

The Science Behind The Football Boot – Part 1

Craig Johnston: "OK, if you support Manchester United please put your hand up... OK, Chelsea?" [general banter with audience before the lecture proper starts, about the teams they support]. "This isn't a football evening as such, it's about science and football, and I guess that's why I'm here. When I was a little kid I wanted to be the best soccer player in the world and I failed miserably. However, I got into soccer boot and soccer boot development and developed The Predator and apparently I am the 'world's leading expert' on football boots so we're going to talk about the science of the football boot tonight.

Ger Gilroy (Newstalk broadcaster, and MC for the night): "We're going to talk a lot about that actually. I think it's interesting that the first thing you do is collect data, because I think that's one of the hallmarks of your career. And I also think you're being a little bit modest when you talk about failing as a footballer, because you held your own on the greatest team Liverpool Football Club ever put out, over the best part of half a decade. But at the very start, when you came to England, you had a tricky enough beginning."

Johnston: "Well, it's a pretty well told story, but I better tell you it now because it looks like there are a lot of children below 14 years old here. Would that be right? If you are below 14, quickly put up your hand. Wow, look at that.

"When I was 13 I was a skateboarder. And me and my mate skipped off school because we wanted to ride our skateboards in Sydney. And somehow we ended up in King's Cross which is like the bad side of town, so we thought: Well, look, we should just go in and see if we can see a movie and then go home because home was about 50 miles away.

"So we found this movie and it was called 'The Giants of Brazil'. It was about the great World Cup winning Brazilian team of the '70s. Jairzinho, Rivelino, Tostão. I guess the older guys and girls will remember them.

"I was very good at school and my mum was the local schoolteacher, so my mum wanted me to be, basically, an architect or a surgeon. But when I saw Pele and the Brazilians playing football in this movie, I said: 'That's it – all I want to be for the rest of my life is to be like that man'.

"And he scored this unbelievable goal, a header, against Mexico. And it was the closing slide on the film – Pele jumping up and going like that [fist in the air]. I said to my mate: 'Let's watch it again'. It was like a one and a half hour movie. So we watched it again.

"So anyway, four or five hours later we missed the train home and I got the flogging of my life. My dad set about me for the first time with a stick and when I'd finished crying I said: 'Dad, I know who I am. I know what I want to be'. So he said: 'Yeah, but there's one problem, you're not very good'.

"And I said: 'Yes, I know, but I can get good'. And he said: 'Well, no, you're not even in a school team'. I said: 'I'll get in the school team'. I was about thirteen at this stage, and my mum was very clever and my Mum said...I hope this is not too long..."

Gilroy: "No, go for it."

Johnston: "This is how I got into soccer... the honest truth. My mum said: 'OK, you want to get into soccer'. And I started creating all these skill drills I would do in the back yard."

"When my dad was young he wanted to be a soccer player. He was Australian and he went to Scotland but he went when he was 20 and he was too old because when he got there all the kids had practised their skills and they were better than him. So he said: 'If you want to be a footballer, you can't do this in Australia – you have to go to England'. And I said: 'OK, how do I get to England?'"

"And my mum overheard the conversation and she said: 'Well, if you come first in science, maths and English, we'll pay for your fare'. And I was a middle table student but I studied like no kid had ever studied. A year and a half later I came first in science, came first in maths, came first in English and Mum had to pay the fare. Probably she didn't have the money; my family didn't have the money, so they sold their house to pay for the trip."

Gilroy: "So, no pressure then."

Johnston: "No pressure. So, from being a 13-year-old kid and seeing this Pele movie and then reading all the books on soccer to studying, I now was ready to go to England."

Gilroy: "And that's all well and good, but when you get to England are you going to fetch up at the door of a football club and say: 'Excuse me, I'd like to play for you?'"

Johnston: "Well, my mum and dad wrote to Chelsea, they wrote to Manchester United, they wrote to one other team and that was Middlesbrough because Middlesbrough had been touring Australia and Jack Charlton was the manager."

"Middlesbrough were big in Australia and they said: 'Well OK. Is he any good, your son?' And they (my parents) said, 'He's good by our standards'. So anyway, what they (Middlebrough) said was: 'Well if he pays his fare over and board and lodging, he can stay for a month and we'll give him a trial'."

"So they'd moved into a much smaller house, in a much worse part of town, and I was in the cold north of England. And, by the way, I was a surfer so I had bleached blond hair, you know like one of these Californian kids."

"I had no idea how cold and miserable and wet it was going to be and how the apprentices that I was about to meet, how keen they were that I wasn't going to take one of their jobs. So it was not a good scene."

Gilroy: "So what happened when you got to Middlesbrough? You travelled three quarters of the way around the world; your family are kind of reliant on this being a success. What happens?"

Johnston: "They get the triallists – there's a lot of Irish kids there, a lot of Scottish kids there, a couple of kids from America, there's me from Australia – and then you play a trial game."

"And funny enough, this day – it was a place called Hutton Road in Middlesbrough – I was jet-lagged, my hair was long and almost Rastafarian and we were getting beat three nil at half time. Anyway, Jack Charlton was there and he saw the whole thing."

"So at half time the coach of the triallists was being nice, and Big Jack stormed in with his big, you know, personality, and he had a go at everybody in the dressing room and said what a disgrace and a sham it was and that we were the worst set of recruits he's ever seen."

"Then he picked on me and he said: 'You, where are you from?' And I said, 'Australia', like that. And he said: 'You are the worst footballer I have ever seen in my life. You better hop it back to Australia and I don't want to ever see you again'."

"So I did what you do in these situations and I burst into tears, you know, and all the other lads went 'Wow'. Anyway, he said: 'You're not even going to play the second half', so I got my boots and I went home and then I was psyching myself up because I have to tell my mum."

"So I got back to the digs, dumped my stuff and back then – this is 1975, even making a phone call to Australia is difficult – so it was reverse charges, and mum got on the phone and said: 'Craig, Craig, how was your big trial? How did Jack Charlton like you?'"

"And I said: 'Mum, he said I am one of the finest footballers he's ever seen and he wants me to stay'. And I hung up. And I burst into tears again. So what I'm saying is, you should never tell lies, especially to your mum, but there's nothing else I could do. There's no way I could say, you know, 'I've just blown it'. And, you know, the most interesting thing about the story is that Jack Charlton wasn't wrong, I was actually that bad."

Gilroy: "Now I think that's really interesting because I think from that moment we begin to see some sort of pattern emerge from your approach, not just to football but to the idea of creation and innovation which I think we're going to see replicated when you tell us how the Predator boot actually comes into being. How you rescue this situation is like a massive turning point in your life. What exactly did you do?"

Johnston: "Well, you know, I did the only thing that I could do. You know there I was, just 15, stuck in a cold place where I wasn't supposed to be.

"A couple of the professionals there actually heard about what happened to me and they said: 'Well look, you need somewhere to stay, if you clean my boots and my car I'll give you some money'. And then I could actually pay to stay in the board and lodgings. Then what I did. I would clean the players' boots for the professionals and do the jobs the apprentices didn't want to do for money. So then I could actually feed myself and I had somewhere to stay.

"So, the interesting part of this is when all of that was done I would then actually go and spend three or four hours a night by the street lights in a car park that was next to Ayresome Park in Middlesbrough.

"The fact is that if Jack Charlton says: 'You can't play football', you say: 'OK, what is football?' Well the fact was – some of you kids will appreciate this – I couldn't dribble, I couldn't pass, I couldn't control the ball, I couldn't shoot. But boy could I run. And boy did I try hard. So that's what I had.

"So then I thought, 'OK, I've got a problem. How do I get some skill?' So I would watch the players and the reserves train and I'd say: 'OK, that's how you pass the ball. OK, that's how you dribble'. So in this car park I set up skill drills as I called them and then I had, if you like, jobs to do every day. You know you have homework, maths and science and all that stuff, well I had soccer homework.

"And I created this thing where I would mark myself out of 10 at how good I was and then I painted a goal on the brick wall and I painted crosses in the corner and I would have to hit each one 20 times with my left foot, 20 times with my right foot, before I could move on.

"And if I concentrated, that exercise would take me about an hour. If I didn't concentrate I'd be there for two hours. Then I'd move on to dribbling and I got garbage cans and I put them 18 yards long, two yards apart, nine of them, then I would dribble around them left foot, right foot, and if I hit them it wouldn't count, I'd have to go back to the start. Again you have to concentrate. Again if I did it correctly it would take me an hour.

"So, yes, I was spending four and five hours a day in a car park with a soccer ball, but you know what? In a wink, that's five fives are twenty five, at least twenty five to thirty hours a week in a soccer park, left foot, right foot, OK, over a month that's four thirties, what's that?"

Gilroy: "120."

Johnston: "So all of a sudden when the ball came to me I could control it and one or two apprentices, that also wanted to be recruited, came out with me and we would have games against each other, then we'd start passing the ball.

"And all of a sudden, you know, if you spend that long doing something, it starts to gel. And that basically is what happened. And everyone used to call me, right, and say: 'Jack Charlton's coming', so I used to hide behind the cars in the car park. And he used to come in late and leave early and everybody knew that Big Jack was coming and I had to hide, the kangaroo has to hide. That's what I did for a year and a half."

Gilroy: "It was incredible hard work and a real dedication and success, ultimately, against the odds."

"But I think one of the key things was understanding that here was something that if you spent time with it you were going to be able to understand and control and develop an appreciation of. And that in turn means that you got to understand exactly what the football was about and I think maybe you might have had an obsession with the football and it's a lifelong thing with you."

Johnston: "Ger, you're bang on the money. It was an obsession for the football and the fact that the football didn't like me and wouldn't do what I asked it to do."

"And have you ever seen the shape of a football? It is a perfect object that is designed to roll away from you. And your foot is shaped that way [makes an arc in an n-shape] and the ball is shaped this way [makes an arc in a u-shape] – they're opposites, so the frustration was other people could control the ball and manipulate it and I couldn't. So I was obsessed."

"And I came to this realisation one day, in the deepest, darkest middle of winter when it was freezing and all the apprentices were in the digs, eating beans on toast, watching Coronation Street in front of the fire and four hours later, here's the idiot kangaroo, drenching wet, counting up and giving himself marks for how good he was for that day. It sort of impressed me that the football is a perfect object and it doesn't make mistakes. The person using it makes the mistakes and the more you use it, the less mistakes you make."

"So it was that realisation that made me say: 'Well, hang on a sec, I feel like I'm wasting my time here, but if I can be a better player tonight than I was this morning when I woke up, then I've won, and if I can do that every day... '"

"So therefore I set about a target for the skills and actually I did get better on a daily basis. I'm not sure that the kids these days think about their game like that, but that's what I did."

"And you're right; I'm fascinated by the football. But you know what? So is Thierry Henry. So is Wayne Rooney. So is David Beckham. Football for me is about a man's or a woman's or a kid's relationship with that perfect object. Because the beautiful thing about the ball, it doesn't change."

"Funnily enough, I've got one here. Look at that, look at that. So that believe it or not –you can call it a football, but it's actually a truncated isohedron. It is. That's the scientific term for it. It has 32 panels, OK? Does anybody know how many of them are hexagons? No? How many?"

Audience member: "All of them?"

Johnston: "Not all of them. Twenty are hexagons, which have got six sides and 12 are pentagons, which have got five sides. So, does anybody know how many stitches are in the ball? 720. So that's the scientific term, and, of course, the isohedron is not round. It's actually got square faces. It's the butyl bladder that, when expanded, makes it a ball.

"But when you think about it, I know lots and lots of Irish people that cross the Irish Sea every week to see Man United, Liverpool, Chelsea, whoever – Aston Villa some of them [points at Gilroy]. He supports Aston Villa. That's got to say something about a person!

Gilroy: "It's Paul McGrath's fault."

Johnston: "Paul McGrath. Now there's a man, Paul McGrath. So my point is we're all fascinated by the football. Who played on the weekend? Was it Arsenal and Man United?"

Gilroy: "About 10 days ago."

Johnston: "10 days ago. So that's what they were fighting over. When you think about it, those 22 players on the field, plus the subs, were fighting so they could get this ball, this object, then manipulate it in a particular way and put the ball through that goal.

"Anybody know what the dimensions of a goal are? Sorry? [Muffled words from the audience] Eight? Almost right, almost right. It's eight foot tall by eight yards wide. Eight by eight, imperial measurement. And of course, that's standardised all over the world."

Gilroy: "That's the thing about it; the standardisation of the sport allows the appliance of your ideas from that car park in Middlesbrough to be the basis of one of the most successful football boots in the history of the game."

Johnston: "The most successful."

Gilroy: "The most successful."