## Introduction to Dr. Jonathan Haas

Hello, everyone. Welcome once again to the Prostate Cancer Summit. I'm your host, Doctor Geo Espinosa, and it is my great pleasure to introduce to you my good friend, radiation oncologist, one of a kind Dr.

Jonathan Haas. John, thanks for coming on, man. It's a pleasure, my friend. Just so that you know everyone, John is, Dr. Haas is chairman of the, radiation oncology at NYU, specifically in Long Island.

Right. Yeah, a Long Island location. Look, his bio is crazy long. This is this guy will be Mount Rushmore in radiation oncology. Once it's all said and done, he's probably almost there now.

He's written so much research around radiation oncology, particularly sbrt, which you will know about a specific type of radiation. And he is one of a kind.

We share a lot of patients, and I tell you that I would send my brothers and I and actually love my brothers. It's just just that, you know, I will send my brothers to Jonathan Haas if they had prostate cancer.

Again. John, thanks for coming on, boys, and thank you so much for having me. John. Look at these. So this people viewing this summit, they're kind of it was full spectrum.

Those who have been diagnosed, those that are just diagnosed, those with high PSA is those those men that are curious about prostate cancer. Maybe they think they'll get it, which, you know, most men will, or many men will if they live long enough.

So they already thinking or what are my options? And I'll tell you that they're natural minded people. Meaning what? Meaning what? That people are into natural medicine is a hot thing right now.

And of course, I think it's a great thing. And or biases aside, at the same time, we don't want to be foolish about what's actually good, you know, for over 20 years.

And, you know, this, I started at Columbia as a natural path doctor, you know, working with Doctor Aaron Katz, who's my mentor. And then I moved on to NYU.

And rather than learning about natural medicine, which I already know about and that's my wheelhouse, highlight what works in American medicine. We know that certain things, some things don't work.

We know many things don't work. We know there's problems in the system and we know this. But rather than be foolish, it's one. Nothing works. I don't know what works.

Pieces that I've seen, particularly those that do sbrt. And I know you'll expand on that, man. They do phenomenally well. So why don't you give us a little overview of radiation therapy for prostate cancer, the different types and what what they do.

Okay. Well, absolutely. My pleasure. That's my wheelhouse. So, you know, when you get diagnosed with cancer, your your blood pressure's going to go up. Your pulse is going to go up.

So when I tell patients with prostate cancer that's really probably 80 or 90% of what I'm doing now take a breath. You know, breathe. You know, not all cancers are the same.

Prostate cancer, the vast majority at the time, is super highly curative.

## Radiation Therapy Basics for Prostate Cancer

And you're going to have multiple options at the time. More often than not, to research those options. You know, so many other cancers, you really have to be treated pretty quickly.

God forbid you have a brain tumor, you have a bad lung cancer or pancreatic cancer. You got to go really, really quickly. Prostate cancer. The vast majority of time, you'll have the luxury of time to do research and to do homework.

So back in the day, you know, you and our contemporaries, we become the, the OG, right? Back in the day, there was, I'm honored that I'm honored. And I feel actually good about that.

So I'm saying like, oh my God, an OG means I'm old. No, actually, I'm in good shape. I feel great that I've had all this experience. And and earlier we get up at the crack of dawn and hit the gym.

I've been up since four and I already got my workout done before 530. Yeah, exactly what most people are still sleeping, which is, yeah, you get it done right.

You know, I, I'm going to take off. I'm going to digress. Right. You know, would you go to a dentist with bad teeth or a barber with bad hair? So take care of yourself.

How can you tell other people how to take care of themselves? So I, you know, and I know doctors that are heavy and overweight, that are fantastic, they're great.

But as a general rule, you practice what you preach. I only got a barber, so I have no hair. By the way, just to be clear, I, you know, just put it out there.

I'm doing a good job. I'm here. So but, you know, but back in the day, there were kind of two flavors of treatment. There was surgery and there was radiation, and that was it.

And when I came into the field in the 90s, you know, there was really only kind of two major types of radiation. There was kind of what was called external beam radiation with these big machines called linear accelerators, where it was like eight, nine weeks of everyday radiation.

Or there was what was called Reiki therapy. Reiki is the Greek word for short distance. We put radioactive seeds into the prostate, and it worked, right.

But it was like, that's what Giuliani did, right? Giuliani the he had he had radiation. Saints in the city. If it's funny, you hit back in 1999 when he had his seeds, I was like the big seed guy on Long Island, and I was doing seed cases the same day that he was having his case in the city, and all of a sudden, my door became like the hottest door.

You would have thought I was doing like a head transplant, like every toe. Oh, that's what Giuliani's having done. Right. So. But you know, but and radiation work.

But they were these big radiation fields, and you didn't have the advantage of computers and imaging. So you just big radiation fields treating bladder, treating rectum, long time courses.

And while it worked, there were side effects. And my fields has effects. So probably several years afterwards, the first kind of major innovation was something called intensity modulated radiation therapy, IMRT, where we started using computers to help us kind of figure out the best ways to deliver the field.

Prior to that was called forward planning, where the radiation oncologist used his eyes. Okay, I want to beam from the front. I want to beam from the side.

I want to beam from the back, you know, but by using computers or intensity modulated radiation with inverse planning, the radiation shakes, instead of saying John Hawkes wants a beam from the front and a beam from the side and a beam from this side, I would say, okay, no, I don't want to do that.

I want to give X dose of radiation to the prostate and keep the rectum and the bladder to wider, so the lower dose and the computers would work backwards to come up with the best beam arrangement.

And we'd have algorithms. Okay, well, maybe it's just the beam from 90 degrees 87 is better, or 103 is better, or 12 is better, or a combination of nine beams as opposed to four beams.

And you can kind of dose paint. You would kind of paint the prostate to a dose and paint the rectum in the bladder to less dose. So that was a major innovation.

And it also enabled us to escalate that though. So just to give me numbers to compare, when I first started, the doses that we used were like 60, 607,000 units of radiation, and those numbers are meaningless.

But then with the advantage of the layperson, with the advantage of inverse planning and tipsy modulator, we went to the high 7000 to the low 8000. We're able to kind of more safely protect with doses the bladder and the rectum.

So let's pause right there for one second just to get some clarity. In general, higher radiation, higher units of radiation, just to keep the language simple, can kill better chance of killing cancer cells, but better chance of also causing damage to healthy tissue.

Is that the concern? You're so. And, So you. What you really want is the lowest effective dose, essentially the lowest. The lowest units that gives you maximum results.

Is that what is that? The ultimate outcome here there's something called a dose response curve where we learn radiation oncology. As you go up in dose, your cure rate goes up up to a point where it starts to plateau.

But as you go up on that dose response curve, there's also normal tissue that you could damage, right? So you have to kind of thread that needle to give the highest dose or the most effective dose to the cancer, which you correctly said, but minimize dose to the normal surrounding it.

Another. So that's exactly right. So you want to get do we know what that number is okay. At this point to say, okay, if you go beyond X that's it. So back in the day it was considered a dose of that 9000 to 9500 units of radiation.

So as a general rule. But you know now what we're finding that we're the areas where the cancer is, you know, you may we want to go even higher. You don't necessarily need to treat the whole prostate to that dose.

But there's something called a dominant intra prosthetic lesion. We call the Dil. You may want to give even a higher dose to that bulky cancer and less dose to the normal prostate.

So so that takes us to like the early 2000. Sbrt, which is kind of my wheelhouse now stands for stereotactic body radiation therapy, where we're able to give very super high doses of radiation to the prostate cancer and much lower doses of radiation at normal anatomy.

## From Conventional Radiation to IMRT

And we're now able to tighten our margins or the area of normal tissue around the prostate itself. And the first SBIR t cases started in about 2003, out of California, Stanford, UCLA and the system, the first system and the one that I've kind of partial to that did that was something called CyberKnife that we can dig into that.

So when people hear this word CyberKnife, I hear it all the time. It's a doctor. Gee, I thought you said that, a CyberKnife. There's no surgery in CyberKnife. Why? Why?

It is like. Well, in just a confused with the word knife in CyberKnife. So can you expand on how it works? But it's a CyberKnife was invented by a colleague and friend of mine named John Adler.

He's a neurosurgeon from Stanford, California, and CyberKnife was initially designed for brain tumors. It was designed to compete with a system called Gamma Night, and I've trained in both of those.

By the way, Gamma Knife is a system where you have several hundred fixed radiation sources that intersect at one point space, and it's used for brain tumors.

The problem with gamma knife, Mike, it's not intelligence. So they had to put screws in the patient's head, lock them to the table, and all those points intersect at one point in time.

I'm alerted in the 90s, let's say, hey, why do we you know, he took a regular linear accelerator, the machine, it gives radiation. And he put it on a robot.

So our regular radiation machines, all of them, other than CyberKnife, are on something called a gantry, which means it moves in a circle like a record player.

And you and I kind of know what a record player is. This one contemporary? Yes, we do, we do. He said, you know, millennials are turning 40 now, John.

And so now we're going to see millennial not they turned 40 by the way. So now we're going to see these prostate issues with millennials who these types of conversations and analogies won't work.

Just to let you know. Although our tables are coming back my friends are turntables now. Oh yeah. The audio file. Well, the audio file guys are into, you know, vinyl and they wear shirts I like.

I prefer vinyl and it's like, But what he did is he took that management, that linear accelerator. I'm going to show a picture of it. So this is the linear accelerator right here.

And he put it on a robotic arm. So instead of having that one degree of motion, you can come up with thousands of different angles and avoid it. And he also gave it intelligence, meaning that it's able to recognize the prostate itself.

So if it's off by even a millimeter, it's going to say, oh, you're off. I'm going to reposition the patient coming at a hundred different angles and avoid normal tissue.

And by doing that, instead of having like a bigger margin. So this is this is a prostate here. Right. Here's the prostate. So instead of having a bigger margin to compensate for the uncertainty of movement, we're now able to go to like millimeter margins, like really like the diameter of a piece of hair right around the prostate.

So we're able to give less radiation to the bladder, which is right here, less radiation to the rectum, which is where my finger is. And we're now able to do the radiation much faster, but we can do it in five days or even less.

We have a protocol for even less treatment, and give a better dose of relief to the cancer. So that was a game changer. Yeah. So we now have gone to five days from 45 days.

We're now tightening our margins from 15 to 20mm down to like, three. And we're able to get the patients out of treatment at five days. So it checks every good box.

And we're giving less dose of radiation to the normal surrounding anatomy. So when we started doing this in 2005 we were really considered pariahs. We were like, oh, this guy's crazy.

They give these crazy doses of radiation. There's no way they can cut the margins because you're going to miss the cancer and you got to just blah, blah, blah.

But we believed in it so strongly. And there's nothing new about this, by the way. So, you know, so getting back to us being OGs, you know, Laurence Olivier, the actor, right?

Yeah. So radiation, he was diagnosed in the 1960s with prostate cancer in the UK. And he was treated with a week of radiation. So the biology of prostate cancer is such that we can talk about that, that it supports, in contrast to most other cancers, it supports giving larger doses of radiation to the cancer over a shorter period of time.

So even back in the 1960s, doctors kind of knew that was a potential option. So we had six days of radiation in London, and he died in his 80s of not prostate cancer.

So we're not kind of reinventing the wheel. We're just doing what we know works biologically and applying with better technology. But even so, Astro and the majority of people in the community in the early 2000, me twice thought we were crazy, but we still believed in it.

We did it through the auspices of it, called it IRB approved protocol. So you know what that is. But dear, for the listeners, all major teaching hospitals have something called an institutional review board.

You can't just do new stuff and say, I'm going to do this because it makes sense that John Espinosa and I irb means you have to ask a question that you think is safe, that has the potential advantage to advance the field, and it's also safe for that individual patient.

Can you go before almost like a tribunal of the senior doc? If you have to justify it with data, you have to justify it with preclinical studies. So we did that, what was then went to the university hospitals, now NYU, Long Island Hospital.

And we put our patients on this study, you know, because we said, hey, listen, this is a new treatment. We think it works, but you have the right to know that this is not yet standard of care.

And we kind of accrued patients pretty quickly. And it worked. We saw that those patients were doing every bit as well, cancer wise, as the older 45 treatment.

So the old radioactive seeds and they were done in a week. And Astro, our governing body, has now come full circle. You know, kind of my opinion have to being dragged kicking and screaming, where it's now standard of care.

Similarly, I had to go back in the day to all the insurance companies because they don't want to pay for it. I said, listen, this is a no brainer, right?

You know, for you, for the insurance companies, imagine that you're like Hershey's chocolate company. You get more money if you sell more Hershey Kisses, right?

## SBRT and CyberKnife Explained

So radiation is the same. You know, if I sell, you know, I hate to oversimplify, but if I get 45 treatment as opposed to five, it's more money. So I'm saving you.

I'm going to only charge you for five treatments as opposed to 45. And the data supports it. So slowly they came for. But I used to have to go to the medical directors, like in late 2020 1012 to there's no reason not to do this.

We had the studies financially, fiscally responsible. It's good for the patients. You know, so, you know, now fast forward to 2024. It's standard of care.

But it took a lot of work to do that. Well, I'm sure you learned quite a bit about, the politics of of medicine, during that, during those. Right. You learned more than what you want.

Even what you wanted to know is. Wait a minute. But this is better. We'll save you money. Yeah, but it doesn't

matter, because, you know, I'm, I don't know, some some lobbyist or something like that, but.

But this. What did you hear that this will save you money. Does that not worry the hot dog. You just want to see how it's made, right? Exactly. I had to see how they made the hot up for the insurance companies.

It's not fun. It's not fun. It's not fun. John, you mentioned that the the technology, the the machine knows where the lesion is. And I'll tell you, hey, you get a little bit more to the right, a little bit more to the left.

Is that I before I or or or and my next question is will I make that even better now is that is there something in the works with with this system that will be even more accurate?

Right. So so it's still the doctor. That's the orbit of what gets treated. You know, it's my decision for my patients. So what we do is we're using multiple images were taken the best.

So with CyberKnife patients that we put these little markers in because it could track all degrees of motion for the prostate. We get a Cat scan and an MRI scan and we fuze it.

We're getting all the best of both images. And I do what's called contract. I draw what I want to treat the prostate I draw within the prostate. When I want to give a higher dose to, I draw what, you know, the bladder and the rest of, you know, we have staff that help me with that.

And then it's the computer. Excuse me, that's determining the best dosage. So the human is still responsible for what gets treated. And it should be that way.

The human is still responsible for kind of doing the volume drawing. But to answer your question, we do now have an AI system at our hospital called Ray station, where it will auto contour it.

It will kind of give a first crack at the prostate. And in normal anatomy, I still always modify it. I still think, respectfully, that I'm better than I at least.

Does it exist in 2024? But it's a useful tool. Where it's really helpful for is our physics or to symmetry set. So radiation is a very physics heavy field where we have an army of physics people, and we call those symmetries that help do the planning.

And they're now able to use these software packages or the AI packages to come up with like thousands of different plans on that same patient. And my chief of physics doctor Matt Witten, has like a Darwinian, algorithm.

Yeah. Where the plants kind of fight with each other and the best plants win, you know, based on. It's kind of pretty neat. This all happens, like, in minutes, but you have the computer, you know, the radiation oncology I want to give, you know, 40 gray to the prostate or 40 rate of the tumor.

And I want to limit this to the rectum should only get half this or two thirds that. And then the computer, the algorithm will generate thousands of plans.

And they'll kind of fight with each other and with bites. Right. Where to be with each other till what's considered the most perfect plan, a rise to the top or the several most perfect plants.

And then I get to look at them and say, okay, yeah, this is the one that I think is stuck for this patient. So it's really kind of neat. Yeah. So we are now using artificial intelligence in our planning, you know, and it's, it's it's.

Yeah. Yet another game changer. Lovely. John, let's pause there and Sbrt we're going to come back to it. What happened to breaking it was the thing to do.

It was it was very popular. And certainly late 90s, early 2000. Is it no longer useful? Because, you know, remember the OGs? The OGs. Right. When we, they only had two, they, patients with prostate cancer only had two options

radiation or surgery.

Right now, there's like almost too many options. And it's a little bit confusing for patients. Breaking then came along. It was like, oh wow. There's other options. Seems cool.

But you know, little acupuncture to the prostate and drop it, drop in some needles in there. Right. And some seeds in there and that, that's that and I don't so many patients come to me as a navigator.

Right. Hey, help me figure this out because you have no, you know, dog in this fight. And I never recommend breaky, but I don't know if I'm doing the right thing or not because it's like, okay, are we beyond that already?

Most people have moved away from what's called low dose rate brachytherapy. Those are the radioactive seeds. Some people are still doing what's called high dose rate brachytherapy, where they're putting temporary catheters in.

It's done in NYU. It's done in several other places. You know, one of the advantages of breakthrough, we know there's some studies to show you can do the brachytherapy two treatments here as opposed to five, so, you know, again, I'm not speaking badly about it at all.

I mean, you know, this is one of the few cancers you can go to. Five different doctors, as you well know, get five different recommendations that they all work.

So that's why I tell patients, you know, do your homework. Don't let anyone force you into one treatment because it's not a one best treatment. There may be one best treatment for you or for me.

So do your homework. So I'm not speaking badly of Reiki. But, so what we're doing now on a study because there's something, not some of this good data to support doing two fraction of Reiki therapy.

You come once a week like, you know, one day, one week, one day, the second week. And that works. So we actually have an IRB approved protocol that's open for doing two fractions.

CyberKnife. Yeah. I think we've treated, you know, close to 20 patients now. They've done fine. But same thing like we did back in 2005 with the IRB study.

We have an open IRB protocol for two fractions. You know they come one day, one week, one day, the second week, and they're done. Wow. Okay. So patient be a patient need to know.

And we tell them that this is on the study. But this is what we did in 2005 with our five fractions CyberKnife study. So we're kind of and to be honest, the five fractions CyberKnife papers research started with five fractions HDR, high dose rate brachytherapy.

So again we're not reinventing the wheel. We're just giving the dose that's already been established to be safe in a more technologically advanced place, less invasive nature.

So Reiki works, but we're doing the same thing that was CyberKnife for two fractions. Is the dosage higher? So, so just for for the audience, five fractions or as two fractions, like it's just five visits versus two visits to get your radiation treatment done.

So it's two visits. Is a dosage higher with two visits that it would be for five. It's a, it's an hour lecture, to be honest with you. So there's we can convert the doses.

## Brachytherapy and Fractionation Options

There's a, there's equations where we convert the doses. So it's, it's essentially it's equivalent. You know when we give a larger dose per fraction, the total dose looks lower.

So when we do the five fractions we give a dose of 36.25 to 40 gray. It's kind of a mini number to the layperson. When we do the two fractions, it's really kind of more like, you know, 25 with the boost to 28 gray, it sounds lower, right.

But we're giving a bigger dose per fraction. So biologically it's equivalent external beam radiation. So when people again, so the layperson just diagnosed with prostate cancer and they don't know anything, but they had a family member who underwent radiation therapy for brain cancer.

And they're saying, man, I don't want radiation. There's no way Lovelady saw them suffering between chemo and radiation. It destroyed my uncle, my father, whoever.

External beam radiation. Who needs that? So Sbrt is focal or is it's focal focus on just the prostate. External beam radiation radiates a whole pelvic area at this moment in time.

Who's the best candidate for external beam radiation? So, CyberKnife. Oh, you're all radiation other than brachytherapy is external radiation for external from the outside going to the prostate.

What you're kind of alluding to is what's called conventional radiation, meaning, you know, the nine weeks of the five weeks. So patients that have higher risk disease, you know, higher Gleason scores, that we can dig into that a little bit.

If you want. Gleason score one. When you have a biopsy, the pathologist looks under the microscope and they give a number to the cancer from 6 to 10 or from grade 1 to 5, you have similar things.

Higher grade prostate cancer or higher Gleason scores have a higher propensity to metastasize to the lymph nodes or have the lymph nodes at risk. So patients that have a higher Gleason score in our practice, like a Gleason eight or a higher PSA over 20, we'll do combination therapy.

What we'll do is we'll use intensity modulated radiation to the prostate in the pelvic lymph nodes to a certain dose, and then do an sbrt focal boost to the prostate to give it to a higher dose.

So the formula that that's used and you know, my colleague doctor back wrote, we were talking about before he came on the air, cockroach back in the 80s.

Did the roach formula, and you and I talked about this where he looks at the Gleason score, he looks at the PSA. And he can figure out statistically what's the risk of you having lymph nodes if you were to go to surgery?

And what's the risk? Kind of goes about 15 to 20%. That's an indication that you should consider treating addressing the lymph nodes with radiation. So, you know, if I have a patient with the Gleason 8 or 9 of a piece with a PSA of 23, their metastatic workup is negative, meaning those spread, those patient to all oftentimes do combination therapy.

And oftentimes they have hormones or recommend adding hormones to the treatment as well. So you know, it's really you know, we really kind of tailor the radiation like an Armani suit.

You know, it's not. So, you know, every patient has a thumb. Everyone's thumbprint is different. Every patient may have prostate cancer or that I see, but their prostate cancer is different.

And even within the prostate. Right. You know, I have a thumb. There's a prostate. You know, my thumb is different than your thumb. My prostate is different than your prostate.

So we really kind of tailor the treatment to that patient's anatomy, that patient's cancer. You know, we're really digging into it now. We're even using advanced, technology called, you know, mix.

Right. So I'm now sending pathology off to look at the RNA, the RNA of the cancer itself. So your Gleason score is

a, you know, a pathologist look under the microscope and he or she says, Gleason seven, Gleason eight.

What we're doing now is we're sending the pathology off to these high level labs, and they're looking at the RNA. And it's not a it's not subjective.

## Personalizing Treatment with Imaging and Genomics

It's object of your decipher score, which is the system I like or archetype score. You decipher score. Even though you may be a Gleason seven. Your decipher score is a point nine.

You're more aggressive genetically than it looks. Conversely, you know, you may have a Gleason seven, but your decipher score is 0.1. You could be watched.

You know, you can do active surveillance or active ballistic surveillance with me, and we can talk, which I love. So we're really, you know, we are really drilling into the cancer, and it's not prostate cancer.

It's Mr. Smith's prostate cancer. You know, we're really digging down to the gene. Love that personalization of medicine. That's where it's going. That's where it's going.

Hey, My concern. So let's. So now that we know about, conventional radiation therapy and as opposed to, other types like Sbrt with Sbrt, I had a patient recently who I sent to you, who I think from what I know, and I'm not great at reading the images or the MRI yet, but, most people say, well, you know, radiation.

Probably not a good idea of too close to the rectum. So you got it. First of all, before we make any decisions, you're going to go to my guy, and he's going to be.

And if he says he can't, you can. If he says you can, believe me, you can. How close can the tumor actually be to the rectum? Before you say, you know, maybe, maybe it's not a good idea because I there's no way I will not hit the rectum.

Well, so so I'll answer so. So the prostate, by definition, is the next door neighbor of the rectum. Right. And it's like the next door neighbor and like, you know, in a very crowded neighborhood, you know, it's not Greenwich, Connecticut, where the prostate is here.

And the rectum is an acre away. It's really kind of down and dirty. It's there so much that the cancer's by the rectum. It's at the process. So you know, so unless you have kind of gross invasion into the rectal wall, like it's growing into the rectum, most patients are still candidates for sbrt.

Because the prostate there. Anyway, what we're doing now, though, is oftentimes we're having a gel inserted, you know, so this there's, you know, several companies that have a hydrogel where you can actually move the, rectum temporarily away from the prostate to create a safe space.

Well, spacer. Yeah. Spacer. There's several companies that, that do it. They all kind of work similarly where and they tend to dissolve after several months.

So, you know, even, you know, the only time we don't use a spacer is if there's cancer on the outside of the capsule of the prostate, because theoretically, when the needle goes in between that space to inflate the space or to put in the gel, theoretically you can push the cancer cells to the wrong side of the gel.

So that's really the only time we oftentimes don't use a spacer. But the majority, I would say probably 90% of our patients now is spacer. Great. Thank you for answering that.

Same thing when it's close to the bladder. Really, really close. There's no spacer for the between the bladder and the prostate. So as far as I know, what do you do there.

So same thing. So so it's a it's not so much that the cancers by the bladder, the prostate by the bladder. Right. Is space the bladder away. But we can use safe doses to keep the bladder even using a spot that we know that this safe dose is that we can get the bladder.

And interestingly, by having the spacer, we actually lower the dose to the bladder. It sounds kind of, you know, counterintuitive, right? We could do that since we now have the space.

We have more, especially with CyberKnife, because we're coming in all these oblique angles. We can actually kind of articulate beams in that space that way where they would otherwise hit the bladder.

We can tangentially avoid that because we now have that, that centimeter or two space. Beautiful. Talking a little bit more about personalization of radiation therapy.

Most people do not do. Well. They're not all men under androgen deprivation therapy, which is really chemical castration. And and most men would want to avoid that at all costs.

Now, if we look at the research as it relates to radiation therapy, it seems to me that the combination works better in most cases than just one type of treatment just radiation alone or ADT alone.

How do you go about differentiating who needs radiation with ADT and who can do it without. So great question. So yeah we'll we'll go back to risk stratification.

So there was radiation oncology several years ahead of me, University of Pennsylvania, where I did my residency and then Anthony D'Amico. He's now in the Harvard system. That's right.

Maybe that maybe I'll get him for my podcast. We were talking about the, we were going to use, like, Olympic level judo guy, by the way. You know, he's.

Yeah, he's, I don't know. Yeah, right. He's a judo master. And he's a he's brilliant. But when he was a resident at ten, believe it or not, he came up with a risk stratification based on Gleason score based on risk, you know, and and correlating to MRI findings.

And he came up with a low risk, intermediate risk of high risk, you know, using again, the combination that we still use that Gleason score PSA, was preaching omics.

So what was found? Patients at higher risk disease, you know, the higher Gleason scores and the higher PSA was, the studies showed that by adding hormones, androgen deprivation therapy to radiation, those patients did better than radiation alone, but really just in the higher risk patients.

So it's still a standard of care if you have a high Gleason score, very high PSA to do combination therapy, as you correctly said, with radiation. And you're also correct that men don't like hormones.

But, you know, we really want to do our best to cure the patient. So it's still standard with Gleason age and with, you know, Gleason four plus three to do your standard multimodal therapy.

## ADT, Clinical Trials, and Patient Support

What we've been doing at NYU, Long Island and also in NYU Manhattan is we're looking at less kind of toxic or aggressive hormones in general. So we had a protocol that we just finished called the Intrepid Protocol, where men were randomized to either loop, right, which is the standard hormone, or a newer drug called Darragh glutamate, which has less sexual side effects.

Right. So we recently just closed that study, and those patients, you know, and I've had patients on that study for the better part of five years. The patients on the Dara luteum might seem, cancer wise, to be doing pretty much, you know, not pretty much as good as the patients who had a Lupron were still waiting for the final data analysis,

with much less sexual side effects.

We have an open protocol now, where we're looking at patients with the Gleason four plus three or the Gleason grade threes that have sbrt, CyberKnife with us at different in other places, where we're randomizing those patients either four months versus no else, because we do think that we're over treating a certain subset of patients with high intermediate risk disease, the Gleason score four plus three, by adding the whole reason we think that is that all the hormonal data was based on the conventionally fractionated radiation, which were lower doses.

So we think that by using better, more precise doses to the cancer, we can obviate or reduce the need of of men needing hormones. But to be fair, we have to prove it.

So we're doing that. An IRB study. That study just opened up, you know, early this summer we were enrolling patients on it are using genetic testing to try to differentiate between the two.

That's just so smart. So all those patients get a decipher score. So we're kind of digging into, into the genomics of their case. So this gratified by, you know, high risk, low risk genomics.

Absolutely. Awesome. Doctor Jonathan, hostesses, early Saturday morning, we got more work to do today. So I'm going to that's that's that's plenty. That's plenty of information for for us, on this summit, how can people find your work and how can people find you?

Thanks for asking. So, you know, if you can look at the NYU Langone website, you'll find me and my partners. We all do. Prostate. You can dial our phone number.

You know, in Manhattan, it's two 1 to 4 965560. In Long Island, it's (516) 663-2501. Myself, Doctor Carpenter, my partner, Doctor Ashok. Yeah. We'd all be happy to meet with our patients.

And we don't. And the other thing we do also, you know, we have you'll appreciate that. We have a patient mentoring program. We have patients that have kind of gone through this with us that have wanted to kind of pay it forward.

So we keep a list about 50 or 60 guys that, you know, we can find patients around their age and their demographics that either finished a short time ago or a long time ago.

And pair them with someone like a mentor, a patient that's gone through this because they know the whole. I love that that's actually, needed as much because, you know, men suffer from isolation and things like that.

And I think that's a, that, that's, that's a problem. And so having this mentorship where they say, look, it's not that bad, you know, some sort of optimism and, and great and, you know, reasonable hope.

It's a good thing. Great. Thank you so much. Thank you, everyone, for watching. This is, my conversation with Doctor Johnson has the best. And the best in the game.

He's the best in the game in the field of radiation oncology. I'm hoping you I actually, I trust you're enjoying the series. You're enjoying all the interviews here.

We only getting the best of the best here for the prostate cancer Summit. So thanks for watching and I'll see you at the next interview episode. Thank you so much. Have a great day.