Using Analytics and Video to Enhance Performance with Dave Ramos

00:00 J: Welcome to the compete like a champion podcast. You're here with Dr. Larry Lauer, mental skills specialist, and coach Johnny Parkes with USTA player development. Today we have a very special guest in the studio, Dave Ramos, senior manager of coaching education and performance analytics. Dave, welcome to the show.

00:23 D: Hey Johnny. Larry, so glad to be here. Mick's talked to me a ton of times about getting in here and talking about what I do, so I'm super excited to be here and looking forward to talking to you guys.

00:33 L: That's awesome. That's the most excitement we've ever had for someone to come on here by the way. That's nice.

00:37 J: And on a Friday.

00:38 L: And on a Friday. Yeah, well he's more excited about happy hour probably.

00:42 M: It took like 10 minutes just to get started.

00:46 L: Mick's on today. Good luck.

00:47 J: Awesome, well Dave, before we get going here we're going to dive into performance analytics and a little bit of coach education. Basically what your title is.

00:56 D: Sure.

00:56 J: But before we start, it'd be great to give the listeners a, an insight into your background and how you got to where you are now.

01:02 D: Fantastic. All right. And it's been a long and varied pathway. So you know, most, I would say most of the folks that are in PD started playing tennis when they're three or four years old, right? Went through this elite junior pathway and so forth. I was completely the opposite. Played all of the sports, all the team sports growing up. And I played [inaudible] football from 7-12 had my first knee injury at 12 years old, tried to get back into football at 16, had my second knee injury at 16, played basketball growing up pretty much the entire time. My dad was a basketball player and uh, I have the NTE Michael Jordan story, I call it now. Michael Jordan got caught right in 10th grade or something like that. He decided he's going to be the greatest basketball player ever. I got cut in 10th grade and decided I was gonna take up tennis.

01:42 L: I thought you were going to say that you, you made the team and then you just stopped giving effort.
D: No, I did not. I did not make the team. I moved from, you know, the North shore of long Island and to [inaudible] high school. Had the biggest school district in all of the United States graduating class, 1600 people. And so I was a little taller than six foot and at the time I played power forward in my other schools growing, you know, growing up and trying to play there and I, they were like, okay, you need to try out for point guard. And so I did not have that skill at that time. Continued to play basketball, was able to beat the starting point guard as a senior and had the basketball coach pull me into the office as a senior and said, you know what, we made a mistake on you three years ago. And I was like, whatever dude, like I'm playing tennis now and, and I really enjoyed it. I started playing tennis, playing number one doubles on my high school team. I could serve, I could volley sometimes. I had zero ground strokes, really bad returner. That game sticks with me to this day.

L: Oh, give yourself some credit Dave.

D: So from uh, from there really I, I, you know, I played some basketball, organized basketball in the air force. I didn't go directly into college and played junior college tennis in Long Island after the air force. And that's when I sort of figured out like this tennis thing is really for me, left New York city illustration school, FIT in New York city to go to Ferris state university because of an article in the back of tennis magazine. It essentially said, Oh, you want a degree, you want to be, you know, a tennis professional, here's a marketing degree or a four year degree associated with it. And that was really the start of getting into coaching education. And in some way, shape or form, the PTM program was there. I did manage to play on a division two nationally ranked team when I was 25 and again, when I was 27, I went back there at 28 as the assistant coach for my, uh, one of my mentors, Eddie Luck and came back fulltime at 31 in 2001 to be the coach, uh, at Ferris state university, the women's tennis team and an instructor for the professional tennis management program and a Nike camp director and that, that's really where the coaching education background started. Winded up, uh, doing virtually anything or everything I could at Ferris state university. Coached five All-Americans, won the national title for division two in small college championships and did some pretty interesting things there. And I, I felt like we maxed out, uh, went on to get a master's and started at the USTA to finish my masters professional work experience. And I think there was, you know, I went through the high performance coaching program as a tennis coach at Ferris state and that's where I got introduced to PD and the fact that they had this, this program and that's when I uh, came back and did the professional work experience to complete my masters and they winded up hiring me about four years after that. So long and varied experience. Yeah, high school really didn't play any elite tennis junior college experience, going to school for illustration, getting up to PTM, and getting a master's and finally working for the USTA.

J: So most people would assume that those that work in the performance environment came from a performance environment and as you just mentioned in your background story, that was a different path that you took. So what
D: Well, I think that when you start playing at an elite level really early on and maybe you have tons of private lessons, that's sort of the information is given to you and you know, you don't have to go out and search for it yourself. And maybe by the time you're 15, 16, 17 you're burned out. Because I didn't really start playing until I was 16 and virtually learned how to teach myself how to play tennis, I felt like I had a much better bridge with athletes that I was coaching that struggled, you know, cause I knew what it felt like to not know what grip, you know, I had to hit my backhand with. It wasn't like those, I had learned those skills 16, 17 within two or three years of being able to teach, you know, and I think a lot of people that are elite athletes that started playing so early can't remember what it's like to struggle to hit a forehand or backhand. And so I felt like that made me a better coach. And I also felt like because I started with tennis so late at that it's still now at my age, I still have a passion for the game and I don't take any of the skills that I developed for granted. And then a lot of it was just reading out of a book and teaching myself and I literally didn't have any private lessons at all until I was in college and I was, you know, 24 or 25 years old and those were in a college setting, not like a typical private lesson you take as a junior. So yeah, I think there's a lot of pathways to become an excellent, an excellent person in performance. I love tennis. I think I have a good eye for detail and um, I certainly wouldn't have wished it in any other way.

L: You talked to me, Dave, about how you, when you were at Ferris, you started delving into the mental side, the psychology. Can you mention that for a minute, because I think it also equates to this growth mindset you've had and how you've created your path.

D: No question. I mean 100%, because I started playing tennis, really competing at 16 at the high school level, playing junior college at 19 and not playing NCAA tennis until I was 25. I think I was a decent athlete. I played other sports and I was able to pick up the physical side of tennis relatively quickly to where in practice I was able to compete with peers who had 10 years or more experience playing than I did, you know, the guys on the team back at Ferris. But certainly when I would get into the competitive situations, I wasn't coming through and I wasn't demonstrating those skills. And I, and I started to realize, well, I just don't have the history, I don't have the background and have the tournament competition and there's no way I can catch up. So the only way that I can catch up is to figure out what mental skills I need to develop in a short period of time. And Jim Layer of course had a new mental toughness training for sports, had a book that wasn't just, I think the first book I ever read around tennis was the inner game of tennis. And it gave you some principles and sort of like understanding flow and you know, the two selves and sort of not trying to, trying too hard but just letting it happen. But it wasn't really like a step by step of, Hey, do you, where do you have problems in concentrating or what exactly do you need toughness training in. And Jim Layer's book really gave you a direct pathway to becoming more mentally tough. They gave you a formula, they gave
you a strategy. So basically when I was 25 and went through this process where every match in every practice I played for a few months, I would write down and journal how I felt. I would put on an access of terms of negative or positive energy or high low energy. And then I would go through the different states and I was able to zero in on two or three areas that I really felt like I was struggling with. And one of them I can still remember as attention control. I get distracted by balls rolling on the court, I get distracted by different things happen, line calls, so forth. And I was able to take the exercises they gave and, and really sort of improve on those areas. And I, and I fully give that responsibility. For me being able to play division two tennis is improving my mental, to catch up with the athletes who had so many more years of competitive experience.

L: That's definitely indicative of a, of a growth mindset, right? And finding a way. There was an issue, you problem solve, you work through it. And uh, I think that again typifies sort of, as I've talked to Dave in the past, like finding a way to get to where you want to be. Right? And now you're, you're doing more of, um, kind of your passion now at this point in your career, you want to talk a little bit about what it is you're doing now and how you're helping athletes and coaches these days.

D: No question. So, you know, I, I, when I started at player development, it was strictly in the coaching education realm and little by little I taught myself how to tag match it with when I was getting my masters degree at Western Michigan, after I left Ferris and tagging, essentially, is just watching a match and clicking on buttons and associating values with each point so that you can then go back and search through that match and find the things that you're looking for. So obviously server, aces, or winners or unforced errors, being able to get to match, and it really condensed what it would take in terms of time. Right? The average person doesn't have two or three hours, or the average coach doesn't have two, three hours to watch a match. So if a match is tagged, it might take you only 20 minutes to watch the whole thing. And if you're really just concerned about second serve performance or winners or errors, you could go directly to those things and be able to see the points in which they occurred. So I did a project in 2012 where we supplied tagging and scouting data to Davis cup and then started working more closely with our own athletes shortly after that. And with the help of Jeff Russell and team USA efforts, we created a channel of basically pro development for virtually started paying for our American players that we had some intersection with or some ability to help posting their matches to this channel and being able to then sit with their teams and look over the details of their performance and share information. And so, you know, that's definitely come to a new level. Now that we've moved through the home of American tennis, we actually have a performance lab in which we have space to, you know, 15-20 people can sit in there. We have high powered workstations, we have a devoted video server that can hold all the video from that that we take at the US Open plus all the match, uh, video that we have. And so now there's a real organized place where people can come and sit and watch their performances, where coaches can have impromptu collections and sit down. And again, depending on what the coach wants to see, we're able to pull
up video on demand of the top players or of their own players and compare and contrast, you know, their, their habits and how they play and where the strengths and weaknesses of their game are.

10:22 L: You know, it's interesting as I listened to you Dave, many people take video analysis and they take analytics and they put them in different departments in other pro sports. And I, when I hear you, there's like a meshing of the two. There's no, you're not talking about just this or just that when you talk about how you help your players, you're talking about both, right. And the intersection between the two, the way you can use both to actually support and, and help the players.

10:45 D: For sure. And, and you know, certainly gathering our own analytics starts at a really simple way. Just looking at video. And I can remember when I learned how to tag the first time, you know, basically it was pressing a button that was, this is good and that's bad sitting there watching practice and you just press good and bad and you're collecting the moments that you want to share with an athlete and, and it can start as simple as that. And then you don't have to tag every single moment in a practice or a match in order to start with using analytics or video based observations. And so it can start really simple. And then from there, you know, maybe you gained some expertise and you want to break down an entire match, then you start tagging every single one of the points and, and attaching values. But I started incredibly simply and I think now I have much more of an appreciation for advanced analytics because I did it myself and experienced it and struggled, just like I did with tennis, struggled because I was a late entry into the game and I struggled in analytics and figure things out and learned how to tag. And little by little now if we send a match away, I know exactly what that person's going through when they are tagging it. And so I think starting simple, learning the process and learning the theory behind what you're doing is important, but you don't need all that to get started as a coach.

11:53 L: Wow, that's great. And it gives people a little bit of, I think, inspiration to, to dive into this area if they're not doing it right now.

12:00 J: So you kind of briefly touched over there, like what you do in the lab, what you have set up there, but could you dive into a bit more detail on how you specifically support coaches and players?

12:10 D: Absolutely. So that was a more of a like the principles and a little loose, but so a couple of buckets that we have for, for analytics. Number one, I would definitely put the match tagging in one of those buckets where we either on our own tag the matches or send them away to be tagged and then we're able to pull parts of the season together specifically. And we have what we call the performance team approach in player development, right? So you have a number of teams around the player to support them in their different ways. Obviously there's the strength and conditioning team that's working on their periodization plan and specific areas that need to improve as well as their overall fitness. You have the mental skills area in which somebody is helping
them to, you know, work on specific areas of, of mental skills that they need. You have a nutritionist, you have an analytics team. The analytics team again is in charge of grabbing their matches, bringing them together, sitting with the coach and looking at how they’re performing. Maybe tracking areas of focus over time and seeing if they’re improving. And in analytics, we also are responsible for the athlete management system. So all the developmental documents that we have in place around the athlete are also in our athlete management system. The development plan, two areas of focus, daily and weekly plans, match evaluations and so forth. So analytics team will go in and pull information from matches. We also might gather information from the athlete management system that the multiple members have put in information. We might pull up periodization plan, two areas of focus, daily practice plan, so forth. And then depending on the level of the athlete and where they perform, we can also get into using other data sources such as Hawkeye. So if you’re playing on uh, the major courts at the tour level or the slams, we can purchase the Hawkeye data and we’re able to add elements that are not available when you tag a match. So you're certainly not going to get the individual shots within a point when you have a matches tag, they’re just tagged at the start and the end of the pulling and you're not getting things like ball speed and spin and court position and some of the more sophisticated things that will help coaches dig a little bit deeper. So starting with the information from AMS, looking at general information that's from tag video, that's more specific, getting into very specific information with, with Hawkeye data and now where we're moving is to take Hawkeye data and give us insights around energy systems and fatigue and the number of accelerations and decelerations within a point. And really giving a load and volume for what that particular match was for a player and also getting into tagging matches with Hawkeye, so we were able to get to all the backhands that you hit that were 45 miles an hour that had slice. And so the last front will be wearables. We’re trying to incorporate wearable data and either lay that over video or just be able to look at the differences between practice and competition with wearable data.

14:43

J: I mean that's a lot and it's a lot of really high quality information. Uh, it seems like it would really help drive coaches with practice plans and what they do with, but then also training appropriately. So if there’s high, high volume, high loading during a match or sorry, during practice during the week and then the volume, you know, if there's, if there's consistently high volume and that we know if it's too much for an athlete to take that breaks down, might cause injuries potentially things like that. So getting more into detail about the volume and the intensities and the loading just seems like that's next level information.

15:13

D: Yeah, I mean when you look at the analytics, really trying to support all the members of the performance team with objective information to make better educated decisions about all those particular areas. Sometimes it’s using videos, sometimes it's using Hawkeye, sometimes it's using wearable data and, and you know, we're even getting into the idea of using it for mental skills as well, right? And we talked to Larry tons about, well, when the best athletes are in the biggest times of pressure, how do they manage the time in between points or
they, you know. Did they take more time? Did they take less time? Are they more consistent across their entire match? We can even get into, you know, Dr. Bob's always tagging matches and looking at the reaction to positive and negative moments in the match. And we can do the same thing with tagging. So virtually anything that we want to get in as long as we have the correct views of the player during the course of the match that we can generate information to help support whatever it is the coach or the performance staff need to bring to light when working with athletes.

J: That's a really good point. And you know, something you let me be a part of this shared day, which I'm very appreciative to, was being able to be part of your team recording some technical analysis and going back to the mental skills piece as we were able to film the, you know, film the athletes what they were doing at the change of ends, what they're doing in between points, positive reactions, negative reactions, neutral reactions and all that. And I guess that's a pretty cool skill seeing what you do, which is, you know, now you can look at that objective data in the X's and O's, but because of your coaching background too, and how you merge that all together. So, so how do you, you take all that data and collate it and how do you, I guess simplify it for the coaches and players that come to you with maybe some requests for information?

D: Yeah, certainly answering the question of the coaches and understanding where they're coming from and what's important to them and understanding their players is super important because then you can start to understand what's important to them and continue to answer their questions and give them the information they want. It's certainly important to be able to visualize things that are pretty complex. And I think that's, we're getting better and better at taking complex data and being able to create charts, visualizations that, that give you a lot of meaning without being too, too difficult to read and understand. And so generating the information, knowing the athlete, being able to give them what they want and not, uh, not making it too complex but at the same time trying to expand their ability to understand more about what it is that you're delivering. And you know, a perfect example is somebody looking at, let's say winners that a player hits cross court or down the line and then you're, you give them, Hey this is, this is the breakdown of where the winners are being hit from and to, and then you're able to say, Oh, by the way, you know, when their rally speed is above this amount, if their alley speed is 72 miles an hour or higher, they're able to force more errors or when their spin rates are of this, you know, magnitude, then they're able to put more balls in place so you can sort of expand what the coach is already looking at with additional information. And there are some coaches who really take to this sort of stuff. We have several coaches on our staff, Chris Thompson and Stephen Huss, who will not only request matches to be tagged, but they'll download them on their own. They'll bring matches together and look through details that normally most coaches don't understand because they're not having, they're not getting into the details and watching those points over and over. And then they can create short playlists that help explain things to players around whatever core tenants that
they're looking at. So an example is somebody coming to the net, they'll look at all the times their player comes to that in 10 matches, they'll break them down into the different areas of attacking and they'll identify what the key patterns are and how they need to continue to create those patterns to get to the net. So certainly starting simple, trying to make things visual, expanding the coaches ability to understand and giving them the power to do some of the analytics on their own, their own as well.

18:51

L: This is an important concept cause we, we've seen analytics become a big point of contention in major league baseball and the NFL probably mostly those sports because of the amount of money and resources that are put into analytics and it seems like, uh, there's a happy medium here somewhere where we have all this data, but how are we plan on using it? Cause a data dump on a player is never effective. And, and sounds to me like Dave, you're, you're working through that process with a coach is to figure out what exactly it is they need and then you know, how much of it do they need.

19:23

D: Yeah. I, I, and I heard from Stephen Haas just the other day and he said, you know, I find myself giving less and less information to the player about their opponents. So you have, you know, developmental information where the coach maybe wants to know everything about their own player and they're gonna select or filter the limited image information they give to the person. Then you have the scouting information, which is this is, you're playing this opponent. So the coach has to sort of like filter out, like these are all the things that my player would normally do. I don't need to mention these things. I might reinforce, not from a scouting perspective, but from a developmental perspective, hey, these are the two areas of focus. Let's really look to use our kick serve today and we're going to continue to play your forehand inside out through the backhand side and not be so focused on the, on the, on the opponent of what they're trying to do. But if there's a big huge elephant in the room, like all of the second serves are going to go to your backhand 100% of the time or 90% of the time, then the coach might bring that to bear as well. So certainly different players are capable of digesting and wanting more information. I think a Novak Djokovic has been known to want to know everything and other players such as a Roger Federer that say, hey, I'm pretty good at this. And in some cases when the player's unknown, if there are overarching things that are giant elephants in the room then I want to know about those, but otherwise just let me figure it out. And there's some players that you really can't say anything to because if you do, it gets into their head and they can't play the game naturally anymore. So you have to know your player and the coach, it's the coach's job to pick the information that they're gonna share.

20:48

L: I believe, and I don't know what you guys think, but if a player has some really strong weapons or strengths that they, they're more focused on what they do, so if they have a big serve, big forehand, they may not need to worry about their opponent as much, whereas you have maybe a counterpuncher or someone who doesn't have these huge weapons that they might actually need
to engage with this more. Dave’s shaking his head yes, so what do you guys think about that?

21:12

D: 100% agree. You know, and I talked with CiCi Bellis and sitting in the room with her and watch her win matches against somebody like Pliskova and, and understand that she has to concentrate and focus every ounce of her ability and talent to win a match that way. Cause she has to earn every single point. She’s not getting, she’s getting virtually zero free points off the serve. Maybe she can rush somebody on a second serve, but she knows that she’s gonna, and I think mentally that makes her so strong. And you know the players that have big giant weapons, if you’re able to take away, and this is, this is a great example of where scouting information might might be really helpful is if you’re able to take away one of those big giant weapons and then they’re not used to seeing that ball come back, that starts to wear on their patients and their ability to hang in there and be tough mentally because they’re so used to getting free points. Right? So if John Isner’s average is like 30+ aces a match, if you can, if you can keep him down to two or three aces a set by backing way up and knowing where his, his favorite spots are and making him serve to a second or third favorite spots that’s going to start to wear on him and over time, certainly in a three out of five set match, you would want to give that information to a player where somebody has massive weapons, you’re looking to take those away and make them beat you with game plan B or C. So certainly that, it’s definitely the case.

22:24

L: That’s a great point. I, it always brings to mind the Patriots with Bill Belichick. His goal is to take away your best player or your best strength. He'll take that away and then see if you can deal with it. If he'll take out your best wide receiver, you're not throwing to him. You know I'm taking away your running game, how are you going to deal with that?

22:39

J: Do you see that as a building process in teaching the athletes how to process this? Cause we, we've talked in the past about athletes are very absorbed in what they're doing. I want to play my game on the court and so to adapt to game plan B and plan C can be quite tough. But then to switch that focus onto your opponent and going, well I know I've got some stuff to do but if I take away what they've got, is there a big teaching process for you when you bring athletes into the lab with you? That they are mainly focused on what they're doing as opposed to what their opponent's doing?

23:07

D: And then I, I would, I would say that if I was a coach that's exactly what I would want them to do. And even if they are counter punchers or the less aggressive players, they still, you know, when you go out and play a match, you have, you have confidence in your, in your identity and your core and number one in my mission in analytics is for players to be very clear on what their identity is, what their key patterns of play are and how they're going to play the match. And generally they should go out and try to start the match implementing their key patterns of play and their and their will on the match, uh, with an awareness of huge strengths or huge patterns for, for the opponent.
So certainly you might not have to worry too much, if you do a great job of playing the way you want to and it doesn't work, well, then you need to be aware of what the, the patterns of play of the opponent is. And I had this discussion with, with Stephen Huss. I thought number one is all the coaches should sit down with players and have them journal and talk about what is your, what is your identity on the court? Who, who are you as a player, what would you call your style, what are your main weapons, what are your patterns of play that you stick to and that you're going to start off the match playing. What's your mindset in terms of things that you want to do or you have a service mentality, returners mentality, so forth. And then when you play on different surfaces, how does that change or how does, does it need to be adapted? Because he gave the example of having a certain player that played, got on grass, all of a sudden she was coming to the net like a hundred times a match behind balls. She would never come in and normally, and she was like, look, I'm on grass. I have to play like a grass court player. So I think it's really important for the player, to have their core identity and then to understand when they play on different surfaces, which is clay, grass, hardcore indoors, what are the small adjustments within their style of play that they make? And then when they're playing against opponents that give them trouble, so for me it was always playing the counter puncher who makes a million balls. How do I need to make adjustments to my, my core game style? Well maybe I need to make a higher percentage of first serves. Maybe I need to get to the net more frequently. But within your own game style so that you're not, you don't, you're not becoming a new player with a different identity every time you step in a different surface or every time you play somebody with a style that you're not accustomed to, you get too far away from what your core identity is.

L: This is an important point because I think as we kind of intersect with the, the psychological here and our confidence thinking in black and white or in extremes and in young players and even older players do this sometimes too. They take that advice too literally like, as you said, with the grass and coming in a hundred times, well it's grass so I have to come in. You want to come in. But it doesn't always make sense to come in. You want to come in off the right ball and the right situation. So I think that, you know, as coaches listen to this podcast, knowing your player, you have to understand and help them understand this information that, okay, this is a tool. You might use it five times in this match, maybe use it 10, we'll see how the match goes. But when I ask you to do this, I'm not asking you to do it 100% of the time.

D: Definitely I mean I think that's, that's the same thing when you give, provide scouting information. If you say, hey, this person likes to do this, a lot of times the player can't handle it because then that's all they think about is, hey, you said they like to go second serve to the backhand and here it is, I'm trying to run around and I get aced to the forehand on break point on the second serve. And so they have to sort of be able to play checkers and chess at the same time, right? This is the percentages. This is, this is the move that they're most likely to make and have an understanding, well, they are a professional tennis player. They can hit a second serve to both your forehand and backhand and you, you
can't, it's not just black and white and that's, that's where their own game with information they have to process from, from their opponents as well.

26:30

J: I love the, I love that we use that, that filter from a coach being able to take the information. It seems like everything we're talking about here is increasing awareness in the coach, increasing awareness in the athlete in the hopes of then building the confidence in the player. You know, because I guess like, like you said data dumping. Are we making our athletes aware to the information they need to know, but is it too much that it overwhelms them that might break a little bit of their confidence in their game and how, how to use the information in the scouting reports or are we doing it in a way that understands, we know what kind of level of processing they're able to take on. Are we making them aware to the right amounts of information that then builds their confidence when they step out on that court with a little bit of extra excitement to, to go and execute.

27:08

L: Yeah. If I go to a player pre-match and I say to him, well, you need to do this, you need to change something because of your opponent. That could hurt their conscience. Like, well, why are you telling me to change? Isn't my game good enough? But if you've gone through this process that Dave's talking about where the player gets used to taking bits of information and learning how to assimilate that into their identity for their game for that day and doing that in practice, which I think doing it in real time. I go, you're playing so-and-so today, how would you beat this person if it was a real match? What are the, what are the keys and getting comfortable with? Because I think young players, juniors, 13-14 we, we know that they can only take on a limited amount of information. So you'd have to be really careful with the amount of data that you're giving or how much you information you were giving, but if you can get it down to a couple things, one or two, they can, they can handle that, but then it becomes a confidence thing. I'm not saying you can't beat this person. I'm just trying to put the odds more in your favor by just be aware of this and sometimes you might actually use this play or you might lean a little bit this way, but remember this person can hit it down to the T too. It's not just wide, but it gives you a little bit of an advantage.

28:14

D: Yeah, certainly. And I want to go back to one of the things you just mentioned because I think we always want to have people to have takeaways away from, from the podcast in terms of like, okay, well what can I do to raise the awareness of my athletes in a simple way that sort of brings in analytics to the practice court. And I remember doing things as simple as, you know, playing groundstroke games and having players play out points where maybe the first three or four shots had to be in play and they would play out the point and if they hit a winner, they would put a ball on the fence on one side and if they made an error they'd stick a ball offense on the other side, you know, or a different color ball or something to the fact of like, we're going to play a game to 21 you're going to track all your winners and track all your errors and you're going gonna have a better awareness of when you're making mistakes. And typically you're going to start to see a pattern and you can then bring all the
players together and say, all right, how many people hit equal number of winners and errors? Raise your hand. There's probably going to be like if you had 10 courts, there might be one or two people that had equal winners to errors. Okay. How many had, you know, two errors for every winner. Anybody have more winners than errors? And you can have a little discussion about the concept around balancing winners and errors and everybody sorts of like just sticking balls on the fence and playing out normal points to 21 and it's not advanced analytics, but does everybody have a better feel for what they're winner-error ratio is and how that affects whether or not they win or lose when they're playing?

29:28

L: Yeah. I'll say recently I watched a match in the coach was tracking the number of unforced errors and after two sets we were at 62 and the player knew that they had made mistakes, but when we gave them the number, they were like.

29:41

D: Blown away.

29:42

L: Well yeah, and the person won.

29:43

D: Right.

29:43

L: So, I mean, which credit to them, I was like that superb that you could actually win when you have that many unforced errors, but you can't continue. This is not a sustainable effort.

29:51

D: I mean it's a game of errors, right? At any level, you're looking at three errors for each winner in general. And so one of the concepts that I talk to players about at different levels or coaches about is that you can play a world-class tennis at 12 and 14 if you have the equal number of, if you have an equal number of winners and errors. That's getting pretty close to world-class tennis cause you're not beating yourself up. And certainly if you can have more winners than errors over the course of a match, you're playing advanced level tennis in terms of managing what's going on. Certainly as the level gets higher, certainly in the later rounds of big tournaments we see sometimes the player that has more winners and more errors is making things happen on the court, right? They're deciding how the points end whether they make an error make a winner, they're determining what happens and that is a winning formula in a lot of cases. People that have big weapons and can take the play out of your hands really determine what happens and not easy to beat somebody who's has a bigger serve, a bigger return and bigger ground strokes and can get to the net once in awhile. So I think it's awesome to work with players, have them raise their awareness and start to be creative about how you could contain practices so that they get a feel for these things and maybe there'll be a way they'll be more aware of a more receptive of having analytics part of their development as they get older if they're introduced to basic games where they're tracking things
J: And that, I really loved that game you just mentioned. The ball on the fence to recognize, I mean it's so huge and we've brought some juniors and if we, if we talk about juniors a little bit here, we brought some junior groups in to meet with you and you pull up video footage on the screens and you talk through some, if we, if we look at what coaches can do, if they have their groups of players in their programs or academies and they want to pick a theme to go through, maybe talk us through how a coach might be able to do some of the things you do with our athletes when when we bring them into the lab to watch some tennis.

D: Certainly we have the benefit of having this massive library of professional matches that are tagged and we already talked about that it reduces your time to get in there and find specific things that you want to share. But let's say the theme for your particular junior group is return to serve and you say, okay, I want everybody on Friday, we're going to get together and we're going to talk about return to serve. I want you to go on YouTube and find an example, whether it's highlights or it's you know, a short amount of video, a subset of, of a match and take that link and email it to me and then get together in a space, pull up those links one at a time. Have the person talk about why they sent that link of that match in and it doesn't have to be tagged, you can watch two or three minutes of a, of a key players execution of a certain strategy and that and, and there you have it. You have the ability to review what players are doing... The decision is on the player of who they're going to choose to send the video in and they have to describe, you know, what the person, why they sent that video in. This person's taking the second serve early and then maybe a couple of bullet points. Well how do they take the second serve early? I see them stepping up inside the baseline. I see them taking the ball at shoulder level and trying to go inside in so that they can keep it to the players backhand. So it's a very easy way. We do the same thing in our, in our lab, we bring folks in, we go around the table, each one of the players gets to pick a match and a player that they want to see. And then they, then they actually come up with the tactic that they want to display. And we'll use the filters to bring those things up. And then I take the link and put it on a sheet and then we write down, well what did we see and what, what are the keys to doing this thing well? What are the typical patterns? And I think it's a great learning experience.

L: That's tremendous. And I've been able to sit in on a few of those and you see the wheels turning in the players and there's some steam coming out of their ears sometimes. But that's what we need to do. Like we have to push these players and sometimes people are afraid of thinking or getting information. But again, as Dave said, if we're giving this all along and in a way that they can handle it, we start building their capacity where they can take on more later when honestly it gets more important that they're able to take in that information where you're playing very unique, powerful players that that can hurt you.

D: And, and I'll mention that the feedback from the coaches and the timing of when to do this is do it before you're going to go on the court. Right? So if, if the
theme is transition and everybody's sending in opportunities for people to come into that and we see the players and we see the patterns and then we go out to the practice court and we have drill centered around transition. I can guarantee you the players are going to be more engaged and more ready and more focused to execute those things cause they just saw them. So I’ve had tons of amazing feedback on, Hey, let’s, let’s schedule a session at lunchtime in the lab because we know at 1:30 we're going to go out and play match play. And inevitably the players are better at doing those things that they just observed.

34:15
L: You just created a focus and a visualization for them.

34:17
D: It makes it easy. Yeah.

34:18
L: It's in their brain when they walk to the court.

34:20
J: Well we know that a lot of players probably don't watch a whole lot of tennis.

34:24
D: This is true. They tell us that.

34:25
J: Yeah, they tell us that and because of that, what we’re doing is making them aware, giving them a key, if like you say, if it's, you know, what they're doing on the return and getting them to give us some pointers on that. Then we are directing them into looking at an area, okay, transition, seven ways to transition. And they go out there and you go, okay, so we've just been out here for an hour now. How many times? How many different ways of those seven that you watched on the film have you used? And then I said, okay, if we use three, we use four. Okay. So those ones that you haven't done yet, see how you can fit them in, so automatically there as you've kind of made them think about how to be better decision makers and problem solvers just through kind of nudging them in that direction and making them more aware and they go out there and there's that freedom to try things out on the practice court then yeah then they're going to go and figure out some pretty cool things.

35:10
L: Yeah, I would get a sense that a lot of coaches do use video but to look at technique with their players. This is changing the mindset with this.

35:19
D: I actually forgot to mention that in analytics, that's one of our, you know, one of the things that we provide is, and Johnny mentioned the concept of us going and filming at the US open, you know, before, before we came up with the teaching and coaching philosophy, it was, it was sort of like every man on their own, right. Every coach is out there. We trust we, we, they had some history in developing players. We trusted them doing the right thing and now all of the coaches are on the same page in terms of what our terminology is and what the expectations are in terms of planning and the other tenants of our philosophy. And a lot of what we created in terms of this philosophy came from viewing these videos of the top players, both tactically what are their patterns of play, what we, what do we say the parameters are for the top players in terms of
how they're playing at technically, what their strokes look like in terms of the
grip and the back swing and the follow through, the contact points and and
what the parameters are that are acceptable within those those ranges. And so
that's where we started. It was the technique. And and the beginning of Dartfish
TV in 2009 was us taking video of seven, eight and it was probably a little bit
older than that, maybe nine through 12 year olds who were coming to regional
training center camps and posting it online and then calling up the coach and
saying, Hey look, look at key position number three. It's loading. See how your
kid's knees are knocking together and the racket's already down behind the
back. Whereas if you look at the comparison to the top player, they're doing
these things in a way that's going to help the player to get better and very
visual. And so certainly helping players to develop solid technique is important.
We don't get into it as much at a, you know, at a professional level, but certainly
 gathering parameters from the top players and knowing what the common
fundamentals of their technique are are super important to our philosophy and
our coaching efforts and our ability to use video to make players better around
the country.

L: Yeah, I think it's important, but I, I think what you've established also today,
Dave, is there's some other things to look at in terms of the tactics, what you're
doing with your game and, and getting coaches to think beyond the technique.
Obviously the technique is very important, but there's many other things to look
at. The mental side, the physical, the movement, and we haven't even talked
about that. But you know, I think that coaches, when you start thinking about
how would I actually dive into this and what would I do? I think the, as you've
talked about it, it's kind of the world is, is limitless. There's many, many, many
things you can look at, it's just are you looking at it accurately?

D: Yup. Picking your departments, starting off simple. Something else that I
talked to Johnny about is doing like role playing within your match play, right?
So you sort of have a team A versus team B, maybe it gives suggestions to team
B and you say each player is going to come up, but I want you, I want you to
focus on one thing that you're doing in this, in this match. And then at the end
of the match we're going to ask all the kids to try to identify, well, what was the
one tactic that, that Johnny was trying to play against you? Oh, Johnny kept
kicking the serve and opening up the court and you know, hitting the first ball to
the open court and coming in or drawing me to the net. And so certainly you're
able to use lots of different ways to get players thinking, making it fun, keeping
it simple. Those are all the, the ideas that I have around using certain concepts
around analytics specifically around the identity and the specific game strategies
that players have. I don't think, you know, since I've been in coaching education,
I see coaches have gotten so much better at using technique apps and
understanding what players need to look like in a different age and stage and
not thinking everybody has to look like a top professional at the age of eight or
eight to 10. Certainly in the parameters of the strokes that we see from all of
our camps are worlds better than they had been. And I give some credit of that
to better coaching education and better use of technology that everybody has a
phone and an iPad that they can evaluate those things. So the next step is for
them to get better at evaluating their, their players using simple apps. There’s plenty of apps out there that can track stats. Maybe pulling a coach or an assistant in to generating some of that information for, for them to so that the players and the coaches have a better in the parents especially have a better understanding of what’s really going on with our games. These are all ways that you can use some simple source of analytics to improve your players.

39:20

J: That's awesome. I know we're running short on time here, but as we do wrap up, where do you think the future of performance analytics is headed?

39:28

D: Well, I'll tell you from, from our end, certainly the, the concept of of wearables is, is what I consider to be really important and certainly important in the future to be able to track movement of a player, have load and volume specifically in their practices that's as accurate as the information that we get from a Hawkeye or some other advanced sources. Right now we're getting into using wearables where they're more accurate than GPS. They can track athletes in small spaces and the number of accelerations and decelerations. We've talked about that without getting into the specific technology. Using wearables that act like small force plates within the shoes of an athlete. So again, now we have independent foot contacts and pressure and loading, using some of that information to, let’s say, guide our return from injury process and collecting more information about athletes without having to have a coach click on a 1 to 10 scale, right? So you have an athlete management system that generates some information and insights about athletes, but in the future, more and more of that's going to become automatic and we won’t have to have that human error or human element in it. And so that's, that's definitely one. One of the things I'd like to see us get into is, you know, we talk about, and Jose Higueraa, the grandfather of the philosophy and player development, we hit the ball really well as Americans and we need to be better about playing the game. So decision making to me is the, at the core of playing the game. So designing apps that use video and are engaging and specific to the player is something that I really want to move on into this next year is creating playlists of videos where athletes sit there and they have to make decisions and it's sort of like visualization in a way that specific to them and how they're playing. And I think we'll see more and more of that, especially with like virtual reality in the future as it gets better and less expensive. So those are the things that I think are on the horizon. Wearables, virtual reality, more decision-making designed apps to be specific to the players. That's what I think, you know, is that the forefront of technology, certainly partnerships with other grand slam nations and trading Hawkeye data is going to make this more accessible and not as expensive. And we’re looking for ways to tag video without having to pay somebody to do it all the time. So those are the things that are at the front of our mind when thinking about analytics.

41:39

L: Wow. Exciting frontier there, Dave. Lots lots to think about and to move forward on. So I think that's been an awesome break down to that. So that's great Johnny.
J: Awesome. Well Dave, we're wrapping up the episode here and just wanted to thank you for taking some time out your schedule. I know you're extremely busy in there in the lab getting many, many things done. You have a, you have a new helper now in my fellow countryman and Adam Snook, who's joined your team.

D: Certainly great to have him. You know we waited a year for him to be able to get his visa.

J: It must have been worth the wait.

D: A team of one half of my efforts and Geoff Russel actually serves the analytics department quite a bit with his efforts to help with team USA. Mick has been trying to get me in here to talk to you guys forever. So I'm glad to have made the time. And I got big Davis Cup coming up and it's a totally new format in terms of our preparation for that. Same thing with Fed Cup and then we have the Olympics next year. And so, you know, these are all markers on my calendar that were never there in the past. So serving American tennis at the highest level is makes me incredibly happy to, to be a part of these players' teams and helping our country.

J: Awesome. Awesome. Well that's a wrap on today's episode of compete like a champion. As Dave just mentioned there, there's some great tennis coming up, so be sure check, checkout team America and team USA out there competing at Davis Cup, Fed Cup. Uh, for more information on anything we're doing within player development, visit our website, playeddevelopment.usta.com. Also check out our Instagram handle that has great content that's being pushed out. The Team USA Tennis Instagram handle there. So Larry...

L: JP.

L: Until next time.

L: Thanks brother. Thanks Dave.

D: My pleasure.

J: Hopefully there's a next time. We'll speak to you later.