

Published March 30<sup>th</sup>, 2021

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**Clint:** Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

**Justin:** Hello everybody, and welcome to *Sawbones*, a marital tour of misguided medicine. I'm your cohost, Justin McElroy.

**Sydnee:** And I'm Sydnee McElroy.

**Justin:** Now Sydnee, I've noticed that you've got your computer, uh, pulled up in front of you today, but I bet you're wondering, "Why did I even do that? Why did I do it?"

**Sydnee:** You know, actually, I walked through this in my head. I need it, because I always have it up in front of me.

**Justin:** Uh huh.

**Sydnee:** And it's just part of—it's part of it.

**Justin:** As a special treat for Sydnee, we're recording this on Friday. Tomorrow, March 27<sup>th</sup>, is Sydnee's birthday.

**Sydnee:** That's right.

**Justin:** So, as a special treat for Sydnee, I told her, "Don't worry about it. I've got the medical history podcast for this week."

**Sydnee:** And I thought about this, you know, my birthday is tomorrow. By the time this is published, my birthday will be over. So, this is like a double present because this will come out on Doctors Day.

**Justin:** Oh, perfect.

**Sydnee:** It'll be released on Doc—so this is like also my present, you know, that you get me every year for Doctors Day?

**Justin:** Yes.

**Sydnee:** You know how you get me a present for that? [laughs]

**Justin:** Your Doctors Day present that, uh, that you get all the time. Yes, you missed giving Sydnee a gift. I'm sure you can still go to Harmony House and make a donation in her name, I'm sure she would appreciate that for her birthday.

**Sydnee:** Actually, yes. If somebody was gonna get me a present, that is exactly what I would want you to do, is donate to Harmony House.

**Justin:** Yes. But that is not why we're here. We're here to entertain, delight and educate you, thanks to Justin's McElroy's *Sawbones*. It's a medical history podcast that I have crafted and I am going to tell you, Sydnee, that means that you, my friend—now, are you looking ahead at the notes?

**Sydnee:** I was pulling up the notes—are these notes really titled "Gamer Danger"?

**Justin:** I thought—[laughs loudly]

**Sydnee:** Is that really what it...?

**Justin:** I didn't think about you seeing that.

**Sydnee:** In all caps. In all caps, no less. "GAMER DANGER."

**Justin:** [through laughter] I just thought it was a good—shut up!

**Sydnee:** Gamer danger.

**Justin:** I did my best!

**Sydnee:** [laughs]

**Justin:** I did my best.

**Sydnee:** I like the all caps. I don't usually title my Google docs in all caps.

**Justin:** This is not the time for critiquing me, it is a time for educating, entertaining and delighting.

**Sydnee:** [laughs]

**Justin:** Please don't read ahead.

**Sydnee:** I'm not reading ahead.

**Justin:** You're gonna freak me out.

**Sydnee:** I just pulled it up so that I—you pull up the notes when I'm, you know, doing this.

**Justin:** Sydnee, I'm a gamer.

**Sydnee:** [laughs]

**Justin:** I'm a gamer. I'm 100% gamer.

**Sydnee:** Are you?

**Justin:** But that comes with certain hazards, and I feel like in the medical community sometimes, those hazards—

**Sydnee:** That comes with hazards like spilling your Mountain Dew all over your gaming console.

**Justin:** Okay, can I tell you something?

**Sydnee:** [laughs]

**Justin:** You're getting into some very cruel stereotypes that are not helpful to this discussion.

**Sydnee:** No, you just like Mountain Dew.

**Justin:** I've been covering video games for—my first writing job ever was when I was 13 years old, writing with Chuck Minsker of the Game View column for the Herald Dispatch. I've been writing about video games for, uh, nearly 30 years at this point. I've been covering them for a very long time. Professionally, I've covered them for the past, I dunno, 15 years? Plus? For a living.

So, I follow this space very carefully, and I've made note whenever there is, like, an overlap between the interests of medicine and the interests of, uh, videogames.

**Sydnee:** Mm hmm.

**Justin:** So, we've done in the past, like, medically-themed video games. We've talked about those on Sawbones.

**Sydnee:** Yes. You did that episode.

**Justin:** I did. And now I'm trying it again. I'm so far outside my comfort zone—I never realized how distracting is when I'm looking at the—I'm never gonna look at the screen again, I'm just gonna keep my eyes locked on you, because I didn't realize how disorienting it is when you're not looking at me. So, listen, I'm outside my comfort zone with medical stuff, so I'm gonna try to talk to you about the way medicine and video games overlap.

**Sydnee:** Okay.

**Justin:** And I'm going to talk to you about it... through the lens of gamer danger.

**Sydnee:** [laughs] Yes.

**Justin:** It's not a joke. And you're gonna feel bad very quickly, so I'm warning you now.

**Sydnee:** I would like to a—

**Justin:** You will be ashamed of your words and deeds.

**Sydnee:** I'm not gonna feel bad about making fun of your all caps title gamer danger, but I would like to apologize for the Mountain Dew joke.

**Justin:** Yeah. Well, it's too late now.

**Sydnee:** I would like to apologize.

**Justin:** It's already—

**Sydnee:** That was unnecessary and cruel and stereotypical. But you do, to be fair, you do really like Mountain Dew.

**Justin:** We—I do really like Mountain Dew. So, okay. I wanna talk about a lot of different ways in which games are dangerous. Video games are dangerous for our youth.

**Sydnee:** Sure.

**Justin:** The number one though, and I think that this has actually become more of a prominent issue in the past few years, and I think will continue to be, um... e-sports is blossoming, it's growing, there are leagues of people who are playing video games against each other professionally in games like Starcraft 2, and Overwatch, and League, and um... you name it. Fornite probably. That's probably an e-sports thing. I don't know if Fornite's an e-sports thing. Maybe.

**Sydnee:** I probably couldn't name it.

**Justin:** Call of Duty of course is a huge e-sports thing.

**Sydnee:** Are they still playing Goldeneye?

**Justin:** Uh, not as much as you would think. But with that has come, uh, an increase in gaming-related injuries. Specifically, in this instance, I'm talking about repetitive stress injuries, or as I call them, RSIs.

**Sydnee:** Mm.

**Justin:** Mm.

**Sydnee:** As *you* call them.

**Justin:** The number one, and the one that is probably the most common and the most cruel is Gamer's Thumb. Now, Gamer's Thumb is more common in, um, obviously console games. This isn't a big problem if you're doing like a keyboard and mouse type game.

**Sydnee:** Sure, that makes sense.

**Justin:** But if you're using the thumbstick, uh, Gamer's Thumb is one nickname given to a condition called... you may have to help me with this bit... Quer-vains...

**Sydnee:** De Quervain's.

**Justin:** De Quervain's tendosynovitis. [mispronounced]

**Sydnee:** De Quervain's tendosynovitis.

**Justin:** Yeah.

**Sydnee:** Yes.

**Justin:** It's a condition where the tendons that move your thumb become inflamed.

**Sydnee:** Mm-hmm.

**Justin:** So you're moving your thumb around and uh, it can be serious, it can be very painful. I'm gonna tell you about this specifically. See Syd,

specifically, Gamer's Thumb affects the tendon sheaves of the extensor  
pall—polli-kiss brevis and abductor—

**Sydnee:** Pollicis.

**Justin:** Pollicis longus muscles. The muscles pull the thumb away from  
the hand and palm, and you get Gamer's Thumb. Your thumb starts to  
hurt because you game too hard.

**Sydnee:** Right.

**Justin:** Now, in the '80s, I think this is hilarious, they called it  
Nintenditis. Which is very good. And we should not have, uh, moved away  
from Nintenditis so quickly, I think.

**Sydnee:** Well, and I feel like I probably had—I mean, maybe not a full-  
blown case of Nintenditis back in the day. But I remember those days.  
Those nights when you would go to bed and go, "Ugh... I Street Fighter-ed  
too hard."

**Justin:** [laughs] Fought the street too much.

**Sydnee:** [laughs]

**Justin:** And this is a serious—this is a serious issue. Not specifically,  
maybe not specifically Gamer's Thumb, but this sort of repetitive stress  
injury has ended careers of e-sports players who, you know, even with  
surgery and taking care of themselves, are still not able to continue to  
compete at the same level. There's one prominent case from earlier this  
year. Thomas 'ZooMaa' Papparatto was a Call of Duty player who ended his  
career at 25 years old.

**Sydnee:** Oh my gosh.

**Justin:** Because the—just the pain he was experiencing. So, there's a big  
push to get people to take this seriously, especially people who are pros  
who are doing this, I mean... for lengths of time that are not necessarily  
advisable for the common human body, right?

**Sydnee:** Well, you know what, it's interesting, because what you're

getting into is kinda the same conversation we have when we talk about, like, extreme sports or like, extreme endurance sorts of activities. Things that we start to understand that the human body is not, like, necessarily built to just do naturally, but we have developed all of these ways to try to like, push the bounds of human performance.

Do you think—I wonder if that will—[laughs] Will that happen in this space? Like, will you see—I mean, cause there's research in this, right, like there's tons of research in like, how do these high-performance endurance athletes do these things that the human body isn't really made to do safely and continuously. I dunno, Tom Brady probably has the secret.

**Justin:** And these break down to—I mean, there are other RSIs that are common amongst gamers. Carpal tunnel is obviously huge, that's something that I personally, as not a pro, sort of a am—an amateur gamer, have struggled with and had to have treated. Trigger finger, tennis elbow, maybe Wii Tennis elbow in this specific case.

**Sydnee:** [laughs]

**Justin:** But uh—

**Sydnee:** I was gonna say, we're gonna have to rename it. [laughs]

**Justin:** Yeah. We'll just stick with Nintenditis.

**Sydnee:** Yeah.

**Justin:** So how do you—what do you do? One, play less. Take breaks. More frequent breaks are what are advised. And stretching those against basically whatever you're doing, right? Taking breaks while you're playing.

Treating it can be rest, it can be NSAIDs, and in some extreme cases, steroids and surgery. So, there is a big push, and you know, kidding aside, there's a big push in these communities to get these young people who are not thinking, like, "I'm going to injure myself playing games," and to get them to take this seriously because a little bit—you know, it's that old ounce of prevention, you know, pound of cure kinda deal.



**Sydnee:** Yeah. Well, and I can imagine that's especially true if it has become your livelihood, and taking a break is probably the best thing you can do if you have one of these injuries, but if your income depends on regularly gaming, how do you take a break?

**Justin:** Yeah.

**Sydnee:** You know, so that puts you in a tough spot. So you're right, if you—

**Justin:** It's a balance. It's a balance a lot of pro athletes, I'm sure, are constantly trying to...

**Sydnee:** Yeah, the same discussion. Yeah, exactly.

**Justin:** Okay, so that is probably the most serious in terms of like, gaming injuries. That is an actual, constant problem. Others are less so.

Let's talk about the Nintendo 64. Now, I know that you had a Nintendo 64 with the, I think, probably second worst controller ever made after the GameCube controller, though that's debatable. I know some people love the GameCube controller. But the Nintendo 64 controller was miserable. And the highlight of this miserable—

**Sydnee:** I'm looking at a picture of it to remind myself.

**Justin:** It looks kind of like a batarang. So, look up that and what you're gonna see, the most prominent feature is an analog stick right dead center.

**Sydnee:** Oh yeah, yeah, yeah.

**Justin:** And in a game called Mario Party, if you ever enjoyed the game Mario Party on Nintendo 64, there were many games that wanted you to spin that stick as fast as you could.

**Sydnee:** Mm...

**Justin:** The design was for you to use your thumb, obviously, to spin it

as fast as you could, but anybody with half a brain would instantly realize that if they were just to put the palm of their hand on top of the stick and use their entire wrist to get that movement they could get, uh, a lot more stars. You're gonna get a lot more stars that way. There's no two ways about it. But—

**Sydnee:** Okay. That's a nice tip.

**Justin:** Well no, it's not.

**Sydnee:** Oh!

**Justin:** Because some—

**Sydnee:** Twist!

**Justin:** Twist! Some players got blisters, burns and lacerations from rotating the analog stick using the palms of their hands instead of their thumb.

**Sydnee:** *Lacerations?*

**Justin:** Well, I mean, burns are probably the wilder part. Like, you definitely need to— you need to go pro if you're like, "I set my hand on— it's on fire! I set myself on fire with my incredible speed!"

**Sydnee:** I don't think they really got—they don't mean burn burns, right? Really? Like, they generated...

**Justin:** Friction burns.

**Sydnee:** A friction injury, yeah.

**Justin:** Yeah.

**Sydnee:** Not... not they actually generated enough heat. [laughs] Can you imagine how fast you'd have to do that?

**Justin:** So, this is—there weren't any lawsuits filed, but there were about 90 complaints received by the New York Attorney General's office.

Nintendo agreed to a settlement. The settlement was—they paid the legal fees of the state, it was like 27—sorry, \$75,000. They—[laughs] they provided gloves for anyone who had hurt their hands while playing the game.

**Sydnee:** Well. Were they cool gloves?

**Justin:** I don't know. I don't know if these were like, collector's items, but—

**Sydnee:** How do you not own these gloves?

**Justin:** There were—

**Sydnee:** These feel like something that Justin McElroy would have sought out.

**Justin:** I don't know—but like, I don't know if they would want to necessarily brand them. Let me check the bay real quick, let me check the bay real quick and see if there's Mario Party gloves. Cause I don't know if you'd necessarily wanna brand these Mario Party gloves like, "Here, there are safe to use." Yeah, I don't see any on eBay, so I'm assuming maybe they were just like... regular gloves. [laughs] Regular safety gloves.

**Sydnee:** Just like glove gloves.

**Justin:** Yeah, not like—

**Sydnee:** Like those arthritis gloves your dad wears.

**Justin:** Yes.

**Sydnee:** Like the fingerless gloves?

**Justin:** Exactly.

**Sydnee:** I bet they were fingerless.

**Justin:** At the time, it could have cost Nintendo up to \$80 million. So, they have backed off of analog stick rotation since Mario Party 2.

**Sydnee:** Wait, what year was this? That they sent these gloves out?

**Justin:** Um... hold on, you asked me too quick.

**Sydnee:** Sorry.

**Justin:** No, it's okay. It would have been, like, late '99, 2000, somewhere around there. Um...

**Sydnee:** I was trying to imagine what color scheme they would have gone with.

**Justin:** I really don't think they were trying to make them special, I think they were just trying to make them, like, just okay.

**Sydnee:** [laughs]

**Justin:** Just enough to—yeah, “Nintendo Issues Game Gloves” is what they were called. So, uh, that was that very serious situation. They backed off of that.

Now, the thumb stick on the Switch, I think they've used those sorts of game—those sorts of mini games again in Mario Party, but the thumb sticks are way better than they used to be and they're a little more comfortable, so I don't think you're gonna get the same sort of—and also, Mario Party 2 is on Virtual Console.

**Sydnee:** That was not a fun controller, I will agree with that.

**Justin:** It was not a good controller. Um, now the Wii, of course, is hugely dangerous. A lot of problems—

**Sydnee:** [laughs] “The Wii is hugely dangerous.”

**Justin:** The Wii is hugely dangerous. She laughs, but—I mean, I mean, not hugely dangerous. I'm of course—I should say, I'm overstating this

for impact. But there are problems with the Wii. The Wii Fit Balance Board, did you ever see that?

**Sydnee:** I remember that.

**Justin:** It's not a very con— you remember that? In the United Kingdom, a 14-year-old girl suffered a fracture in her right foot when she fell off the balance board.

**Sydnee:** Oh no.

**Justin:** I know. See? Now you feel bad for laughing. There's falls while playing, is a Wii-associated injury that was in this—there was the big study in the New England Journal of Medicine, basically a little bit lighter, lighter study. What are you looking at here? Are you looking—

**Sydnee:** A traumatic hemothorax?!

**Justin:** Traumatic hemothorax, Sydnee. Now, you shouldn't be reading along really, I'm the one who's supposed to read—I don't know if you've done a Sawbones before, but—

**Sydnee:** I was just surprised that they suffered a traumatic hemothorax from a Wii injury.

**Justin:** Well yeah, but really that was gonna be my, sort of, to you, you know, I was gonna say that to you and get your reaction. That's how this show is supposed to work.

**Sydnee:** Sorry. Okay, sorry.

**Justin:** You're not supposed to read the stuff off the screen. You'll note that I very rarely do that, as the co-host. So, traumatic hemothorax, I don't know what that is exactly, but you know, it sounds bad.

**Sydnee:** You have the definition here.

**Justin:** Oh.

**Sydnee:** I was gonna let you read it so you could sound...

**Justin:** It's a collection of blood in the space between the chest wall and lung. There are also head injuries from [laughs] being struck accidentally by a gaming partner. Basically, people put these Wiimotes around their wrists, and they just went to town. There were TVs destroyed, a kid—there was a kid that lost vision in one eye because he got hit by a Wiimote.

**Sydnee:** Oh my gosh.

**Justin:** It's not a joke, folks. You start slinging these things round, that's why they've got the wrist straps on there. And you know what? You leave those off at your own peril. That's all I will say.

**Sydnee:** Well, even with them on, I remember there was danger.

**Justin:** Sure.

**Sydnee:** Because like, you can't just let that thing spin around your wrist like it's, you know, tethered closely enough not to harm someone.

**Justin:** There were of course— if you do not remember this, if you were not around during this time period, Wii tennis was a massive—I mean, it was massive. The Wii was massively popular and there were reports of like—

**Sydnee:** Well, cause everybody did it.

**Justin:** Right, yeah, everybody.

**Sydnee:** It wasn't just the traditional what you think of as someone who plays video games. Which I know has always been a false stereotype, but it really expanded—

**Justin:** She says a mere 15 minutes after trudging out the Mountain Dew.

**Sydnee:** I apologized! I apologized for it, I recognize that. No, but it really, like, my parents played Wii tennis. This is a big deal. [laughs]

**Justin:** It's a big deal.

**Sydnee:** My parents playing a video game, that is a huge deal.

**Justin:** Yeah. Wii tennis and Rock Band, that's the only ones we ever got your parents on.

**Sydnee:** Yeah.

**Justin:** Now, of course, there's a danger of DVTs.

**Sydnee:** A DVT just from playing a video game?

**Justin:** I know it sounds shocking Syd, and we're gonna talk about that and so much more.

**Sydnee:** Alright!

**Justin:** Gamer Danger on the horizon. Right after we go to the billing department.

**Sydnee:** Let's go.

[ad break]

[Max Fun ad plays]

**Justin:** Sydnee, what is a DVT, for people that don't know.

**Sydnee:** A Deep Vein Thrombosis. It's a blood clot, it's a collection of, you know, various cells in your blood that have formed a clot, so something that blocks it. You know, I mean, you probably know what a blood clot is. It's a little ball of blood and cells and stuff that blocks the flow of blood through something. So, in this case, a vein.

**Justin:** It is a risk when you're doing a very long gaming session. There is a risk for DVT, because it can happen when you've been immobilized for too long. This is not a theoretical thing. I have two reports here. In

one, there's one from a man who had been playing games with his kids for eight hours.

**Sydnee:** Goodness.

**Justin:** And blood clots in the patient's lower leg causing a DVT, and he had to be treated with emergency blood thinners to remove the clot. Now, I don't know what game that is, but I would love to know what got you to sit—honestly, if I could get my kids to sit down for eight hours, the DVTs might almost be worth it. I'm kind of on the fence.

**Sydnee:** You don't need them to sit for eight hours. If I could get them to sit for eight minutes so that I could like, I don't know, eat a salad or go pee, that would be cool.

**Justin:** A young man also in New Zealand developed life-threatening blood clots in his leg, according to this story on Life Science. After playing four days of PlayStation games. I'm assuming that's not four interrupted days, because we're getting into some hygiene issues there and sleep and bathrooms.

**Sydnee:** Well, I'm seen those gamer chairs that like— and I don't know if they're real.

**Justin:** Have the toilets built into them?

**Sydnee:** Yeah. [laughs] I've seen people share those on Facebook and I always assume it's a joke. They're like, "I need this."

**Justin:** Most gamers do have gamer chairs with potties in them, Syd.

**Sydnee:** No they don't.

**Justin:** That is a correct stereotype.

**Sydnee:** No they don't.

**Justin:** No, most do.

**Sydnee:** No, they have those cool-looking—I've seen the ones they have



on their streams and stuff, they all look cool and space-age. But these are like recliners basically, so you can just sort of like set your controller to your side, recline back, take a nap, sit right back up and go back to gaming. And there's like, little mini-fridge and—I bet these aren't real.

Anyway, moving on. You know, the thing is, anything you do, if you hold still long enough in a seated position, or in a laying down position, you know, if you're laying down or seated, it puts you at risk for a DVT. Now, a lot of people say, "Well why doesn't everybody get them while you sleep?" Well, you move while you sleep. You know. You're moving and stuff. But that's really the risk.

It's the same reason why airplanes, you're at risk for them. Long car trips, you're at risk for them. Anything, after a surgery maybe while you're immobile for a while you're recovering from something, in the hospital if you're sick and you can't move. 'Cause you just don't move. So, that would be my concern is like, you shouldn't be playing a video game so long that you're not moving at all.

**Justin:** Mm hmm.

**Sydnee:** You-know? That you're holding that still. Cause that's a degree of stillness that we usually don't hold for long periods of time.

**Justin:** This happened to a friend of mine. This happened to my friend Kevin Kelly, who was somebody I worked with at Joystiq.

**Sydnee:** That might mean you need to—

**Justin:** I don't think it was after a long gaming session, but—

**Sydnee:** That may mean you need more breaks. And this is true for people who work on computers in general. I think there's a risk here. So, we need more breaks. Get up and walk around some more.

**Justin:** I know what you're thinking. The reality of these gaming injuries is just too much. Maybe it would be nice to be whisked away into a virtual reality. Well no! The danger lurks there too.

**Sydnee:** No! Actually, I totally see this.

**Justin:** So, what's the most common? Obviously, the most common is, uh, you know, you put on a VR helmet and you're ambulating around a space and you're not following the safety guidelines, and maybe you didn't set up your barrier where it's supposed to be, or you left a toy train out in the middle of your office, or whatever, and you walk into things, you punch a wall, you fall directly onto your face. And that is a danger, people have—this has resulted in strains, broken bones and concussions, from people just falling. And running into stuff. [laughs]

**Sydnee:** It doesn't surprise me. It's very disorienting, the few times I've done it. Although I can't engage with virtual reality very much for—I don't know if you're gonna mention one of the other—

**Justin:** Nausea.

**Sydnee:** Yes.

**Justin:** Is a more transient problem, but it's definitely there. There's also, sort of tying in to the RSIs we talked about earlier, there's an issue of neck strain with the burden on the cervical spine, because you're supporting the weight of this helmet. And I've already got some heft up there, you know, on top of the neck, that I'm gonna pile on—

**Sydnee:** Right, with your big head.

**Justin:** With the VR helmet. Thank you dear.

**Sydnee:** [laughs]

**Justin:** So that is a concern. There are also—it's also worth noting that—and this is like, I don't wanna sow seeds of fear, uncertainty and doubt, but there is also some early discussion that maybe as we transition more into people spending more time in VR, that there might be some longer-term dangers that we're not necessarily aware of yet.

One would be, we're not used to processing the sorts of intense stimuli that you get from this, and that may not be good for your, like, nervous system, your circulatory system. Like, the fear, the anxiety, being directly pumped in. The effect of that sort of fight or flight mode and putting yourself in that constantly could be damaging over the long term.

**Sydnee:** I can see that. I mean, to start to think of corollaries to that, yes, there definitely is a concern there. It's inter—it would be interesting to see how that plays out in a simulated situation, where on some level, you know you aren't in danger at all times.

**Justin:** Right.

**Sydnee:** If that would protect you. I don't know, because it is very realistic. Although the only one that I could engage with was that one where we were in Disney World, and I was sitting on a bench not moving so that I could just look around. 'Cause as soon as I move, I'm gonna vomit. I'm gonna hurl right away. I can't—I'll never have that problem. It makes me so nauseated so quickly to do any of that.

**Justin:** There's also some anecdotal evidence that forcing your brain to process three-dimensional images in that way and the eye strain that it causes maybe create longer term issues for you. Although, again, none of this is—this is not scientifically proven right now, because a lot of this technology is early, and we don't have people who have spent the kind of time in VR. But it's something to be aware of.

I mean, I think with a lot of this stuff right? Balance. It's just about balance and finding a balance between uh... getting your game on. Getting your points, as they say. Now, Sydnee, I am not just here to berate video games in danger. I wanted to briefly talk about the good stuff that video games are doing terms of health.

**Sydnee:** Alright.

**Justin:** Um, there—obviously when the Nintendo products, especially the Wiimote became such a big thing, a lot of people saw the opportunity for encouraging people to become more active, but also to use it in some sorts of physical therapy, like the balance board. It has been used to train balance in older people, the balance board has been used, or those with Parkinson's Disease. The Wii remote controller can be used to improve basic laparoscopic skills. I don't know what that means, but...

**Sydnee:** Like camera-assisted surgeries where they do like, a minimally invasive procedure, meaning that they only make a few small incisions, and just insert a camera and some other instruments into tiny incisions,

as opposed to a big open procedure where they have to make a much larger incision. The healing is faster, the recovery is faster from laparoscopic procedures, so a lot of surgeries have been transitioned to that when possible.

**Justin:** There's been, um, there's been a good amount of research into using VR for physical therapy, because where your motions are being tracked, it can help you to make sure that you're performing the physical therapy properly and monitor the kinematics, it says here, of your limb movements. So, that kind of research was done actually using the Kinect, which was Microsoft's failed uh, camera that you could use—

**Sydnee:** I remember that, because it sent all those little spots, those little dots all over your room. Yeah, that makes a lot of sense, because that is a big problem in various kinds of therapy where, if you do the exercises correctly, they can really help, but you have to make sure you're doing them correctly every time or else you might get no benefit or even worse. Maybe you're doing something that would actually make it worse.

**Justin:** Now, I don't know if you know about this, but there was a warning when the Nintendo 3DS was first released, which was a 3D platform, that kids under 6 probably shouldn't play it because it would just, like, demolish their vision. This is what everyone was told.

**Sydnee:** Mm-hmm. I remember this.

**Justin:** Right. There's apparently not a lot of evidence for that. [laughs] They have backed away from that. It is not a—they don't seem to have found any evidence that that in an issue. But actually, in this story from 2011, the American Opt—opto—op-to-metric? Opto-metric?

**Sydnee:** Is that what it is?

**Justin:** The American Optometric Association, the AOA, says that 3D may actually help uncover subtle disorders that can result in learning difficulties for kids. So, if they have trouble processing the 3D images from these things, that might actually be indicating, it can help them detect vision problems that will continue to be a problem for them.

**Sydnee:** That's really cool.

**Justin:** Isn't that cool?

**Sydnee:** That would have been cool when I was younger, because my utter lack of spatial reasoning, maybe someone would have picked up on that and helped me with it, because now I'm an adult who has no spatial reasoning skills.

**Justin:** And vision continues to develop from birth, so the earlier we find this stuff out, the better.

Video games are used a lot in therapy. There is, for example, a game called Sparx, with an X, that is used to just treat depression. It is a game where you, you know, like do specific goals and help you monitor your own emotional state. There is also a lot of use in video games in—and you can find all kinds of cases of this.

**Sydnee:** How have they validated that? Like, have they done studies to compare it to other treatments for depression, do you know? Like, to compare it to like, therapy or a medication or something like that.

**Justin:** Um, I don't... it's... hang on, let me see here. Hold on. They tested Sparx in a, according to this, a large study in New Zealand. The results were published in the British Medical Journal in 2012. They found that it was as effective as standard care for use in 12-19 years old seeking help for depression. It reduced depression, anxiety, feelings of hopelessness, and improved quality of life, and many other effects.

**Sydnee:** That's fascinating.

**Justin:** These changes lasted for at least three months. Also, you see video games that are not specifically designed for this, but being used in play therapy with younger kids—which obviously, that's been going on for a long time, you see toys being used in therapy with younger kids to help to get them to open up, but there's a lot of people who are using video games as a way to get kids to start talking.

Like, interacting with them in these play spaces where they feel a bit more comfortable. You know, like doing their therapy session in like, Fornite or whatever, where not only like—or probably less violent video games than that, but still.

**Sydnee:** Sure.

**Justin:** Using video games as a way to start a discussion going to, uh, using video games as part of dramatic play. They can be useful in development and things like that. Also, this is real—I think this is, uh, this is, these last two are fascinating, although a little bit more ephemeral.

Video games have been used as a form of pain relief. There were studies where people would like, put their hands into cold water or something and then have the distraction of a video games there to help them tolerate that. They've also been using kids who are undergoing chemotherapy, stuff like that, as a form of distraction.

**Sydnee:** That's interesting.

**Justin:** From this one study I found—I love hearing medical people talk about video games.

**Sydnee:** Uh huh.

**Justin:** Because it's the most clinical possible thing. "Those interested in taking part were offered the possibility of playing video games on PlayStation Vita on demand, with a range of different alternatives available depending on the patient's preference and age as follows: age rated puzzles, sports, platforms and strategy games."

**Sydnee:** [laughs]

**Justin:** Yes, those are the genres of video games that there are. [laughs] Platforms.

**Sydnee:** [laughs] What are platforms?

**Justin:** Platforming games like Mario. But no one calls—they're not platforms. [laughs] That's not what they are referred to as.

**Sydnee:** Somebody had to look that up.

**Justin:** Yeah.

**Sydnee:** You know somebody just was researching that, as opposed to just like, asking somebody, "Hey, do you play video games?" [laughs]

**Justin:** Yeah. "Platforms? Is that anything?"

**Sydnee:** "Is this a thing?"

**Justin:** This last one, especially cool. VR headsets have been adapted to help improve eyesight. There's a startup called Give Vision that made a device called the Sight Plus that helps to restore vision in people whose eyesight has deteriorated beyond repair. It projects a video, so you wear the helmet, right? Projects a video of the real world into the working part of the retina.

There was a clinical trial at Moorfields Eye Hospital that suggested improved eyesight in 59 of the 60 participants, with nearly half saying they would wear the device for watching TV, reading, or going to the theatre. The firm is partnering with Sony to develop its next device.

**Sydnee:** Wow. That's kind of amazing.

**Justin:** Isn't that cool?

**Sydnee:** Yeah, that's very cool.

**Justin:** So anyway, video games are terrible and dangerous, except sometimes they're good. And that's the scoop from Sawbones.

**Sydnee:** Was this—was the whole idea here that at the end I should say, "Well, I guess I should let you play video games more."

**Justin:** No, I'm 40. I play video games whenever I darn well please.

**Sydnee:** No.

**Justin:** Which usually just happens to align with when the kids are asleep and you're busy doing other things.

**Sydnee:** [laughs]

**Justin:** Or I've woken up before everyone because of my ongoing struggles with anxiety. But video games are here to stay, and they're dangerous [laughs] unless you use them in moderation, in which case they're probably fine, maybe even helpful.

**Sydnee:** I've been sitting here thinking what the perfect use for this "GAMER DANGER" in all caps is, like where can we use this. I thought you should write a book, no, don't write a book. This looks like a pamphlet that you'd find when you go to, like, the school nurse. You know?

**Justin:** Yeah.

**Sydnee:** Where like, they have all the pamphlets about the stuff that can go wrong for teenagers. And then they have one that's titled "Gamer Danger."

**Justin:** Gamer Danger!

**Sydnee:** And they have like, some kids out on the playground and one's like laying there holding their leg screaming and it's like, "Gamer Danger," and you're like, "What is happening?" [laughs]

**Justin:** As much as I'd love to sit here and listen to my wife continue to rag on me, we do have to end the show here. Thank you so much for listening. Thanks to The Taxpayers for the use of their song "Medicines" as the intro and outro of our program.

**Sydnee:** And thank you to Justin for doing the research for this episode so that I could take a break this week. That was a great birthday present.

**Justin:** You're welcome, Squid. If you wanna get Syd something, head on over to the Harmony House website and you can help people who are experiencing homelessness in Huntington, West Virginia. It is a wonderful organization, and I think they would be happy for any support you could offer. [HarmonyHouseWV.com](http://HarmonyHouseWV.com). And let Sydnee know you donated, I'm sure it would brighten her day.

**Sydnee:** That would. That would. Thank you.



**Justin:** That is gonna do it for us, so until next time, my name is Justin McElroy.

**Sydnee:** I'm Sydnee McElroy.

**Justin:** And as always, don't drill a hole in your head.

[theme music plays]

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