

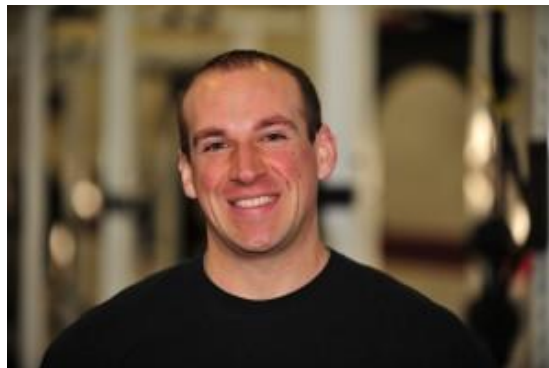


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WEEKLY MUSCLE BUILDING EXPERT *Interview Series*



Luke Allison Interviews [Eric Cressey](#)



LA: This is Luke Allison with [CriticalBench.com](https://www.criticalbench.com). I'm here with Eric Cressey. Eric, how are you?

EC: Not too bad. How's it going, Luke?

LA: Going good. I wanted to sort of get into your background. You have a reputation for working with baseball pitchers and being a bit of an expert. I'm wondering, was this a specific goal, and sort of how did that come to be?

EC: You know, it's actually interesting. My background, before that, had been more actually dealing with basketball and soccer athletes when I was in grad school and kind of helping out with some of the teams at the University of Connecticut under Chris West.

After I finished my masters and I went to the private sector, it just so happened that some of the first athletes that I started working with were baseball guys. And with my own personal background of having a lot of shoulder issues, I mean, I was a tennis player growing up. So, I had a lot of kind of background with respect to overhead athletes, at least experience-wise. It was kind of a natural fit for me and things just took-off. Those guys got some good results and really word-of-mouth blew it up and here we are a few years later.

The funny thing about it is my mom always jokes that I was destined for training baseball players because I taught myself to read with baseball cards when I was little, because I recognized all the pro players. All I had to do was match their faces up with the names on the cards and I kind of learned that way. So, I guess part of it was subconscious and part of it was very conscious.

LA: It's an interesting story, because it never has the twists and turns that you would expect. I don't know if we're at a point where someone would just grow up and go, "I want to work with baseball pitchers. I want to work with baseball pitchers."

EC: No, it doesn't work that way at all, I mean, especially in this industry where strength and conditioning is a field. As a whole, it's a very dynamic industry. It's constantly changing and constantly evolving.

If you're going to do that, you really have to know from day one what your true passion is, because that's what you kind of have to adhere to and that's what you have to read on and stay on top of.

So, no, I think a lot more people have to go through internships and go through experiences to realize what it is and what they don't want to do. I did internships in cardiac and pulmonary rehab when I was growing up. It wasn't a good fit for me, but I needed to have that experience in order to know.

LA: Sure, sure. I want to get in a little bit of your experience sort of working with athletes from different sports. One of the things that I notice a lot is the amount of feedback from various sports that's extremely different. Something like pitching, you have really sort of high quantitative, just off the charts in terms of feedback. Where something like some of the positions in football or powerlifting, there's basically no feedback for a lot of...

EC: Yeah, it's entirely different. I mean, the thing about baseball that's... I mean, I've had professional baseball players who have 20" vertical jumps, who can throw 95 miles an hour. It's the same reason why a lot of guys look at me and I may not be the most jacked guy in the gym or on the surface look like really that physically daunting. But, I've got a good deadlift. It comes down to being very, very neurally efficient with very specific motions.

So, just like you or I could get good at a deadlift or a [bench press](#), some people get very, very efficient with their mechanics on the mound. They may have very good hand/eye coordination and very efficient at rotational power at the plate. So, that's where they're unique and a lot of times baseball players are very successful because of traits and not necessarily things that are really trainable. So, a lot of times our training is more focused on how to allow them to make better use of those traits, how to manage them so that they don't get hurt.

If you look at the research on major league pitchers, actually major league players as a whole, about 89% of them have a positive Sulcus Sign in both their throwing and non-throwing shoulder. So, what that tells you is those people have a very high amount of congenital laxity. They have a lot of freaky joint range of motion that allows them to throw a baseball hard.

If you look at hand/eye coordination, you're not going to play professional baseball as a hitter unless you have at least 20/15 or more like 20/10 vision. So, those are things that influence success in this sport that may not be governed by purely athleticism.

So, a lot more of what we sometimes have to do, unfortunately, is we're not necessarily dealing with freak athletes. What we're dealing with is very good tradesmen who need to learn how to stay successful in spite of the fact that they may be playing over 200 games a year between spring training and the regular season and post-season and all that.

LA: I think you bring up some really sort of interesting things with vision and sort of joints, laxity and whatnot. Can you tell the difference between something like an athlete is interested in, whether that's a lift or a sport versus something they have an actual aptitude for?

EC: Yeah, I mean, that's the million-dollar question, and that's what professional baseball scouting all comes down to. How can you figure out who the best players are, the youngest ages and get them into the big leagues as quickly as possible. That's how you win games. If you go back and look at the Boston Red Sox in 2007 when they won the World Series, I mean, they had probably five or six of the top 30 players in baseball under contract, all combined for under \$6-million. So, they got their talent to the big leagues quickly. So, that's partly development, but it's also very good amateur scouting and getting people in the right system.

No, I don't know that it's as easy as we might think, because anyone who's trained young athletes has come to appreciate that everything changes around ages 14-15. When a kid goes through puberty, he may be going from being completely unstable to being so stable that he's, in fact, immobile. So, bodies change a lot when your femur grows 2" in the course of a year and all these things dramatically change and you're kind of dealing with a new body.

Really for us, kind of the telltale sign is most of our kids, sophomore/junior year of high school is when you can really start to tell who's going to really take to this, who's going to be a stud in their sport and they kind of separate each other out. It's very, very interesting the sense that our 2011 class, which are seniors, we have 21 kids in the class of 2011 who have committed to division 1 baseball scholarships here at our facility in Massachusetts. By that same token, right now we only have one in the class of 2012 who's given a verbal commitment.

So, it's just very early and what's going to happen is over the next month, literally, we're going to find out which kids are going to come out of the woodwork and be really, really special and which kids are going to need more time to develop and maybe not hit that level. So, it's kind of an eye-opening experience when you see how quickly things change at that age and how big their windows of adaptation are.

LA: Yeah, it's always been a bit of a mystery. I worked very briefly with baseball players and I was not entirely sure if they box squat and they're sort of rotating to their pitching side. And I'm like, what is it? And it's like, oh, he's a lefty and a pitcher. You're like, oh, okay.

EC: It's pretty profound. One of the schools of thought we've started looking a lot more at...I got turned-on to it by my buddy Neil, who works with the Diamondbacks. There's a school of thought called the postural restoration. It was actually founded by a dentist from Nebraska named Ron Hruska. And really what he looked at is our anatomy, going all the way back to seeing what cadavers look like. When you think about it, we're always taught you have two eyes, two ears, two arms, two legs. We're build symmetrically, right?

What no one really talks about is we have a liver on the right side, we have a heart, we have a vena cava on the left side. We have more prominent diaphragmatic attachments to the spine. There are two lobes to one lung versus three in the other lung. So, really, we're not as symmetrically as you might think. All these internal organs' differences can actually be very, very apparent in the way that we carry ourselves.

I have an article coming out at T-Nation here pretty soon that touches on it a lot. But, what we ultimately find out happens is a lot of these right-handed individuals who spend their entire life playing a right-handed dominant sport re-ingrain the natural asymmetry that we see on such a level that it become pathological.

So, if you go into like any professional baseball clubhouse or even like Little League or high school or anything, look around at the number of right-handed players who have low right shoulders. You'll see kids that have a right shoulder that's a good 2" below the left. And then, you go and you look at all the left-handed kids and nobody has a low left shoulder. It's really a structural adaptation that starts with respiratory function and affects the orientation of the spine, the hips, the scapula, the rib cage, all of it. It's pretty powerful stuff.

We've done a lot of before/after pictures of guys and you can literally see how those asymmetries go down during the off-season as they train to address them and they step away from their sport for a while. You compare them to the pictures after the next season and you see a lot of this stuff comes back just because of their throwing volume. So, it's always kind of just managing guys and keeping them away from threshold as best as you can.

LA: It seems like throwing is something that's right on the verge of whether or not it's a good idea or not...

EC: It's a terrible idea.

LA: All right, I'll go with that then.

EC: It's the single fastest motion in all sports. You're looking at over 7,000 degrees per second of internal rotation at the humerus. So, if you take your humeral head, so the ball and socket that is your shoulder, that's 20 revolutions in a matter of a second. That's how fast things are going.

You take a shoulder moving at this high of a speed, and keep in mind that a lot of times that's a very lax shoulder as it is, you need so much dynamic stabilization from not only your rotator cuff, but also your scapular stabilizers, your lat, your core, your

lower half. Everything really has to synch-up perfectly in order to just keep your arms from flying off your body that it really is kind of an impressive like physiological...

LA: That it's possible, that it doesn't just sort of separate from the body or something?



EC: Exactly. You don't have to look any further than some of the stuff that happens. I mean, you look at the load on the UCL during every throw. I mean, you're at near failure load. So, it really takes a combination of like active restraint, so muscles and tendons working hand-in-hand with passive restraints, like ligaments and your labrum, things like that that may not adapt to stress. They have to line-up perfectly.

LA: There's an idea about...obviously you just said pitching is not necessarily a tremendous idea. But, there's also an idea right now in football that sort of slamming into each other thousands and thousands of times causes trauma to the brain, which essentially kills the brain. Are these sort of changes that you would see affecting who participates in what sport over the next five to ten years?

EC: You know, I don't know that... I don't think we're ever going to take away from that participation just by scaring people. I think you're going to see more precautions in terms of protective equipment and things like that. More than anything what I'd like to see is I'd like to see people learning how to manage athletes better.

We may not be able to control concussions and things like that as much as we'd like. But, at the same time, what we can control are the ACLs. We can control the Tommy Johns. We can control things like that that are very preventable with training.

I train Kevin Youkilis from the Boston Red Socks and he actually gave a really good interview the other day. When they asked him, "How are you feeling after your thumb surgery last year?" And he's like, "I feel great right now, and that's all going to change tomorrow," Because the second you get in-season, literally what happens is you're never 100% until it's over again.

So, in a situation like that, you just have to appreciate that anything at the highest level of sports is not going to be inherently healthy. That's why these guys get paid a lot of money to play, is that they really are beating-up on their body and that's why you see guys who were retired wind-up with arthritis. I mean, I think Terry Francona, who is the Red Socks coach right now, has 32 knee surgeries in his life.

So, it goes to show you that these guys are really putting their body on the line all the time. It's one thing for you or I to go in the gym and lift four days a week, but you've got to remember, these guys might lift four days a week on top of hitting, throwing, sprinting, doing medicine ball stuff, taking ground balls, all that stuff. And it really does add-up and over time, it can beat you up.

LA: Talk a little bit about the sort of range of injuries that you're going to see from throwing.

EC: The range of injuries?

LA: Yeah.

EC: Really, what everything comes down to in the context of throwing, if you want to sum-up the overall majority of injuries, it's really going to take place at the point where the arm goes from extreme external rotation, so like the end of the cocking phase, right where you transition to acceleration. We call that the peel-back mechanism at the shoulder.

What happens when you're all the way laid-back and your forearm's parallel to the ground and you're getting ready to whip forward, essentially what you have going on is your biceps tendon is twisting and it's pulling off of the superior labrum. So, in that you can get irritation of the biceps tendon as it kind of slips in and out of the bicipital groove. You can get irritation, obviously, the superior labrum because it can tug off. That's why a lot of guys have fraying and ultimately some guys wind up with tears. But, in that same position, you can get what we call an internal impingement of the rotator cuff.

So, in a weight-training population, we see more of a bursal issue, so the top side of the rotator cuff gets irritated under the acromion process. In throwers, and swimmers, tennis player, all of them, we see more of a posterior impingement that

happens way back in external rotation. What happens is the undersurface of the rotator cuff gets irritated.

So, those are traditionally much tougher tears. They don't tend to heal very well because of the location and the poor blood supply. So, at the shoulder, your big three are going to be biceps tendon, rotator cuff and labrum.

A lot of guys have a little bit of each. Seventy-nine percent of major league pitchers have abnormal labral features. There are really high numbers on partial cuff tear as well. So, you can have quite a bit of structural abnormalities on an MRI or on an x-ray and that doesn't necessarily mean you're going to be pathological.

But, that same instant can cause a lot of trouble with the elbow as well. So, when you're laid-back right there, it's a lot of what we call valgus stress on the elbow and that can really wreak havoc with the ulnar nerve, the ulnar collateral ligament. You can get flexor or pronator strains. So, really, medial elbow pain is your most common one.

In the younger population, you can get some lateral pain, which is more of like a boney compressive type injury. But really, a lot of injuries do change over the course of the lifespan in younger kids, where the bone is the path of least resistance. You're doing to see more growth plate injuries. As guys get older, you're going to see more ligament and soft tissue issues, because those are the path of least resistance after the bone's mature. So, lots of stuff to consider.

LA: Yeah, lots of different ways to sort of go about being unhealthy and whatnot. One thing I noticed, and I'm not sure if there's a pattern. This would be certainly more of your area, but noticing things that would be throwing injuries, labrum injuries, broken humerus, detached biceps in athletes that do not throw.

EC: Yeah, I mean, you will certainly see it. A lot of times you'll see it in like the guys who haven't done it for a long time and they go out and they decide they want to play beer league softball. Yeah, you will see some pretty crazy stuff.

And you've got to remember, like if we're talking about like a labral tear, there's certainly different kinds of labral tears. You'll see more anterior labral tears in the weight lifting population, whereas everything you see in throwers tends to be posterior and if it is anterior, it's after a long time and it's migrated forward.

Yeah, I mean, the other thing you have to consider is, I mean, think of what's happened in Major League Baseball. They waste literally billions of dollars on players who are injured, on the disabled list every year. The question becomes, why is that happening? Is it happening because they have terrible strength and conditioning

programs? Is it because players are lazy and out of shape? Is it because of the nature of the sport is so demanding?

No one ever, ever points the finger at what I think the most obvious kind of rationale for it is, and that's because kids have been overused for years. They've been beaten-up in the younger ranks and have thrown with poor mechanics and been insufficiently strong and flexible.

What's happened is they've just taken years and years and years to reach threshold. So, we may see a 23 year old kid who gets a Tommy John. In reality, he probably had a partial UCL tear when he was 14 and he just managed it and went in and out of physical therapy for years and just kept doing the same old stupid stuff over and over again.

So, a lot of times these issues just come...you know, they take time to reach threshold. But, is it socially acceptable to do an elbow surgery on a 14 year old? Probably not. At 23 is it okay? Absolutely. The kid is mature, he can speak for himself, go ahead and do it.

I think the problem is a lot bigger than just what's going on in professional baseball. It has a lot to do with the AEU generation and how kids are managing themselves.

LA: Is that something that you can manage specifically through the finite facets of baseball? Can you put people on pitch counts? Can you have the state Athletic Association say you can only throw so many pitches or can you change the way that Major League...

EC: Yeah, they've worked to. USA Baseball has put out their pitch count recommendations and the ASMI has put some good stuff out and all that. But, my answer would be, can you keep kids healthy? Yeah, absolutely. I know that I've been working heavy with baseball players since 2006, and knock on wood, we've never had a Tommy John on our watch. I mean, that's an incredibly powerful thing. I can tell you we have 85% of our clients as baseball players. I've rehabbed a ton of guys who've come after them, but we've never had anybody that's trained with us for an extended period of time have a Tommy John.

If you look at what goes on in terms of geography, people in cold-weather climates tend to have lower injury counts than people in warm-weather climates. So, just being in a different environment, training differently, having different appreciation for knowing how to manage yourself in the competitive year, you begin to appreciate that yeah, you really can prevent these injuries.

LA: And that becomes engrained, obviously. You have places to go and you learn that.

EC: I think so. And I think the biggest part of it is you make young athletes informed consumers. They know how to take care of themselves. They're not always going to be on my watch. Eventually some of our high school kids are going to get drafted and they're going to be playing rookie ball out in Montana, by themselves. I want to make sure that we've educated those kids so that when the day does come that they have to stand on their own two feet, they're going to be in a position where it's going to be like a piece of cake. So, it's tough.

LA: One of the other things that you're sort of known for is, I guess, unstable surface training. Is that something that you can sort of summarize really quick for maybe someone that didn't come across the journal article?

EC: Yeah. At the University of Connecticut, for my grad degree from 2003 to 2005, my Master's thesis was basically the first ever long-term training intervention. So, we had over 30 subjects for a matter of ten weeks. And basically what we did was we effectively replaced about 2-3% of their training volume on stable surfaces with unstable surface training.

They were soccer players and we pre and post tested them on some plyometric measures. So, the counter-movement jump and a balance-drop jump. Tested them on agility measures, so a T-test and both a 10 and a 40 yard sprint.

What we basically were looking at is what happens to strength and power when you replace them with a small percentage of training volume with this unstable surface training? And really what we were trying to do is we were trying to simulate what happens in most programs when people do include lunges onto the Bosu ball or single-leg squats in a Dyna-Disc or whatever it may be.

So, we went through all that and the results were published in the Journal of Strength and Conditioning Research back in August of 2007. I delivered my thesis, kind of probably about the April before that. And really what was interesting was we found that while these things may be very, very useful in ankle rehabilitation and all that, you've got to be really, really careful about applying them in a healthy population, because you can look all the way back to the research. In 1966, they showed in the research that proprioception is very, very, very skill specific. Meaning, just because you can stand well on an unstable surface, which is a lot of static balancing proficiency, does not necessarily mean it's going to carry-over to dynamic activity.

So, for us, our conclusions were we recommended that people use them in extreme moderation, if at all, in healthy athletes with no history of ankle sprain. That's

markedly different than what you're going to see in the real world now days. I mean, I went on and I wrote like a 95-page ebook up on it and talked about different functional balance training strategies and all that. But, it was pretty eye-opening that even that small amount of unstable surface training could have such a profound long-term training consequence.

LA: It just seemed necessary to point out, because you still see people on stability balls or on a Bosu ball or on a disc, just constantly.

EC: Yep. We found out that the athletes that we tested...we did it during their spring soccer season, and we accounted for training experience, previous history of injury, all that stuff. And what we found was that all these guys were 97% the same with their programming, but what the big difference was this inclusion. We found that everybody improved on these measure. They got faster, they jumped higher, things like that. But, the stable surface exclusively training group improved more. So, what it did was it attenuated improvements in the unstable surface group.

They can go online. It's on PubMed if they want to read it. If you go to UnstableSurfaceTraining.com, there's stuff up there as well. There's definitely places to check it out.

LA: There was sort of a corollary to that that I wanted to ask you about, because I know you have a powerlifting background also. Certain people, certain styles of thoughts or in training methods, you'll see people squat on the foam or you'll see them board press off of foam. Is that in any way the same or is that completely different?

EC: That's going to be totally different. I mean, when you're squatting to foam, it's a lot different. I mean, we're talking about...our study was exclusively looking at lower body unstable surface training. So, when the unstable implement was between the floor and the ground. What you're talking about in those situations, you still are inherently stable at your points of contact with the ground.

Likewise, if you look at the research, there also appears to be a difference in the way that we react between upper body and lower body unstable surface training. So, a pushup on a Bosu ball may actually be a great exercise. If you think about it, it makes sense. Most of the time our lower body works in closed-chain motion, so our feet are on stable ground. Whereas, our upper body kind of works in a little bit of both. We've got open and closed-chain responsibilities in our daily lives.

I think that accounts for some of the difference, but we still use some unstable surface stuff in our upper body. We tend to stay away from it in the lower body though.

LA: It's as complicated as you want to make it. That's one of the things...to make accessible for everybody.

There's sort of an idea out there sort of floating around in the market that maybe, maybe not, you can sort of write your own programming and be your own expert. Is that something you think is possible based on sort of limitations and bias?

EC: I think it's possible, but it definitely takes time. I mean, I know for me, personally, like we have interns at our facility all the time. I'm always blown-away by how awful the programs they write are the first time that I actually take a look at them and we go over them, we start talking about how to do it. I usually give them a pretty serious programming challenge and I set a deadline on time on how long they have to do it. We look over it and we talk about how they could be better with respect to the unique situations that I outlined.

Put it this way. There are people who have jumped in and become successful personal trainers over the course of time because they're self-educated and they never took a class on how to do this. But, it definitely takes time.

By that same token, I don't do my own taxes. If I need a contract, I would never write my own. I would go to a lawyer to do it. I think the question is not just can it be done. I think the question is, can it be done efficiently and done well?

Everybody can go and grab Turbo Tax and try to do their own taxes. And what do they do? They miss out on a bunch of important write-offs. Maybe they miss out on something that's going to get them audited. So, it's one of those things where I think you have to figure out whether it's really in your realm of expertise or whether your time is better spent elsewhere, especially if it means you're going to have markedly poor results doing it on your own.

So, that's where it gets tricky. But, I try to self-educate people as much as I can. That's some of the stuff I've done on my blog, just gradually teaching people how to understand that there are certain core principles that every program needs. So, you're just going to tinker with those to make things right.

LA: We live in sort of a strange, I guess, point in time where outside expertise if available through yourself, someone like Mike Roberts, but it's totally unclear. I'm in high school, I have a strength and conditioning coach. I'm in college, I have a position coach and a strength coach, a graduate kinesiology program here. Where do you see the need for sort of outside help?

EC: That's the million-dollar question. I think obviously anybody who's too busy to even give it the thought of their own. We have a lot of clients who want to just show up,

do their thing and get out of here. I appreciate that like you wouldn't believe. It's no different than me wanting to just pay somebody to do my taxes. That's an obvious one.

I think the other situation is people are coming off of injuries. That's an absolute no-no in terms of doing your own thing, because one, an injury situation you have unique physiological needs. There are neurological changes, there are structural changes. You're fundamentally not the same as everyone else. Just trying to pull something together on your own is not necessarily going to be a good idea.

If you're a generally healthy guy, you have a fair amount of training experience, you haven't accumulated a bunch of issues, yeah, you can get away with experimenting, pulling some stuff together for yourself. But, I find that those people are the ones that after the course of time, they realize that they're better off kind of referring out and deferring to peoples' expertise just because it gives them the ride they need and they get to experience different training styles and see what it is that works best for you. I think a lot of times when we write our own programs, we're more inclined to do what we're good at and not necessarily what we need.

LA: Right, I think we all sort of fall into that from time to time.

To go back to program design, just for a little bit, is there anything that you have sort of really strong feelings about in terms of program stuff?

EC: Yikes, I could go on all day about it. I think the biggest thing is, I think most of the people I see are maybe your typical internet consumers. A lot of people are really convinced that they're more advanced than they really are. I think people get too far away from the basics sometimes because they're convinced that they're physiologically different than someone else.

I mean, a lot of times I'll take a poorly written program, execute it at 100% effort over something that's incredible well thought-out and then just execute it at sub-par. So, I think a lot of people need to spend less time thinking about how special they are and more time just busting their ass and working harder. Maybe it's a little short to say and all that, but I mean really, that's the impression I get of a lot of people.

I'd say the one other thing that I see a lot of is people don't appreciate that sometimes the easiest way to get bigger is to build a good pool of strength beforehand. I know for me, personally, I spent so much time, so many years trying to stay a legit 165 in powerlifting that literally, like in the three months after I decided I was done at 165, I ballooned up to like 192 and I've just kind of hovered there ever since.

It was like my body knew exactly where it needed to be, in light of the strength levels I had, and like literally, I've hovered kind of at that weight class for another couple of years. Because, my body kind of had this place where it wanted to go.

So, I think for a lot of people they spend so much time trying to find these elaborate rep protocols and trying to creep weight up, sometimes just get stronger. I think that's the most important thing.

LA: Yeah, and I guess that brings in sort of different aspects of self discipline and where did you learn to work hard and things like that, that don't have anything to do with program design.

EC: Yep, absolutely.

LA: I guess just to close up, I've taken up quite a bit of your time. But, if people are in the Boston area, or they're in New England, how do they find you, how do they get in touch with you?

EC: Our website for the facility is CresseyPerformance.com. My personal website is EricCressey.com and we've got a free daily blog and bi-weekly newsletter and all that stuff. So, it's a good time. But, there are lots of ways to get in touch with me. I'm pretty accessible.



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LA: Well, Eric, I appreciate the time, certainly informative. I definitely appreciate it.

EC: No problem. Thanks for having me.

LA: All right, take care.

EC: You too.

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