

**Daniel Thompson 00:00:14**

Hello. Welcome to the British Canoeing Coaching Podcast. Today's podcast episode is brought to you by the England Talent Programme. This is the second of a three part strength and conditioning series. In our previous podcast episode, we discussed sport sampling, what it is and how it can be useful for developing athletes.

But today we're going to talk about the purpose of strength and conditioning, addressing some concerns that people might have with strength and conditioning, highlighting the benefits. And then we'll start to look at how S&C can fit within the training programme.

So my name's Daniel Thompson. I'm the Talent Operations Coordinator for British Canoeing and joining myself with discussions on this topic area today is Ben Lewis our Pathway Strength and Conditioning coordinator. Hi, Ben.

**Ben Lewis 00:01:03**

Hi, Daniel. Thanks for having me back for round two.

**Daniel Thompson 00:01:06**

Yeah, it's great to have you with us again. We had an extremely enjoyable discussion last time we met and today I'm just keen to talk about the purpose of strength and conditioning and addressing some of the concerns that people might have with S&C. But more importantly, what, what the benefits of S&C are and, and how that can fit within a training programme.

So without further ado, as I mentioned, there is sort of a lot of negative perceptions around S&C in that it is damaging to adolescent development and people shouldn't do S&C til they're fully developed. But what's your response to that particular question?

**Ben Lewis 00:01:48**

Yeah, I think it's something that gets gets discussed quite a lot within the youth athletes and maybe it's first kind of just breaking down when we're talking about the youth and adolescence is that that child pre puberty kind of areas what we're looking at sort of can be anywhere between 9 to 12 or 12 to 16 as well.

And I think one of the things always strikes a chord in my mind is, is whether the actual term strength and conditioning is the kind of misconception of what it is because people hear the word strength and think it's getting under a bar and lifting heavy weight and conditioning is going out for a run. I think if you're new to those terms or you don't fully understand those terms and you just see that on paper, that can potentially sort of create this negative connotation about what it what it is that we're trying to do.

And in essence, it's not just about getting young athletes under bars and lifting and going running it. It's about preparing them for the demands of the sport and filling the gaps of physicality and technical execution. But one of the things that does get raised quite a lot is if a young athlete was to

take part in a resistance based training programme, is there a negative effect on the growth and development of the skeleton?

Both structurally and in and around both growth plates and whether you're compressing and whether that affects kind of longer term growth and development. And actually, if you look at a lot of the research, a lot of that school thought came from sort of the seventies and the eighties, when there wasn't as much information out there, if you look at kind of the current research and the paediatric S&C is quite, I wouldn't say it's well versed, but it's definitely got a lot more work in that area of the last ten years, 15 years.

And if you look at the actual research, they haven't shown to be any sort of damage towards growth plates. In fact, there's actually a lot of benefits that you can get from engaging with a S&C programme some of those things we'll talk about later on in the conversation. But but yeah, the growth plates is one and I think it's just trying to hammer home that that's not it's not a risk.

It's not going to have a negative impact on the athletes development and actually, if you think about sort of forces that the young athlete will be experienced in the sport that they're doing, that can actually be a much greater level of force through the sport both in kind of exposure. So how much they're doing of it and the repetitions of it, but also the magnitude of it as well.

So the kind of the intensity of that force, an example that they use quite a lot is if you think about jumping and landing and if an athlete was to jump and land, depending on the nuances of technique and stuff like that where they can actually expose themselves to the forces that can be greater. That kind of I think the research is somewhere between 2 and 2.6 times body weight.

So if you think about that they've actually been exposed to quite a lot of force away from you know away from the gym and actually just taking part in a sport is there's a lot of force at play so that kind of leads me to the next point is that if you have a poor level of physical preparedness or a poor level of physical fitness, the risk of of being exposed to the sporting demands can actually lead to injury if those training demands are quite high.

So what we're trying to do is prepare them to be able to tolerate and then, you know, kind of be able to handle the demands of the sport that they're trying to do. So they're kind of one of the the big thing that I want to get across is that it actually complements the physical development and it doesn't hinder the physical development of young athletes.

One of the other points I think is, is interesting to note is when we talk about kind of structurally how an athlete develops, one of the big things that I think is quite interesting is actually taking part in some form of resistance training can actually have real positive impacts on bone density. So being exposed to whether that's resistance training through, you know, if you were lifting some kind of weights or did some kind of jumping activity or throwing activity by taking part in that, you actually increase the level of kind of bone mineral density.

And I think, if I remember correctly, it peaks at around 26. So if you don't expose yourself to resistance training from a young age, you can actually miss out on developing some kind of key structural development within the bone, some further down in life can kind of have it a prerequisite to kind of bone health conditions such as osteoarthritis and stuff like that.

So just away from the sporting context, the sport context, in terms of just overall physical and bone development, it's key that the people are exposed to that type of activity from a young age, really.

**Daniel Thompson 00:07:26**

That's very interesting research, that is.

**Ben Lewis 00:07:29**

While I was doing some stuff on my masters, we looked at some bone scans. And you actually you could see those athletes who did different sports, their bones develop slightly differently. And I think particularly with within a sport like canoeing where you might not do as much sort of impact based work from the lower body, you could actually have a negative bone development from the lower limb.

So therefore, the argument there is some kind of exposure of lower limb resistance training can actually counteract just spending so much time in the boat. I think it's quite interesting. So yeah, they're some key things to think about and hopefully try and understand. But I do. I do think as well, the way that the programme is structured has to be fit for the individual.

So the athletes that we're talking about today, they're young athletes and they're not just miniature adults. So it's not a case of taking, you know, a real high level, heavy strength programme and getting the kid to do that, because that's not that's not fit for purpose. It's very much kind of understanding the demographic of the athlete and having a sound progressive plan.

And it's not just a case of, you know, strength training. It isn't just about using weights. Resistance training can be body weight stuff and being able to control that body weight and spatial awareness and stuff like that is, is really beneficial. So it's, I think the the negative consequences if a programme wasn't fit for purpose and was delivered in the wrong way, but delivered in the right way, the right outcomes and the right delivery and the right execution will actually have real positive benefits to the athlete as they kind of develop through stages of their athletic development really.

**Daniel Thompson 00:09:18**

Thanks, Ben. Yeah, that's some some really, really good points there. And we're going to talk a little bit about how you can use S&C as part of your training programme and how you apply that in the provision for a training programme in a while. Discussed a little bit around the negative perceptions of S&C and that kind of almost that last point that alluded to why S&C is important but kind of touching on that topic why is it important for paddlers to do S&C training and are there any long term benefits in establishing that type of S&C based training?

**Ben Lewis 00:09:59**

Yeah, I think we probably touched on some of the stuff from the previous podcast on sport sampling as well. And it's trying to see it is doesn't necessarily at this stage need to be paddlesports specific. It can be quite global things that we're looking at and you know, some some of the benefits that you

can highlight is of the increasing kind of muscular endurance of muscular strength, muscular power, that kind of injury mitigation piece.

You know, we'd like to say, you know, to avoid injury, but we can never guarantee, just mitigate against. Yeah. And then also kind of aerobic and conditioning qualities. Then also, I think one of the big one of the big things that you know from a psychological point of view is just kind of confidence within being in that environment and also understanding for the athlete what the benefits are for them long term.

One of the things that I think is it's really interesting is that when we're talking about this, this type of athlete, the developmental athletes, a lot of the a lot of the things we're trying to or benefits we'll see will be neurological. So as opposed to structural, so structural being an increase in muscle mass, neurological things. So teaching them to be able to use the right muscle at the right time, be able to recruit the right muscle and or recruit more of the muscle to produce or to execute a task.

And being able to coordinate how muscles are working together, that's sort of the benefits that we're looking at. So it really is down that coordination and neurological piece and then also sort of teaching them how to control their body in different positions and learning how to execute certain movements, whether that be paddle specific or non paddle specific type stuff. That's where the benefit of S&C comes in to really.

It's not just about lifting weights, it's getting them to coordinate and fire lots of different patterns of movement, and like we said on the sports sampling one, it's much easier to develop these skills as a young athlete as opposed to as they get older because there's a certain window of opportunity where the body will adapt quite quickly So making sure they're exposed to those things at a young age is key.

I think if we talk more about paddlesport, it is a technical based power sport, so one of the prerequisites or something that influence power is going to be strength. So being able to hold good positions and recruit muscles and coordinate muscles is obviously going to be beneficial for the sport and the stronger muscle is, the more efficient that muscle can be.

So that kind of helps link into the endurance component of being able to hold a good technical, efficient position means the body doesn't have to work quite as hard or it doesn't cost the body quite as much to kind of hit the amount of training that is required to develop them on the water.

#### **Daniel Thompson 00:13:09**

Yeah. Cheers. I think as you said at the beginning and just talking about benefits just globally in a non-paddling paddlesport sense and you know, of different benefits there, but as you mentioned, towards the end, those neurological and benefits you gain with that coordination. Really that's when you get more down to very specifically how that can help a paddler on the water and kind of that in a way links me to my final question about actually incorporating S&C within a paddler's training programme and how does doing S&C help them to support on-water development.

#### **Ben Lewis 00:13:55**

I think the key the key word that you used is support and I think it's making sure that S&C is there to support the paddler's programme, it's not there to replace it and so it's making sure that they can a

firstly, can they are they strong enough and can they tolerate the amount of training that they need to do on the water because that's where, that's where they want to be and that's where success is.

That's a competition environment. So it's making sure they can get in the boat and they can paddle and they can do X amount of sessions and execute technical and tactical part of racing. One of the big things that which we've kind of touched on is it enables them to hit the technical developments and the technical positions that are required for efficient stroke execution and like we've kind of touched on as well that being able to mitigate against injury.

So when they're on the water, the amount of exposure that's going through the shoulder, the amount of exposure that's going through, kind of the trunk and the lower back and the hips, there's a lot of stress that's being applied to the body. And so by taking part in a structured programme that is preparing to handle that is crucial and that enables them to tolerate that amount of training.

And it doesn't necessarily need to be in a fancy gym with lots of fancy bits of equipment. What we're talking about at this stage is, is it's kind of that that body control and body weight exercise.

**Daniel Thompson 00:15:32**

This is at the adolescent stage you're referring to here I take it.

**Ben Lewis 00:15:36**

Yeah. So lot of a lot of a lot of this can be done through a progressive body weight programme. And when the time is right between and that'll be a conversation between athlete, coach and parents is when more targeted specific resistance training would come into play. But like I say a lot of the stuff it can be done at home, away from the water, it can be, you know, things like good quality press ups, good quality corework: planks, side planks that sort of stuff.

So we'll talk a lot more about actually what it can look like in the following in the following podcast. One thing that I do think is quite interesting is that sometimes there's that question of how do we fit in? When we've got so much stuff, you know, that we need to fit within a programme.

Particularly when it's not just about the sport, that's the education side. And being at school and then social side obviously. There is a lot of stuff going on within the week. It's one thing I've spoken about quite a lot with with athletes and coaches as well is having good structured warm ups is quite a good way of kind of putting some of these things into their training plan, but it's not really taking time away from the club.

So, so for example, if you think if you had a good solid 15 minute warmup and you were to do that, you know, Monday to Friday, if you're add up the total time spent, it can actually add up to maybe one or two sessions of good structured what we call sort of strength and conditioning work. And that's quite an easy way if people are constrained by time and that first thought is you don't have the time to do it that so we won't do it.

Let's try and think about different ways that we can start to fit it in. So warm ups this is definitely something that I would I would look at to kind of to kind of put that into the programme.

**Daniel Thompson 00:17:36**

Yeah, I think that's a good final point to finish up on now. You know how you able to structure S&C into a programme? I mean, it's not just as people think that's I actually talk to all right for this podcast not just solely picking up weights, there's much more to it than just that. And so yeah, thank you for those points. It's been really great chatting to and discussing some of those negative perceptions about S&C, but then building on the positive elements that S&C can bring and and how that people can use that to establish a S&C training programme.

And so thanks to Ben for being involved in today's podcast episode and we look forward to continuing with that and our conversation on S&C in our final podcast episode, which will be recorded in the New Year. So yeah, it's been great to chat with you today on that Ben, thanks.

**Ben Lewis 00:18:38**

Yeah, thanks for having me. I think like I said I think that the next podcast will kind of be putting all the pieces that we've kind of discussed, putting it together in terms of how can you how can you take those concepts and use them within training weeks? I think that's that will hopefully bring everything together. Tie everything, tie everything up I think. Yeah, looking forward to that. Definitely.

**Daniel Thompson 00:19:02**

Yeah, definitely look forward to those discussions. So this podcast is available on the British Canoeing Awarding Body Page and also on our Talent Parent Programme web page on the podcast section of the British Canoeing website. It is also available to listen to on Spotify, Podbean or Apple Podcasts channels, just follow our podcast name: British Canoeing Coaching. Thank you for listening.