

Transcription details:

Date: 08-Feb-2016
Input sound file: 184_Huffines_Sports_Med_Bermudez

Transcription results:

- S1 00:00 Hi. This is Tim Lightfoot, the Director of The Huffines Institute for Sports Medicine and Human Performance. I am so excited to let you know that the Huffines Institute now has apps for your smart phones and your tablets. We have apps for the Apple products and for Android products, you can go to iTunes or go to Google Play, either one, download those Huffines apps and you can pull in our content every week. Now, onto the podcast.
- S2 00:26 [music] Welcome to the sports medicine podcast brought to you by the Sydney and J.L. Huffines Institute for Sports Medicine and Human Performance in the Department of Health and Kinesiology at Texas A&M University. At the Huffines Institute, we're always working to facilitate, apply, and bring you the most up-to-date coverage of the wide world that is Sports medicine and human performance, all in a language you can understand and share with your friends. And now here's our host, the Director of the Huffines Institute, Dr. Tim Lightfoot.
- S1 00:57 Hello, and welcome to the weekly edition of the Huffines Institute for Sports Medicine and Human Performance podcasts. I'm your host, Tim Lightfoot, and I'm so glad that you took the time to join us this week. Every week, we bring you another another interesting individual from the world of sports medicine and human performance, and this week is no exception. We're pleased to have with us today, Dr. Jose Bermudez, from here at Texas A&M. Welcome to the podcast, Jose.
- S3 01:21 Hi, Tim. Thanks for having me.
- S1 01:23 We're very happy to have you. We're going to tell the audience a little bit about you and why're you're here, and then we'll just jump into our conversation, huh?
- S3 01:29 Sounds good.
- S1 01:31 So, Dr. Bermudez originally got his Master's Degree and a Doctorate in Philosophy from King's College at Cambridge University. Dr. Bermudez spent some time at Washington University as the Director of Philosophy, Neuroscience Psychology program. He then moved to Texas A&M where he was a Dean of the College of Liberal Arts. He became the Associate Provost for Strategic Planning. And now he's a professor of philosophy.
- S3 01:55 Once again.
- S1 01:55 And once again enjoying life as it is, right?
- S3 01:57 Exactly right.
- S1 01:58 But we're really not here to talk to him today about all those wonderful things. We're really here to talk to him about one of his wonderful accomplishments recently. Dr. Bermudez is one of the elite long distance bicylists - actually, we'll say in the world.
- S3 02:14 It's a small community, so it's not hard to be in the elite [laughter].
- S1 02:18 We're go to talking to talk about this summer, he competed in and completed the Race Across America. And for those of you who aren't familiar with the Race Across America, it was in it's 34th year this year. It's where you ride for about 3,000 miles. This year was 3,004 miles, I think, from Oceanside, California to Annapolis, Maryland as fast as you can. And it is a race, right?
- S3 02:40 That's right, it's a race. The clock starts in Oceanside and stops in Annapolis. What you do in between is your business, but the clock doesn't stop.
- S1 02:47 It doesn't stop for sleeping or eating or anything?
- S3 02:49 Absolutely not, no.
- S1 02:50 Now you went as a solo - they do allow teams to run in this - and you were [crosstalk].
- S3 02:54 You can do it as a team. You can do it as a team of two, a team of four, or a team of eight. But I think a lot of people think the real race is in the solo division.
- S1 03:01 The glamour is in the solo division.
- S3 03:04 I don't know whether it's glamour [laughter] but there's a lot of excitement there.
- S1 03:07 All right. Again, I want the audience to know this a little bit over 3,000 miles. They actually have a limit. They solo, you guys have to finish it in 12 days.
- S3 03:15 You finish it in 12 days or under. You have an extra 21 hours if you're female or if you're over the age of 60.

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- S1 03:21 And so, this year you finished. We'll talk about 2013 a little bit later on, but this year you finished, and tell everybody how you did.
- S3 03:28 I did okay. I came 12th out of 27 starters, finishing time 11 days, 16 hours, 53 minutes. So comfortably inside the 12-day limit.
- S1 03:39 Now, I want everybody listening to think about that. And that was 3,000 miles on a bicycle in a little bit under 12 days - a little bit. About eight hours under 12 days. That's an amazing accomplishment.
- S3 03:49 I think one way to think about it is just kind of think about what you were doing 12 days ago and just imagine in all that intervening time when you've been going to work, enjoying yourself and sleeping and eating and stuff, you were just basically on a bike all day everyday except for 2 hours and 15 minutes each 24 hour period.
- S1 04:06 So every 24 hours you're only off the bike for 2 hours and 15 minutes. What was happening during that 2 hours and 15 minutes?
- S3 04:12 Well, it was pretty structured. I had a support team of nine people. They worked in shifts, and one of the things that they did was make sure I had a really, really productive time off the bike. So we spent those 2 hours 15 minutes with a stop watch. The first 15 minutes I spent eating typically a pasta or something like that, then 15 minutes a quick massage, a shower, 90 minutes sleep and then 15 minutes eating again and then back on the bike.
- S1 04:40 Wow. So it's been estimated that in a race like this, that an athlete is taking over 8000 calories a day when they're riding.
- S3 04:49 Yes. I think what you are going to look at is not so much what you're taking in but what you're burning out and if there's a mismatch between those, then you get in terrible trouble. You can run a marathon and get in a hole a mile 15 and you're probably finished. You can do a 200 mile race and get in a hole of mile 115, you're probably finished, but you can't get in the hole at day four of a 12 day race and finish. So yeah, you're burning up about 8,000 to 10,000 calories a day and you need to take those in.
- S1 05:17 This week, your podcast is following the podcast we had on last week by a lady named Cathy Langlots, a local lady who rode across America but it was a tour basically, and they took their time, they did it over three months. The difference here, this is an absolute race. This is who gets from one end-- one side of the country to the other first.
- S3 05:37 Yeah, and I think that raises-- especially from a nutritional point of view, that raises some real challenges. You have to think about the topography. You start in Ocean side, California, you climb out over the coastal range mountains - they're pretty steep - you go up to about 5,000 feet on Mount Panama. Then you drop right down into the Anti-breaker desert, which is a real desert, and when we went through, it's about 120 degrees in the day, they were having a heat wave. So, just thinking about how you take in the food when it's 120 degrees when you're on your bike, when you're kind of feeling dizzy and dehydrated, and the last thing you want to do is eat, but you still got to find a way of getting 8,000 calories into you. It's really kind of-- it's challenging. And then--
- S1 06:18 And this race is always in the summer. So it's not like this happened in January when in school. No way, yeah.
- S3 06:22 And that's another piece of the topography, it happens in June because that's pretty much the earliest time that you can be guaranteed that the passes over the rockies won't be snow covered. Because that's the other piece of the topography, you're climbing up to nearly 11,000 feet three times going over the rockies. So you deal with the altitude sickness and those kind of issues, which also then really make you want to eat massively either.
- S1 06:48 So how do you train for something like this? This is jumping to the train, but how do you train for this? I know you do other long bike rides and you have to qualify to be in the solo category. Do you go out and ride a certain distance every day or do you build up over two years for this?
- S3 07:02 Well, there's really two pieces to the training. Obviously you've got to train your body to do the distance. You can't go out and ride a 3000 miles race, but you can do shorter races. And then, in the year before, I did several 500 miles races, some 24 hour races.
- S1 07:17 Sorry, I'm laughing. Shorter is a relative term in this case.
- S3 07:19 Shorter than 3000. Long by my standard. Texas is pretty well stocked with ultra bike races, so I did a couple of 500 mile races and a couple of 24 hour races and 1000 mile races. In the--
- S1 07:37 And you won--
- S3 07:38 I won several of them, yeah. I came third in 1000 mile race, won a couple of the 24s and won one of the 500s.
- S1 07:43 Amazing.
- S3 07:44 But again, it's not a big field. But it's true, the people aren't show up unless they're serious.
- S1 07:49 Yeah, you were so serious.
- S3 07:51 So that's one part of the training, and then the other part is really much more thinking about your lactate threshold. What's important on a 3000 mile race is your average speed, and it's really the power output that you can average or the percentage of your maximum power output that you can average, so you want your lactate threshold to be as high as possible, so that

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when you are going along at your endurance pace, you are covering as many miles as possible in the hour. It's basically as simple as that.

- S1 08:19 And you move that lactate threshold through intensity training and so forth?
- S3 08:22 Everyone knows you can do it in one or two ways. You can either train just below your threshold and push it up or you can train above it, via to maximum intervals and pull it up. Do both of those.
- S1 08:34 Intervals are always fun to do.
- S3 08:35 Intervals are fun. [crosstalk] So I spend a lot of time doing that . I have got a coach who works with me on periodization and making sure that I was peaking in time for the race.
- S1 08:48 When did you decide that you wanted to do this? This is obviously something that you can't do at the drop of a hat.
- S3 08:54 No, I moved to Texas in 2010 to come to NM to be Dean. I used to live in St Louis, and in St Louis we had the great bike racing scene. I could race my bike three or four times a week, without driving more than an hour. Two races every Tuesday night, have road races on Saturday and Sunday, in the summer, and winter we'd have sacked across races or mountain bike races. But in Texas, that wasn't available, and as Dean, I didn't have a huge amount of time to travel to Houston or Austin to get on the racing circuit. So I think that the more effective way of racing would be to do small number of long events, and then to work my training around that. So I started doing that in about 2010, and I did the first part of the Race Across America which goes from Oceanside to Durango - it's a separate race across the west. I did that in 2011.
- S1 09:47 And to follow up on that, have you always been a cyclist? Is this always been your--?
- S3 09:52 No. My sport used to be high-altitude mountaineering and rock climbing and ice climbing and alpine climbing. Before I moved to St Louis, that wasn't really available there.
- S1 10:00 Unless you can climb the arch or something.
- S3 10:02 Yeah, unless you want to climb buildings. So then I've moved originally to mountain bike racing and then to road racing.
- S1 10:09 Well, it's interesting you bring that up because on the Race Across America website, they do a lot of comparisons between mountaineering and this Race Across America and how they're different but yet they're both very extreme forms of the activity.
- S3 10:20 Certainly with the high altitude mountaineering when you-- just above acceptable oxygen levels, or below acceptable oxygen levels for long periods of time if you're climbing an 8000-meter peak without oxygen for example. It's a kind of similar bodily experience, because what you are doing is basically fighting decay. There's no way that you can keep your body at normal levels of functioning or nutritional hydration. Firstly you're just managing the deterioration, and it's the same in the Race Across America. You want to get to the finish line not with so much left that you feel you could have gone much quicker, but you don't want to be crawling across like a zombie as many people do.
- S1 10:57 Right, you don't want to go across the line thinking, "Man, I could do another 3000 miles."
- S3 11:01 No you don't want to do that, but you don't want to never want to get on your bike again either.
- S1 11:04 Yeah. So what is it like to only have 90 minutes a sleep? Is that something you train for or is that something you just take as it comes?
- S3 11:12 That's the hardest thing. The physical effort is-- you can do it. I think if you are tough enough and you're well trained enough. But managing without sleep is pretty challenging. Road off the road, once just falling asleep and going pretty fast and kind of just going down the hill. Just fell asleep, woke up in a road car wheeling down the hill heading for a concrete drainage ditch and nothing was broken. My bike was broken but I was fine. And that's a kind of a constant thing. You're just constantly falling asleep and you've got to force yourself to keep awake. It's just incredibly difficult. It's a constant battle.
- S1 11:49 When you took your two hours and 50 minute break, did you do that at night or did you do that--
- S3 11:55 Just did at 24 hours intervals.
- S1 11:56 24 hour intervals.
- S3 11:58 And obviously the 24 hours is a little bit elastic, so sometimes it ended up being 3:00 in the morning, sometimes midnight, sometimes 6:00 in the morning.
- S1 12:04 So most of the time you were riding through the night though?
- S3 12:06 Yeah, and that's nice in lots of ways. Sort of peaceful, there's less traffic. You can kind of get in the zone because you use just a little pool of light and you're riding in the little pool of light from the support vehicle headlights.
- S1 12:17 So - and we'll come back to the support vehicles in a bit - but I guess that brings up a question that is that, these are on normal roads. They don't close the traffic off --
- S3 12:26 Oh no, no. These are normal roads and actually going through Missouri, the race takes highway 50. If you've been to Missouri, you know that Highway 50 is a pretty big road as it goes past Osage Beach and some of the lakes down southwest

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Missouri. So it's six lanes of traffic, and you're on the shoulder. But if you think about riding a bicycle along the shoulder, and you think about traffic coming on at 75 miles an hour and how you get across those exit ramps and entrance ramps safely, it's kind of a challenge - when you're dealing with sort of sleep deprivation, there's other issues.

- S1 13:00 Wow. And we mentioned this-- we talked about this a little bit beforehand. There are accidents that happen. Bike and car accidents that happen during this race.
- S3 13:08 Yeah, I think-- first let me just give you some numbers on the total number of people. I think that I was the 260th person who's finished this race in 34 years, and the overall success rate among solo racers is around 50%.
- S1 13:23 And that's amazing. It's a small club.
- S3 13:25 It's a really small club. More people climb Everest every year than they finish the race across America in its entire lifetime. And bazillions times more complete than [inaudible] or other things like that. So, in the course of the race, there have been several fatalities. Every year there's people end up - as I did in 2013 - hospitalized with kidney failure, dehydration issues. Pneumonia is a pretty common problem that people get as they go up into the Rockies. It's a combination of thin air, complete exhaustion, moisture in the lungs and things like that. And then people get hit by cars. We had one person got hit by a motorbike this year on his ninth running of the race. One guy got hit by a car and he's still in a coma, so there's really quite a lot of ways in which things can go wrong when riding your bike nonstop across the country.
- S1 14:22 You do have a support group, and it's your responsibility to have your support crew. The race does not provide that.
- S3 14:27 You provide your own support crew and it's kind of hard to put one together.
- S1 14:32 That's what I was going to ask you, how do you put that-- because you have nine people.
- S3 14:35 Yeah, I was fortune to have nine people that were interested and excited to do this, and the way we organised it was with two minivans, and-- actually we had three minivans. One of them provided by a local bike shop Biking and Cycling. Two that are hired from a rental company, and there was always one minivan riding behind me with two or three people in it. One minivan with the crew that was off duty. They did 12-hours shift.
- So when the 12 hours are off, they'd get some sleep, and then have to drive up the road to catch up with us. And one crew that was just basically doing laundry, and shopping, and logistics, and trying to figure out where other races were, and stuff like that.
- S1 15:18 So you actually had somebody saying that, or your five hours behind the next person?
- S3 15:22 Yeah. and that's the right sort of distance. A photo finishing run instead of finishing within an hour the next person.
- S1 15:30 Wow, and so these people just volunteer?
- S3 15:32 Yeah.
- S1 15:33 Did you like these people that you knew?
- S3 15:34 Yeah, some of them I knew from college station, some were bike races. I found a physiotherapist in Singapore who was really interested in crewing, and she came. I fill her over. I had a bike mechanic from our local bike shop, and he learned cycling. A nurse who I knew vaguely through bike racing, and then just some general bike enthusiast people. It's tough - riding in a vehicle that not very many miles an hour for 12-hour shifts, and then sleeping and doing it again, for 12 days. It's hard work.
- S1 16:06 Well, we call it--
- S3 16:07 But they keep you safe.
- S1 16:08 Don't we call it an adventure, right?
- S3 16:10 We call it an adventure [chuckles] but we figure out pretty quick, it's not an adventure.
- S1 16:14 So how many more repeats from your 2013 ever?
- S3 16:18 I think only one.
- S1 16:18 Only one?
- S3 16:19 Yeah. It was a student here in at A&M.
- S1 16:21 So let talk about 2013. 2015 is not the first time that you did the race.
- S3 16:26 No. 2013, I tried a much smaller crew. We had only six people, got into a real mess in the desert, hospitalized 12 hours, and kidney failure, really bad dehydration. I got back on the bike and caught up. The race has cut-off points, you have to make the time cut at Durango and then again at the Mississippi otherwise you get thrown out. So I managed to get back on track in Durango. The one real problem that cyclists have is something called shamans neck, when you lose control of all the muscles in your neck, so you can't hold your head up.

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- S1 17:02 Wow.
- S3 17:04 And you get there when you're in a hunched up position over a bicycle for 22 hours a day. So I got that in Kansas and I had to put my neck basically in a neck brace and holding my head up, rode like that for 500 miles and then--
- S1 17:19 Oh so you did ride like that for 500 miles?
- S3 17:20 Yeah.
- S1 17:21 Wow.
- S3 17:22 Call it a day in Kansas.
- S1 17:25 Your mind, how do you tell your mind that you're going to continue to race even though your brain is probably telling you that you need to stop? That's where your doctor and [inaudible] comes in.
- S3 17:32 So basically, my experience of all these long distance events is they're all the same. In this following sense, you start out, you ride for whatever-- if it's a 200 mile race it's probably the first 70 miles, if it's a 500 mile race, it will be the first 180. It's a 3,000 mile race, it's probably about the first 800. You go through these initial periods, it's euphoria, it's exciting, you're heading fast. And then finally you get to a point where you think, "Holy molly, I've done 800 miles, I've got 2,200 miles left to go. It's inconceivable. It's almost free time, just as much as I've already done, days and days of torture ahead. How on earth am I going to manage this?" And then you've just got to get through that, and the only way to get through it is to just break it down into the next tail, the next time station, the next meal, the next coke, whatever, just series of small, little steps and that's the way that I found where I can make these huge unimaginable distances, manageable. Because if you think last time you flew across the country, how long it took you to get from these coasts to just even to Kansas, let alone to California. Do you think about that on a bike and-- [crosstalk]
- S1 18:44 And you get off the plane and you are worn out as it is. I can't imagine doing it on a bike.
- S3 18:47 You have to break it down into manageable slight chunks.
- S1 18:51 So are you done? You are not done with endurance racing?
- S3 18:53 No, I'm not done with endurance racing. It's pretty good fun. I got to Annapolis tie, but I could've gone on, and I was deliberate. We raced a pretty conservative race. And I think we could save time, I could save probably loose those 16 hours and get in under 11 days. That's what I'm going to try doing in 2017. And there are other races in between now and then.
- S1 19:18 Well, and I want to make the point is, you're not doing this just for yourself. You have a big charitable arm of your efforts.
- S3 19:23 Yeah, I raised good money both in 2013 and 2015 for our local chapter of habitat for humanity, and that's really satisfying to raise money for pretty worthwhile-- extremely worthwhile cause. In fact, we've succeeded in building a new house in 2013, another one again in 2015. So those two families have got homes that wouldn't otherwise have homes.
- S1 19:48 Congratulations.
- S3 19:49 What I did was to ride the bike. Other people provided the support and donated the money, [laughter] but I did pay for the race myself and all the funds that were raised went to habitat.
- S1 20:01 And that was point we're going to make along the way. So all the support staff and everything that comes out of your pocket.
- S3 20:06 They didn't get paid but obviously they have to be fed and housed and transported and taken to and from, and they came from all over the place - my coach came down from Alaska to support me, physiotherapist came from Singapore, and doctor and the nurses from Missouri and-- It's a lot of emirs.
- S1 20:27 [chuckles] So regular listeners of the program will know that we always give our guest an opportunity to give us a take-home message. If there is something that you want people to remember from this podcast, what would be your take-home message?
- S3 20:36 Well, I think they're two really, and we kind of talked about both of them. The first one is that this huge tasks and challenges are really the sum of lots of small ones. That's how you need to think about them I think to be successful. And the second one-- there's a lot of people involved behind the scenes in making this things work, and I'm just incredibly grateful to the help I had from the medical people here in college station from folks in health and kinesiology and the athletics department, and from my support crew.
- S1 21:06 Well, thank you for being here. It's quite an accomplishment, and we're very proud of you.
- S3 21:11 Thanks [chuckles].
- S1 21:12 And actually what we'll do is we're actually going to put up your website on the show notes--
- S3 21:15 Great.
- S1 21:16 --so if people want to donate for your efforts next time when you build another house--

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- S3 21:20 Fantastic.
- S1 21:21 --then they'll have that opportunity--
- S3 21:21 Fantastic.
- S1 21:22 --to do that. So, again, thank you for being with us.
- S3 21:24 Pleasure.
- S1 21:25 And many of you that are regular listeners know that also at this time we have our weekly podcast question of the week, and here with our podcast question of the week is our producer, Kenith McIntyre. What number finisher of the Race Across America, in it's 34-year history, was Dr. Bermudas? Great question? Be the first one to send us the correct answer via email. Send it to huffinespodcast@hkn.tamu.edu and you'll win one of those nifty podcast t-shirts. Again, thank you all for taking the time to download us and listen to us today. Again, thank you Dr. Bermudas for being with us and good luck on the bike next time.
- S3 22:00 Thanks very much.
- S1 22:01 And to all of you again, one again, thank you. Please join us next week when we have another interesting person in the world of sports medicine in human performance, and until next week we hope that you stay active and healthy.
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