Strength Training for Kids & Building Lifelong Movement Skills

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Dr. Andy Galpin
The science and practice of enhancing human performance for sport, play, and life. Welcome to Perform. I'm Dr. Andy Galpin. I'm a professor and scientist and the executive director of the Human Performance Center at Parker University. Today we're going to be talking about exercise, and more specifically, strength training for kids. Now, I've wanted to talk about this for a long time, and it only hit me recently how ironic it is that I've never actually been asked about my views or how I interpret the research in this area in any public format.

Never been asked to give any scientific talks or really ever this has come up in any podcasts I've done as a guest. And that's ironic because almost nothing else has filled my inbox, my DMs, uh, my emails more than this. Now, oftentimes when I'm stopped or in public or asked from friends and family, it is questions like this. "Is it okay for my kids to lift? If so, how and when and who should I pay attention to?

How do I determine a quality coach? I'm, I'm all for health and exercise, but I just don't know where to get started." So whether you are in the camp of thinking, "Of course, this is great, it's a no-brainer," or you're concerned or you don't know or you're unsure, there's a lot of stuff we can unpack today. A recent publication in twenty twenty-two, not nineteen ninety-four or nineteen seventy-two, twenty twenty-two in the Journal of American Medical Association Pediatrics.

I want to read this quote from you directly, and you'll understand why this is still confusing to many people, whether this is consumers, parents, or even medical professionals. The paper was trying to advocate for more physical activity in kids. This is something we're all supporting. But despite that, they said, I quote, "Weightlifting is not appropriate for younger children because the strain may be too high for developing muscles, tendons, and bones." That is as untrue as we could possibly imagine.

The data are clear on this and specific. And so this is why we need to continue to cover topics like this. If you're already a supporter, great, awesome. Keep sharing the word. But you can have a little bit of empathy why it is confusing, again, even to medical practitioners when things like this are put out, um, in the scientific literature. We're going to cover five things today.

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First, we're going to go over some of these common myths and misconceptions, whether they are positive and negative, so that we're all on the same page with what the current state of the evidence actually shows us. After that, I want to get into some of the documented benefits, whether these are the cognitive, mental, as in mental health, and/or physical benefits that have been associated with exercise and specifically, again, resistance exercise.

If you are a consistent or previous listener to the Perform podcast, you will know what I mean when I say we'll cover the three I's. If you're new, the first I we call investigate. So how do we actually measure this? And you can translate that into thinking, "Well, how do I know if my kid is moving well or moving bad? What does that even mean? What should I test? How if I-- how do I know if those scores are good?

How do I interpret those data?" Which would be the second I. So we'll cover common recommendations. What should you test, what should you look for, and then how do you interpret that? We'll then get into the third I, which is the intervene. In other words, what do you do about it? What are the do's and don'ts? So that's the stuff we're going to cover today when we get into all things regarding exercise and specifically strength training for kids.

Today's episode is sponsored by Eight Sleep. Eight Sleep makes smart mattress covers with cooling, heating, sleep tracking, and more. I've personally been sleeping on an Eight Sleep mattress cover for years now, and it's absolutely glorious. I love it so much that I hate traveling away from home because it means I can't sleep on my Eight Sleep Pod 4 Ultra. As you'll hear me talk about endlessly on this podcast, there really is nothing you can do that makes more of an impact on your health and performance than getting tremendous sleep. And getting great sleep requires having your body temperature drop a couple of degrees at night, and that's hard to do on your own. The Eight Sleep has been a game changer for me because I run hot at night, or as my wife calls it, I'm a furnace. If I don't have something like an Eight Sleep helping me cool down, I'll wake up in the middle of the night overheating and not feeling great. This is something I've also found in many of the people that I coach, especially those who are really physically active. The Eight Sleep Pod 4 Ultra has two times more cooling power, yet is virtually silent, and it has high fidelity sleep tracking and even has snoring detection that'll automatically lift your head a few degrees to improve airflow and stop your snoring. If you'd like to try Eight Sleep, go to eightsleep.com/perform to save three hundred and fifty dollars off your Pod 4 Ultra. Eight Sleep currently ships to the US, Canada, the UK, select countries in the EU, and even Australia. Again, that's eightsleep.com/perform.

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slight degree of dehydration, even as small as one percent, can lead to decreases in physical output and mental performance. We also know that electrolytes are critical to proper hydration, which I've been harping on for years. But you can't do that, proper hydration, by only drinking water. You need to get the right amount of electrolytes in the right ratios, and that's why I'm a huge fan of LMNT. In fact, many of you will probably remember that I featured LMNT in my YouTube series on optimizing hydration nearly five years ago. I featured LMNT in these videos because their blend of a thousand milligrams of sodium, two hundred milligrams potassium, and sixty milligrams of magnesium really is unique and different than any other electrolyte on the market, and it has great scientific support. I use LMNT constantly, particularly when I'm sweating a lot, and I routinely make it a part of my clients' optimization programs. If you'd like to try LMNT, you can go to drinkLMNT.com/perform to claim a free LMNT sample pack with the purchase of any LMNT drink mix. Again, that's drinkLMNT.com/perform to claim a free sample pack.

Let's get started by going all the way back to the beginning. I can finally answer this question that I have been hounded with for many, many years now, and that is simply: where did some of these misconceptions get started? Why do people think it's bad or dangerous for kids to lift weights? And probably the most common one, which we will talk about, why do we think it stunts growth?

I'll give you a spoiler alert. It doesn't. But where does this even all get started? Well, most of the time there's a direct and simple reason, and in this case, it's no different. You have to go all the way back to the nineteen sixties. A couple things to, to pay attention to. Number one, exercise science was not a field until really the nineteen sixties and didn't really take off until the seventies and eighties.

So upwards at that time, pediatric medicine also wasn't really much of a field. And so prior to the nineteen sixties, we didn't have any information. And I think it's fair for parents and, uh, other leaders to be cautious about things when you have no data to go off of. And so from a starting default place, I think it was reasonable to say, "We don't know if it's safe, therefore we're just gonna assume it's not safe until shown otherwise." And that's an okay default position.

More specifically here, the very first paper that shot this thing off was a, a really renowned study in this field that came out of Japan, again in the nineteen sixties. And what it found was a, an association between kids who were involved in high amounts of hard labor being shorter in life. Now, the ability to look back at this, you know, some eighty years later, obviously you can in your head and, and all of you astute scientists now are able to think, "Okay, wait a minute.

What are probably some of the confounding factors that are associated with this?" Kids doing a lot of hard labor, probably other things going on, malnutrition, environmental toxins, lots of other issues that are gonna contribute to them not being as tall as they should've been. But at that

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time, it was an association and again, no other information. They just assumed then that even though, again, the study was not in strength training, to be really clear, there was just an association with hard manual labor in kids was gonna stunt your growth.

And that myth persisted for decades, mostly because we just didn't have any other information. Nineteen seventies, nineteen eighties, there wasn't a lot of research, again, coming out on kids, not a lot of research at all, if any, on kids and strength training. By the time the nineteen nineties came around, the National Strength and Conditioning Association, NSCA, I've spoken about this organization many, many times, the research was there.

This organization was all over it, advocating for strength training. Uh, the science was coming out, and so now the general culture was, you can't really argue it's bad for kids anymore, but they weren't really strongly arguing that you have to go out and do it either. It was kinda just like a, "Well, it's okay. It's not as dangerous as we thought, so it's fine." But no one was really banging down the door to say, "Get kids in the weight room, get them to start lifting," outside of the NSCA group.

Things changed dramatically in two thousand and eight. This point, there was enough data and research that it was really, really positive for kids, and so people had to start changing these policy statements. Two thousand and twenty, actually, a big update came from this policy stand, and now it is just inarguably that the benefits are not only small, but they are large, they are robust, and they cover a lot of different areas, and it is overall a fantastic and amazing activity for kids.

And so that is awesome. But at the same time, remember, just a couple years ago, we still had statements like we sh- didn't need strength training kids in that journal I mentioned earlier. And so it's hard. It's just a confusing thing for people to pay attention to. What most of us are going to agree on, yes, it should be supervised. Yes, it should be progressed appropriately, and w- I will cover all of these rules in one moment.

But if done well, these are really, really beneficial activities for kids to do. If not done well, then of course, don't do them. The first thing I'd like to understand are these handful of what we call the zombie myths. Now, I stole this term from a guy named Dr. Avery Faigenbaum. Point of fun here, I tried like crazy to get Avery to come in himself and be a guest on this show to cover this topic.

Uh, he maybe takes a little more nudging, so if you'd like to see him come in next season, let him know. But I'm, I asked him because I've seen him speak many times. He is probably the world's foremost authority on strength training in kids. He's got dozens, if not hundreds, of publications. He's on every position statement and stand you'll ever find and so forth. And I'm

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bringing him up now because of not only his contribution, but because he's the one that I've heard for a couple of decades now call these the zombie myths.

And he calls them that because they are just myths that will not die. And so a- as homage to you and Dr. Faigenbaum, I wanted to bring up some of the more common myths that just won't die regarding kids and exercise. And I'm gonna rip them off real fast here. Six of them I wanna cover. I'm not gonna get into the science or the physiology. I just wanna make sure that for you short attention span people, we know what these myths are and what the truth is.

So let's go. Myth number one: strength training stunts growth or in otherwise is harmful for your bones and growth plates. I covered this in a previous episode of Perform, one that we did on bone health specifically, and we could just be easy and clear here. This is insanely untrue. In fact, the research is gonna show you it is quite opposite. Strength training is generally very beneficial for kids and short-- for short- and long-term bone health.

Myth number two, I told you, we're gonna blast past these ones here, is that strength training or exercise in general is only for athletes. So if my kid is not an athlete, we don't need to worry about that. Well, if you've been paying attention to anything I've said the last decade, and specifically something that we end every show with, if you have a body, you're an athlete. I'm gonna advocate strongly for this the entire length of our discussion today, and I'll give you more context later.

Number three, that you should wait until you're twelve years old to start lifting. Another kind of a similar one that I batched in here was this idea that kids actually can't get strong until they get to puberty.Neither of these are true. In fact, kids are ready to strength train as soon as they are ready to follow safety instructions, they can pay attention, and they want to.

Generally means something like the neighborhood of five to seven years old. Could be earlier, could be later. But if they can do those things, they are physically ready to start strength training. Number four, that it makes girls bulky. This is a common one that lasts, I guess, through any age. Another myth. It is very hard for girls or boys to gain a lot of muscle mass, especially prior to puberty.

They'll get a lot of benefit from it. They're mostly neurological and s-skill development and motor control. But putting on a tremendous amount of muscle mass is very unlikely for girls or boys at this age. Number five, that it... And this is actually funny because it goes the opposite. I've heard a lot of things about how it will actually start puberty early. Same thing with menses.

It'll get the onset of it happen earlier. I've also heard the opposite, that it delays it. None of those are true. It doesn't alter puberty at all. It'll be just fine. It is completely irrelevant to it. The final

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one is that this is all good and great, but it requires expensive equipment or high-priced trainers and special coaches. Neither of those are true. In fact, we're gonna spend a lot of time in the next few minutes covering tons of examples, drills, resources, activities that can be done at free or low cost with your body weight, at home, in local parks, and so forth.

So now that we've gotten all of those really common myths out of the way, let's step back and make sure we're actually talking the same language. And I'm doing this because I wanna play a game with you. My guess is if I asked you all right now to sit down and think very carefully, and I said, "Do you think it's okay for kids to play?" Everyone would throw their hand up. "Yes, of course." And what if I said the same thing about, "Is it okay for kids to play sports?" Well, m-maybe there would be some hands that go, "I don't..." But most of you would say, "Yes, of course." If I said, "Should kids work on their coordination and have better body control?" Again, all of you would put your hands up.

But if I said the exact same thing, but I just changed the words or the terms, and I changed them to things like strength training, not as many hands go up. "Well, I, I'm, boy, not sure. I, I think so, but actually, don't know." Or resistance exercise, weightlifting, plyometrics. We would have way less consensus across the board. One of the things you have to realize is I've basically said the same thing in all those cases.

See, when you hear this topic and you think about strength training and exercising kids, most adults take an adult-centric view rather than a child-centric view. What I'm referring to is when I tell you to go lift weights and to exercise, you think, "I'm gonna go run for five miles." You think, "I'm signing up for a gym membership. I'm gonna do body part splits. I'm gonna do a ninety-minute tricep routine.

I'm lifting weights. I'm deadlift..." That's how adults exercise. That's not how kids exercise, right? When you hear things like strength, I'm not necessarily referring to weights at all. If I he- if I even say weights, I'm not referring to bodybuilding. I'm not referring to muscle hypertrophy. I'm not even referring to maximum strength training. You see, nowhere in this conversation have I said maximal strength until just now.

But many people, this whole time, we're hearing maximum strength, as if the only way and the only method we can use strength training for was to de- to, to try to develop maximum strength. When you think strength training and exercising kids, the kid-centric approach would be movement literacy. The primary goal of strength training for kids should be to enhance movement literacy.

Now, that is a very specific phrase, and we use it that way intentionally. I just want you to be more literate with movement. What that means, better locomotion, more coordination, more

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control, better stability. Move how you want, and m- don't move how you don't want. Movement options, movement variety, movement choice, unique and independent and creative ways to solve movement problems.

That's movement literacy. That is strength training for kids. It's not an hour-and-a-half calf workout. It's not maximizing strength or power lifting or competing. So hopefully, that alone cleared up one of the biggest con- misconceptions we've got in this entire field, that when we say strength, that we're meaning things like that, when we're actually meaning almost always movement literacy.

In kids, movement quality, motor control, coordination, they're not direct synonyms for strength, but they're pretty darn close. In fact, we actually know this, this has been shown scientifically, that kids that are more coordinated, even those that think they're more coordinated when they're not, so their perception of coordination, are going to be more physically active as both kids and adults.

You see what I'm saying? Getting your kids more coordinated will mean they're more likely to be physically active when they're adults. And so f- right there from our bottom foundation, we know we have to enhance coordination in kids. So then the next logical step is, how do we best do that? Well, again, this has been shown scientifically, that strength is the key detriment, the biggest determinant of motor control function in kids.

So when you-- I say strength, if you need to translate that in your brain of saying, "Oh, he just wants my kid to be more coordinated," fine. We're actually on the same page. I like the word strength. If you don't like the word str- fine. All, all good there. By the same token, when you go to that, your strength coach, or when you go to your facility and you say, "Hey, my kid's just really uncoordinated," a really solid coach is gonna hear that and go, "Okay, we gotta get that kid stronger." And they're not meaning they gotta work on their deadlift, probably.They don't need to maximize their overhead press.

But that is just how the words will be translated. I really hope that helps us understand what we're saying, because oftentimes we are saying the same things from both sides here, but people just don't make that connection that strength and coordination are incredibly overlapped, particularly at this age. I want to do another game. Think about the difference between movement vocabulary and language vocabulary.

In other words, I will go through this example almost always talking about language. I want you to translate in your brain also to go, how would I think about this differently if I switch this from language vocabulary to movement vocabulary? Again, that's why we use vocabulary. Okay, number one, language vocabulary. When do you start teaching your kids language? I get this

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question all the time.

When do I start teaching my kids to strength train? When do we start them in sports? When, when, when? When do I start? Well, when do you start language development? You start at moment one. You start at day one. I've got children. I know this. You are talking to your kids the moment they arrive, and you never stop talking to your kids. Now, you don't expect a lot of payback out of that initially.

There's not a lot of return on investment. You're not seeing anything. But if you didn't talk to your kids for six months, they were not going to wake up at three years old speaking. It's not going to happen. You start it very early, and it takes forever for improvements to make, but that's because that development is so hard. Going from no language to one language is one of the most costly things your brain will ever do.

Okay, so when do I start? Day one. Well, how do I do it? It's age-appropriate. You use language to your one-year-old or your one-month-old. It's short. It's one word. It's simple phrases. You're using a lot of facial expressions to try to convey a point, try to make context, right? It is age-appropriate. You don't overwhelm them with language. You try to make it fun. You see the analogies I'm drawing here, right?

So when do I start it? Immediately. How do I do it? Age-appropriate. Make it fun, so on and so forth. Why do I even worry about it? Well, this sounds silly if I say why worry about teaching your kids how to talk, but again, it doesn't sound as silly if I say, well, why do I even want to strength train my kids? I get that question a lot. I never have gotten the question, well, why do I teach my kids language?

But think about it. You teach your kids language so that they can express themselves. Oh, interesting. We know of the short and long-term benefits or effects, I should say negative effects, consequences of being illiterate. We know how hard this is to be socially involved. You can't be a part of a community if you can't read. It's harder. You can't speak, right? These are challenges.

You have better job prospects, make more money. I could keep dragging this on. You will find scientific evidence that makes the same connections to those exact same variables and exercise in kids. Exact same ones. Not to the same extent. I'm not going to argue that. But the same ones will be shown to be associated. Now, how much do you do? How often do you teach your kids language?

Same thing with exercise. You want to stimulate, but you don't want to annihilate. In other words, we read to our kids every day, and my kids have to read to us every day. And every day it's a fight. My son can handle about five minutes at max. My daughter will sometimes it's a page.

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Sometimes it's a whole chapter. A little bit older. I never let them off the hook. We push them.

We drive them. We don't just say, oh, you don't want to read today. No problem. But we don't try to annihilate them either. Right now, I'm not saying I'm a perfect parent, but you get the point. I don't want to burn them into a situation where they hate reading. But I'm also going to drive them and push them a little bit. The analogies are completely extended here. You get what I'm going at with that one.

So I know that was really long and drawn out, but I wanted to do that because if you honestly think about exercise and movement like you do language, the concepts are almost identical. And so if you ever find yourself in a situation where you're wondering if you're doing the right thing or going about it, so on and so forth, if you think, would this be appropriate for teaching language?

There's a very strong likelihood it would or wouldn't be appropriate for teaching movement as well. I appreciate you sticking with me through that one. Another thing I wanted to go back to was something I started the show with, and that was this idea that, you know, I didn't lift. My kids don't need to. Kids have never done this before as a species. They're fine. Kids know how to move automatically, so on and so forth.

And I told you I was going to make an argument that this generation is the very first where I actually don't agree with that anymore, and I think we had to go farther. A bunch of reasons why, but I'll be brief here. Number one, you all obviously are aware of the chronic health crisis the whole world is facing. We're going to make a very strong argument that this starts with childhood.

I've already alluded to some points. You can pick a lot of different areas, but you'll see routinely what happens to you as a kid is going to dramatically impact what happens to you as an adult. So solving the adult health crisis is starting by solving the children or childhood crisis. I'm not going to go over all the details, but you know childhood obesity is skyrocketing. It's something like 400 million kids globally are considered to be overweight, and 160 million are obese.

And I think in the States it's like 20%. It might even be higher than that. Of all 2 to 19-year-olds, which is probably 15 to 20 million kids, are categorically obese. We also know that physical performance is dramatically lower. This is physical strength and motor skill and movement. Pretty much across the board, we're going down. Now, this is happening for a lot of reasons, and this is the part where I think most people have not understood why that's happening.People are aware general physical activity in the world is down.

We know that, right? All right, well, why is it happening? Number one, it starts at home. No big surprise here, but parent-- kids will model parents. Parents are less active than they've ever

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been, and communities are less active. The activities your parents did as a weekend, as a family activity, are just far different than what they are now. And so entire, not just about you and your life, it's about what you're exposed to when you go to your friend's house and so forth.

So overall physical activity way down. Kids play outside way less than they used to. Physical activity itself is way down. The standards that we'll use in science are things like kids should be physically active for 60 minutes a day, but this is going to floor you across the globe, in the US as well, 80% of kids fail to hit that number. We're not missing the mark here. We're not even in the stratosphere.

There have been, and depending on where you live, this may or may not be true, huge reductions in PE, physical activity in schools. So your kids, unlike your generation, they're not getting physical activity in schools. So where you didn't have to go out of your way to take your kids after school to one of these specialized strength and conditioning programs, you were getting it in school.

They aren't. Recess is also way down in general. So calorie thing, but a movement literacy thing is happening. On top of all that, sports are phenomenal. I'm a huge advocate, but sports alone, because of these first two things I just said, lack of general physical activity and lack of activity in schools, because of that, sports are no longer just enough. Sports participation is way down.

The COVID pandemic crushed it. Prior to that, we were at all-time historical lows. It is coming up. People are recovering from that. That's fantastic. Depending on where you look at, you'll see as high as like 50 to 54% of kids in America at least will participate in organized sports, but that's not enough. We need that number to be higher. But the sports alone won't cover all your bases.

In addition to just simple caloric expenditure, well, first of all, the caloric expenditure in sports is not nearly as high as you think if we move all the physical activity away that I just done talking about. So we're not going to get there with sports alone. So where in previous generations, sports alone might have been enough to cover your bases, I don't think it is anymore, and I think that the scientific evidence would, again, generally support that conclusion.

Now, with all that in your mind, what actual issues does this cause downstream? First obvious one, call it energy deficit. In fact, Dr. Faigenbaum called this the exercise deficit disorder, EDD, but this is not moving enough, not burning enough calories, metabolic health, and so on and so forth. The obvious one, right? But past that, more importantly are the second two points here.

So the second big problem is what's called dynapenia. Again, this is a Dr. Faigenbaum special. Typically, we use that word in context of older individuals, but this is also true in young kids. This is basically, think about it as underdeveloped muscle and underdeveloped strength. Hmm, why

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does that matter? You combine number one and number two, and you get number three, which is what I call the death spiral.

Perhaps I'm being a little dramatic there, but this is physical illiteracy. I've been talking about physical language and being literate. What is illiteracy? Here's the spiral. If you move poorly and you start to fall behind your peers, you lose confidence really quickly, and the research is going to suggest this hits young girls harder than it does young boys. Come back to that.

But you lose confidence. You lose confidence, you stop having fun. You stop having fun, you become less active. Kids that fall behind physically fall behind really far, really fast because of this spiral. They know they're not good. They're behind everybody. Young kids tease each other more often. You know how this goes. It's not the kid's fault. This is just what four and five and eight and 10-year-olds do, right?

So they become less active. They get less confident, and then what ultimately happens, and you'd be surprised to know this, but it's very true, kids that are less physically active will get hurt more as adults. So oftentimes you get this experience, "Oh, I wasn't good. I sucked at sports. I was terrible." So then I didn't do them because you didn't want to get made fun of, so on and so forth.

Maybe no one is even making fun of you, but just your self-confidence, you knew you were the worst player on the whole team. So you stop doing it. You withdraw from physical act-- or typically from sports, which means then often you withdraw from physical activity, which means you stay further behind. Maybe hopefully then as an adult, you catch up and realize, "Okay, I got to start working out." But you're physically illiterate or your literacy is low.

You don't know how to move well. You don't have the tissue tolerance. You don't have the experience. You don't know how to creatively solve movement problems. You don't know what good technique is because you never learned that feedback either directly from a coach or indirectly. You just never figured out how your body moves best. So then when you start moving as an adult, bada bing, bada boom, you get hurt more often.

This is not, "Oh, you're old now. You're 25. You're 35. You're 45." This is in large part, not exclusively, but in large part a physical illiteracy issue, and it started by poor movement support as a kid. So it harms them now or then and as a child, and then it also harms them later in life. That physical downward spiral thing, again, has been shown multiple times and is a real issue, and there's ways you can solve it.

Not every kid needs to be an athlete. Not every kid needs to be good at sports. But when that happens, if that happened, as it happens, we need to have other solutions that are not just, okay,

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the kid withdraws from all physical activity because that causes a cascade of problems. So what are the benefits? I'm gonna talk about all the benefits of s-- again, mostly gearing on strength training or strength training-related ideas from the physical body.

We'll talk about it from the cognitive perspective as well as the mental or, or mental health. So from a physical perspective, I-- this is very easy and very fast. Any positive benefit from exercise you see in adult, you basically see it in a kid as well. Lifetime physical activity. Kids that are more physically active will be more physically active their entire life. Again, on average, most likely.

They're more skilled, they're more confident, they're less injured. We just talked about why. Cardiovascular fitness, metabolic health, obesity, body composition, muscle mass, bone health. We've talked about that earlier in this show, as well as our previous episode on bone health. The connective tissue, the ligament health, this is an easy one. Well-rounded strength training programs, ones that, you know, perform everything from endurance and strength and motor skill and balance and agility, you know, comprehensive programs.

These things reduce injuries in kids by up to fifty percent. In fact, I saw some papers showing up to sixty percent reduction. So your kids won't be hurt as often as kids, and they won't be hurt as often later in life. The physical ones are easy. I, I could do an entire show on that, but I wanted to actually spend a little more time on ones that are less intuitive, and this is things like the, the actual intelligence.

F- at least five different global areas across many studies now, across many years and different populations, uh, whether we're talking about really young kids, adolescents, somewhere in between. So I'm kinda summari-- well, I'm not kinda, I'm summarizing a lot of literature here. But in general, you will see a important, not huge, but an important clinically significant and statistically significant enhancement in intelligence with strength training in kids.

That's true, right? That is ex-exactly what you think you just heard. Couple things to think about. One, there is a very well-documented benefit in executive function with endurance exercise. It's, it's been long established. And executive function in this case is typically defined as things like working memory, flexibility. Again, we're talking about mental flexibility, uh, and well as inhibition.

So that's been well established. More recently, we've learned about things like the more variety in sports and the more overall physical activity. So that's two variables. Just doing more variation in sports, playing more sports, as well as overall physical activity. Both of those have been shown to enhance academic performance in schools. Big areas you see improvements in overall cognitive function, direct academic achievements, as well as on-task behavior.

So a lot of direct, what I'll just, again, call intelligence benefits. The list of what one would maybe

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call mental health benefits is even longer, and I'm not gonna take the time to go through all of these because it is very, very long. It is everything from kids who play sports are oftentimes slightly happier than kids that don't. Anxiety, depression, ADHD have all been shown to be benefited from resistance exercise.

Confidence and self-esteem, like we talked about, especially in females. These are huge ones. A perceived competence. We've mentioned this one before as well. One more time, this is really important because one of the big drivers in physical activity involvement in kids is just how bad they think they are relative to their peers. Resilience, ability to get, uh, demonstrate grit or develop grit, another really common measure for strength training and, you know, again, mental health factors.

So those things are all important to consider. The physical, the cognitive, and the overall emotional or mental benefits of exercise. Lastly, stronger kids tend to be stronger adults. There's actually direct evidence looking at things like type 2 diabetes. Kids that are more physically active, strength train more, played more sports, are less likely to develop diabetes later in life, right?

You're talking about now years to decades later, independent of what happened in that time. If you're more active, and this is actually true after accounting for familial co-founders. So this is research specifically looking at, like, things like siblings. So it's not just saying, "Oh, well, kids are... You know, if you're in a more active family, of course you're gonna get more diabetes." No, no, no.

Accounted for. Something inherent to being active as a kid will protect you somewhat. Won't totally save you, of course, but will give you some protection about-- from developing diabetes. And we can be confident in this because there's lots of other similar research. Similar things have been shown directly on atherosclerosis, heart disease. In fact, I'm thinking of a forty-year follow-up study.

The kids that were more active, uh, you know, again, younger in life, forty years later, directly measuring those same people again, lower rates of atherosclerosis. Yes, there is some association here. But again, we're seeing it in multiple areas. Diabetes, heart disease. We're seeing it when accounting for family history. We're seeing it in direct follow-ups. We're seeing it in intervention studies.

We're seeing it in questionnaires. We're seeing it in epidemiology. So when you start to see the same kind of thing across multiple domains of, of research design, multiple domains of dependent variables, multiple domains of magnitude of effect, it starts to paint a pretty clear picture that says, "Okay, there's something going on here." Second thing that's important here,

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this is nothing specifically to do with sports.

So even if your kid doesn't play sports, you don't play sports, you're not into sports, you don't think your kid will ever play sports, doesn't matter. You need to be physically active in a broad sense of the word for all of these reasons I just established. Not only for them as a kid, for their bones and their muscle health and their cardiovascular health and their current metabolic health and blah, blah, blah, for their academic performance, for their mental health, but also because it sets them up with a much better future when they become adults later on in life.

Today's episode is sponsored by AG1. AG1 is a vitamin mineral drink with probiotics, prebiotics, and adaptogens. Initially, I was extremely skeptical of AG1, as I am with all supplement companies, but after months of discussions with their lead nutritional scientist and the general team at AG1, I've been impressed by AG1's commitment to sourcing the highest quality ingredients and constantly updating their formulas to have the right ingredients in the optimal amounts. By now, it is abundantly clear that the gut microbiome plays a critical role in everything from body composition to bone health to mental health, and the probiotics and prebiotics in AG1 help to promote a healthy gut microbiome, improve digestion, reduce food cravings, and increase short-chain fatty acids, which play a critical role in regulating metabolism and immune responses. It's for these reasons and many others that I personally take AG1 almost every day. Now, it's of course not a replacement for eating whole, healthy foods, but it is a great way to make sure that you're plugging in any gaps in your nutrition to improve your energy, bolster your immune system, and just generally help promote a healthy gut microbiome and more. If you'd like to try AG1, you can go to drinkag1.com/perform to receive five free travel packs plus a year's supply of vitamin D3 plus K2. Again, that's drinkag1.com/perform to receive five free travel packs plus a year's supply of vitamin D3 plus K2. By this point, I hope I've convinced you of the necessity for these things, regardless of the situation or scenario that you're in.

I wanna transition now and start getting into our three I's. First ones we're gonna tackle are investigate and interpret. And again, if this is, uh, new for you or you're a first-time listener of Perform, what I'm really just trying to say is how do you even test your kid? What should you test them on? What should you look for? How should you set it up, and how do you interpret?

How do you know if your kid's way behind in gross motor or fine motor skills? How do you know if they're way ahead or on point, and so forth. I wanted to give you a really simple system here, and so actually there are some resources. One of them that's available to everybody is called the Y-FIT, right? That stands for Youth Fitness International Test, Y-F-I-T. This is open access.

This is peer-reviewed, published, but anyone can go do it. Now, the benefit of this is it's simple. It doesn't take a lot of technical savvy. Uh, the tests aren't really complicated and so forth. So what they came up with is five unique tests. These tests are your height, your weight, and they

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can use those first two, height and weight, to then calculate what's called your body mass index or your BMI.

No, BMI is not a perfect measure of body composition at the individual level, but if you're trying to run thirty or fifty or a hundred and fifty or fifteen hundred kids through something, and you're trying to get a broad scope of where they're at, again, remember how this was developed and who it was for, the BMI is reasonable. So tests one and two, height and weight. Test number three is actually a twenty-meter shuttle run.

This is a good way to get an overall understanding of their cardiovascular fitness. Number four is a hand grip strength test, so maximum grip strength. And then number five is a standing long jump. And so you can see, all right, height and weight tell me a little bit about body composition, tell me a little bit about metabolic health. Sh-- twenty-meter run tells me about my cardiovascular fitness.

My grip strength tells me about my strength, and my jumping ability tells me a little bit about my coordination and my power. If you want, in that paper, they have a handful of things. They tell you exactly how to do these tests, so you can literally print it out and follow the instructions, how to set it up, uh, what the rules are, how to standardize it, all that. I'm not gonna walk you through them now.

Mm, some people will care about this, others won't, but you can go pull that up. We'll also, of course, have direct links to the paper as well as the standardiz- standardization tables in the show note captions. You can always check those out. That's true for everything we're gonna talk about. One of the things that's also important about this, uh, Y-FIT test is it comes with a national database.

And so if-- actually, if you go pull up the paper, again, open access, meaning anyone can access it for free, in the supplemental data, they share with you their normative value databases. So you can go test your kid or look at numbers there and then see where your kid stacked up on all five of those tests. Another one, uh, that also, uh, gives out the, the normative database here, the normative values so you can compare and contrast, is something called FitBack.

That is F-I-T Back, B-A-C-K. Again, this is open access. This was published, uh, just this year, I believe. Really cool paper where they walk you through exactly how this testing thing was built and how to do it. And the FitBack program, I believe, is free, and what it allows you to do is you can go online, and I think it is, uh, I'm not sure. I, I think it's fitback.com. I'm not exactly sure, but the link to FitBack will be, again, in the show notes.

But this is cool, and I liked it, and I tinkered around with it a bunch because you can take your

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kid's information, their results on all those scores, plug them in, and they'll generate with you a custom report for your kid. And so if you are working and you're maybe even volunteering and you're doing something like this, you can create custom little reports for all your kids and your parents, and the software will do it all for you.

It doesn't take you a lot of time. You just enter in their scores, and they'll plug it in completely free. So I thought that was a really nice resource regardless of where you're at. And so both of those papers, uh, and those resources are, are my best and strongest recommendations for going out and getting some testing done for every kid. You can also do them, you know, boys or girls.

You can do them at any age, and you can see where they stack up, again, according to their, um, most relevant peers. Now, whether your kid is in sports or not. I really strongly encourage you to do this for a bunch of reasons. Number one, it's really hard to establish what's called return to play without normative data. What that means is if your kid gets hurt, your doctor's not gonna know if they're fully healed or not.

Now, if they have an MRI or something like that, sure. But just because it doesn't have any structural visible damage, your kid may or may not be all the way back. If you don't know what their normal vertical jump wa-- or broad jump was, then you actually don't know if that knee is fully healed, even if it's not a serious injury, even if it's, "Ah, yeah, it doesn't hurt that bad anymore, Mom." Okay.

Are you sure? Well, if you go out and they're jumping as far as they possibly can, and they're still, you know, only at eighty-five percent of their max distance, then you know they're not really back yet. And so having a baseline is really important. Number two, one of the things that people don't appreciate about youth development is development happens really fast. Growth and development are not the same thing, though.

Growth and development also happen in a non-uniform fashion. Translation, you'll go through spurts. Your kids will get really strong, really fast, and then they'll stop for a while. They'll get really tall, and then they won't grow. They'll go... And it's not necessarily the same. Their quadriceps, the front of their legs, may develop really fast, and their hamstrings won't. And so when your kid used to be normal, maybe you had tests done, they looked great.

They didn't have huge asymmetries. Everything looked awesome. Well, now three months later, they might have a large asymmetry somewhere because something grew in a specific area because the whole body doesn't grow uniformly. Bones grow differently. Structures grow differently. Abilities, motor skills, muscles I just talked about. So for all those reasons and more, I would recommend some type of standardized testing.

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If you wanna do the simple one like I just talked about with the Y-Fit test, great. If you have more access to maybe a quality strength and conditioning coach or a physical therapist, and you can do some more specific strength tests and, and movement tests or movement s-skills, that's great. Anything objective you can get, even if they're not an athlete, for all these reasons and more, I'd recommend getting some baseline testing done.

Other ways to think about this, and the way that I actually like to frame this is, say your kid's done some testing, maybe you've got all those tests done. At what point are they ready to get a private coach? At what point are they ready to focus more on s- uh, say, sport development, right? Now, again, I've got this question a lot. Here's kinda my answer to it. I'll give you nine or ten things.

Your kid is ready to have a skills coach, so that golf coach or that pitching coach or that kicking coach or whatever you're trying to do, when and only when they can pass the following test. Are they good at these few things? If they're good at these things, they can do those skills coaches. Number one, can they skip in a straight line? You'd be stunned. You do not need a sprint coach or a speed coach or a shooting coach if your kid can't skip in a straight line, if they can't backpedal, if they can't do a crawl for twenty yards with low hips, right?

So do a bear crawl without their hips going way up in the air for twenty yards. Can they do a crab hold for thirty seconds? Can they do a dead hang, so grabbing a bar and hanging for thirty seconds, right? Can they do a one-legged balance for thirty seconds? Can they do ten lunges in a row without falling to the side consistently? Can they hop forward on one leg? You, you, you'll be really surprised how few kids can hop forward on one leg, not in place, but actually moving forward.

Can they do a cartwheel, a somersault? Can they do a shoulder roll? Right now, you don't have to do all of these things, but you get the point. If they can't do some of these basic rudimentary movement patterns, they probably shouldn't spend too much time developing specific sport skills. If your kid is active and involved and, and aggressive and, "Mom, Dad, I wanna do more," and you're looking at this list and they wanna, you know, practice golf more, play more, get their soccer coach, whatever, I would probably say, "Great.

We can do more coaching, kid, but we're gonna work on this stuff. You need more foundational movement before we're ready to not necessarily do any skill coaching." You, you, you can teach your two-year-old skill, right? I'm fine teaching whatever age skill, but the bulk of the training is what we're talking about. Don't do most of their training. Don't do all their training if they're in this situation, okay?

So hopefully between that standardized test and this more non-scientific test that I just gave you,

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uh, th-this gives you a little more insights and is some help here. Outside of that, giving you more details about what to test and what to look for are incredibly hard, and that is fundamentally because kids develop at such wildly different rates. It's impossible to say, "Oh, a good, you know, squ- leg press for a ten-year-old is this." It just doesn't exist.

In fact, if you were to find those databases outside of the ones I gave you, I think you would see so much pushback from the scientists and the practitioners in this area of saying that's just an inappropriate way to frame it. You shouldn't look at your seven-year-old and see how fast she can throw a softball in terms of understanding her development. She's good, bad. That's a really bad way to think about it because, again, kids are developing at such wild ranges.

I can tell you normative values for VO2 max for a twenty-five-year-old, and I'm confident in those numbers. I can tell you how much muscle you should have as a forty-eight-year-old. I could tell you what a good vertical jump is for a sixty-five-year-old. I'm fine because most sixty-five-year-olds are pretty similar, or you should be. But most six-year-olds are not. There's no such thing as most six-year-olds.

I hope that point is coming through. The deviation is just wild. So while I would love to give you more direct, exact tests to go do and more standardizations, I hope you can just follow those guidelines I gave you and say that is intuitive as we can get it. All right. It's now time for us then to move on to our third I, which is intervene. And at this point, I'm gonna talk about exact programs, how to lift, what to do, what not to do, and we're gonna go over all the details as we understand it within the concepts and guidelines we have.

So if you've been chomping at the bit to know just, "Andy, give me the workout programs," I'll do my best right now. Let's start off by understanding just what global physical activity should look like. Remember, this is all things human movement packed together. First and foremost, the standard should always be positive experiences. We went over this a countless times now. Fun, positive, set them up for the rest of their life, good relationships with exercise and movement.

This is above and beyond anything else. Past that, you wanna think about first and foremost what we just call open play. When I hear strength training in kids, I honestly translate that to play for the most part, and most practitioners in this space do that same thing. So you wanna think more play, less structure than you probably anticipate. Child-centric, not adult-centric. Think about exercising kids the way kids think about it.

Don't think about it how you think about it as an adult. Now, this is especially true for the, quote-unquote, "kids that are not good at traditional sports." Have them do parkour, Ninja Warrior, obstacle courses, martial arts. If they suck at ball sports, find different ways to allow them to enjoy and be a part of physical activity. That's just as good, if not better. Second thing,

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we gotta do our best to encourage and try to change overall philosophy on physical exercise and activity in schools.

PE, we've, we've got to keep it. No matter what happens, we just have to keep it. We're gonna have a hard time surviving as healthy adults if we eliminate PE from school. I understand why it happened. I understand why a few decades ago, there was this big push to eliminate it. There's certainly the philosophy that my kids go to school to learn. I don't need to send my kids to school all day to play sports.

We're not a sport family. We don't do sports, so on and so forth. I get it, but I hope in the previous hour I've argued why that doesn't matter. That is irrelevant to the conversation. Physical education in schools is incredibly important to having a healthy, alive adult, and we're just not gonna have the time to do that on our own. If we can do that, we're encouraging kids to play, whether they're good at sports or not, especially the ones that are not.

We're keeping and holding physical activity and exercise and physical education precious in schools. We're making sure recess is truly recess. Then if we're gonna add sports on top of that for those who wish to and can afford to, you wanna choose a variety of sports. We don't wanna stick to just one. We'll talk more detail why. But big guidelines are more appropriate here than individual programs.

I will, I promise you, give you a sample program, but guidelines are more informative for everybody listening. What I mean by that, development in kids, like we said, is non-specific and, and irregular. It doesn't happen linearly. The variance, uh, is enormous, right? So classifying kids into programs based on age is suboptimal. We will do it. I get it. You show up, you own a, a, a swim center.

You have to give some sort of ways to group kids, right? You own a, uh, a gym, and there's, you know, basketball. You don't want your four-year-olds playing on the same basketball team as a nine-year-old. Great. Doesn't make sense. But when possible, if it is at all possible, you wanna try to group kids by actual skill rather than age. One thing that happens very often is late-developing kids get left off.

They get kind of ignored, and that's because they're continually the last person, and there's no future there, and consciously or subconsciously, coaches, you know, probably don't put a ton of attention in the worst kid on the team, especially as we get into middle school and high school and so on. So by developing, making sure kids are always in groups based on their development, they always have a chance to be met where they're at.

That's the guideline. So give programs to your kids that push them a little bit but is realistic for

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them in these situations. I also can't give things like heart rates. I can't give zones. You don't hear us talking about zone one, zone two, zone three for kids. You don't hear us talking about percentage of one-rep max. You don't hear me-- You're not gonna hear me talk a lot about this many repetitions, and that's because their physiology is different.

I said this a little bit earlier, but I can say definitive things about muscle size and strength and performance and VO2 max for a twenty-five or thirty-five or f- because for the most part, a twenty-five-year-old physiology is the same, but a five-year-old's not. Ex- example of this, uh, kids are way more oxidative than adults are, which means they can recover from high heart rates like instantaneously.

You'll see a kid get up to a heart rate maximum, five seconds later it'll be back down to normal, where the rest of us are on the the floor throwing up for thirty-five minutes, right? And so y- the heart rate zones are irrelevant with kids. You can't use them. I can't say this much time at this heart rate. I, I can't say, again, from a strength training perspective, this much time at this heart rate.

It's just the equivalents aren't there. And so I know you want tangible examples as programs, but that's not how programming kids works. And if you look across, again, the practitioners and the clinicians and the scientists that are in this space, you're just not gonna see m- much talk about that style of programming. That's an adult-centric view rather than a kid-centric view.

Okay? The models that we like best are what are called long-term athletic development models, LTAD. This is the scientific phrase to look for. This is how we work. Now, LTAD, it does not stand for long-term athletic development. It is athletic development. The goal here is to teach every kid to be as athletic as we can. Whether you do sports and become an athlete, I do not care.

So this is not an athlete development model. It is a long-term athletic model, right? The National Strength and Conditioning Association, NSCA, has a position stand on LTAD. You can learn exactly what to do and not to do. Sample programs, all those things are in that. You can see that in the show notes. What should you distill from it? Here's what I think. Number one, again, not all kids are athletes, and we don't even care about that.

But all kids should have a physical activity practice for the twelfth time or fifteenth time already in our, in our conversation. Number two, we wanna start early. Remember, just like academics, movement vocabulary, same thing. Number three, we need to create solutions for all ages, abilities, and interests. We've said that indirectly multiple times now, and we don't like to use those arbitrary age cutoffs.

Okay? It's all about the individual kid. We also don't wanna abandon those late developers. I'm

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gonna make a good argument for this a little bit later in terms of getting elite athletes by not forgetting the ones who are late developers. But number four, and this is probably the ones that stand out the most. A long-term athletic development model, LTAD, will develop the whole kid, not just their athletic attributes.

So this is the body, the mind, confidence, decision-making, all those things. LTA model-- LTAD models encompass holistic helping kids become better humans. After that, you wanna maximize that physical literacy. You wanna think about things like strength, endurance, aerobic capacity, flexibility, agility, balance, power, speed, coordination, and so forth. You do not wanna focus only on one of those things.

Don't worry about just maximum speed or worry about maximum strength. It's all of that stuff. That is athletic development, and all humans should have those skills. In doing this, in building your program, you wanna make sure that those skills are developed long term, not just short term, that positive experience with physical activity is met, and that ultimately it leads to a reduction in injury rate.

If your program does those things, I would say that that model is effective. Conceptually, this is what we're talking about. Now, the International Olympic Committee has its own long-term athletic development model. Here in America, we have our own. Uh, Canada has a different one. They're all s- pretty similar. I'm just gonna cover the one that's right in front of me. That is, of course, what's called the American Development Model.

Not suggesting it's better than the Canadian or the IOC or whatever, but it's just one example we can go off of. Here's exactly what these models look like. They have five key principles. Principle number one, they're universally accessible. Try to get these in a way that every kid can do it or as many kids as possible. Number two, they're developmentally appropriate for the kid.

They emphasize motor skills and foundational human movement. Again, you may be surprised. There's no maximum clean and jerks here. There's no vertical jump te- this is the stuff that a, that athletic development model should be after. Number three, it is multi-sport participation. You'll be surprised to learn even the Olympic Committee here wants kids to play multiple sports. They do not want you to specialize early.

I'm gonna reiterate that point a bunch. They want multiple sport participation. Number four, they want fun and engaging and progressively challenging climates. And then number five, they want quality coaching at all ages. And so their model has a stepwise system, and it has multiple functions and criteria. So their model number one is called stage one. So stage one is what they call develop and learn and play.

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This is appropriate for anyone ages zero to twelve. What they're really saying here is, "Look, you might be ten years old, but you have one year of experience? You start at stage one. You're not starting at stage three." And so rather than again defining these stages by age, they're dividing it, de-defining it by, by experience levels. So stage one, develop, learn, and play. Stage two, um, develop and challenge.

So now you've probably been doing this stuff for somewhere between three and six years. You're generally a little bit older, maybe even up to fifteen years old or something like that, and we're pushing you a little bit. We are challenging you. Stage three is true training and competition. You're now six, eight, ten years into active sports or engagement here, and you're, you know, maybe even an eighteen-year-old.

Stages four and five are more classically what you're gonna think. Now we're maximizing, we're competing, we're trying to peak, we're trying to become elite and specialist, and the experience is, you know, you've been doing things for ten years or more. The top tier actually is gonna surprise people, but in our athletic developmental model, stage number five, the top tier, is what they call thriving and mastery for life.

It is you coming back and being a mentor. It is you being active the rest of your life. And so their athletic developmental model encompasses, we're not just gonna let people walk out of this thing at twenty-two years old, and they're broken, and they're done, and they're not engaged in activity for life. If we've done this model correctly, you are active your whole life well past your sport years.

You might even come back and mentor, and you're having an active, healthy, phenomenal life the next seventy, eighty, ninety years. That is an appropriate long-term athletic development model.

Today's episode is sponsored by Momentous. Momentous makes the highest quality supplements on the market, period. Many of you know me, and you know that I do not trust the vast majority of supplement companies, and for good reason. Many studies have shown that anywhere between ten to up to forty percent of supplements have accidental contaminants, intentional alterations, mislabeling, or other serious issues. But Momentous is different. I literally spent years vetting the company, their products, and leadership team. Before personally officially partnering with them in two thousand and twenty-three. Every single one of Momentous's products is third-party tested to ensure quality, and many are even NSF certified for sport. Now, while I love all of their products, the ones I use the most, both personally and with my clients, are what I call the big three, and these are the omega-3 fish oil, creatine, and newly improved whey protein formula. These three supplements have fantastic data supporting their benefits. Whey protein for lean muscle mass, omega-3s for brain health, and creatine for both muscle and brain

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support. And they have been shown to be very safe across basically all populations of people, young, old, men, women, etc. Now, nobody has to use supplements, and I hope you never feel pressured to do so. But if you're interested in supplements, it's important that you get them from the highest quality providers. You don't want mercury in your fish oil or lead in your whey protein or anything like that. So that's why I stick exclusively to Momentous. If you'd like to give Momentous a try, go to livemomentous.com/perform to get twenty percent off your order. Again, that's livemomentous.com/perform to get twenty percent off.

So now that you got the bigger picture of what LTAD should look like, in general, what are the concepts, I want to actually give you one example. Now, anytime you give a direct example, it is just that. There's tons of ways to do it. What I actually did is I looked at a bunch of different models. I talked to many people, and I kind of combined what most people are doing into one global model.

But I know it is easier to conceptualize with direct examples, so let's go ahead and do that. Before we get started, though, I want to thank a number of people. A guy named Pat Cullen Carroll, someone I've known for many, many years. I was fortunate to work with his son a little bit as a student. He's been around this for a long time. Rhodri Lloyd, Avery Faigenbaum, and and many others, as well as very specifically a guy named Jeremy Frisch.

That is F-R-I-S-C-H. And I'm calling out Jeremy because I actually reached out to him directly. He gave me a bunch of material, shared with me exactly what he does in his programs. He was really kind and generous and made this process a lot easier. I love Jeremy's stuff. We're going to show more of it a little bit later. His websites and his courses and all that stuff can be accessed in the show notes.

But I really wanted to thank Jeremy and everybody else who helped out. So what is this overall model? Well, again, as one particular example, ages I'll give you, but remember what I said earlier about ages, okay? Not a perfect way to go about it, but what I'll call babies. So kind of zero to five years old. The focus should be on play. You're not coaching that much right now, if any.

You might be sharing safety rules and, you know, start when the timer hits this and things like that. But you're encouraging play at that point. There is no technical instruction happening basically at all at this range. You want them to be solving those movement problems themselves. They want-- you want them to figure out what helps them go faster, what they can do with their body to make them jump higher, what doesn't work.

That's what we mean when we say solve the problems themselves. You also want enormous variety. Walk, run, jump, roll, crawl, balloons, balls, big balls, small balls, implements, soft

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landing on the sand, on trampolines, and just everywhere that you can think, you're exposing them to tons of variety. After that, you move on to what we in America would call kind of the elementary school.

This tends to be the six to ten-year-old range. At this point, with the previous LTAD models, we call this the fundamentals, right? So Jeremy uses a similar-- he has kind of some fun-- I think he calls them speed demons or something at this age, but it's still fundamentals. We're expanding past the baby or the toddler age, and we're doing the same kind of stuff, but now we're making competitive games.

So we're doing some relay races. We're competing against a sibling or a peer sometimes. We're jumping over hurdles. We're doing multiple-step scenarios. So this is jump over a hurdle and then spin around in a circle. It is an army crawl under three benches and then do a hula hoop. It is get on all hands and knees while you're holding that, you know, position, or you're maybe doing a bear crawl while also dodge a ball.

How do you dodge the ball? You could duck it. You could roll. You could flip over. You could do a somersault. You can see it's multiple steps combined, and it's not, it's not a drill, right? It's just a different activity. It's jump up and touch an object. It is attention. It is specific. It is multiple steps and so forth, right? So that would be general fundamental principles.

At this point, we would now cross into, again, here in America, what we would call the kind of middle school. This is eleven years old to fourteen-year-olds, just broad ranges here, right? And now we're actually learning to be a multifaceted mover. So we're able to do probably more traditional strength and conditioning at this point. Now, just to be really clear, not many people are going to advocate waiting until you're eleven or twelve to start strength training.

The general accepted position with strength training, as I said earlier, but to be really clear, you can start lifting weights as soon as the child is mature enough to pay attention, to want to do it, and to follow instructions. Another way to think about this, if you can play an organized sport, you're probably ready to do some strength training. Now, what does that look like?

Exactly what I'm talking about earlier. Your strength training things like, you know, jumping, pounding, rolling, that's still strength training. So they're still doing those things. If you want to use kettlebells and dumbbells and barbells and machines, great, you can do that too. But it's the same kind of movements here, ideally, as most of our training, okay? So I really want to point that out because I didn't want people to think we're advocating for only starting traditional weight training at eleven years old or twelve years old.

You can start as soon as the person, the kid wants to, as soon as they can pay attention to

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safety rules. You're not going to obviously go after maximum strength or muscle growth and things like that, but you get the basic point, okay? So moving on with, again, Jeremy's, uh, and colleagues' rough model here. Once we are in this 11 to 14-year-old range, it looks probably more like a traditional strength and conditioning environment.

We are more organized. Um, there's less freedom in many aspects of the training, uh, but there's still a ton of variety, right? You're not just doing the same couple of exercises. You're coaching technique very hard at this point. You start a coaching technique a little bit earlier, but you're really, you know, specific and focused on it now, and you're doing more direct sporting related activities and exercises, more hopping, more skipping, more jumping, more lunges, more squats and hinges and things like that.

Once you get into early high school, this overlaps again, like with those previous LTAD models. Early high school is when you're now becoming an athlete. So we are competing. We're trying to get stronger. We're trying to get faster. We are working on skill development of the individual sports and activities. Once you get to kind of late high school, this would be sort of sixteen, seventeen, eighteen years old range.

You can become optimized for that sport. We can start really competing, emphasizing winning, what it takes to be strategic, tactics, techniques, game plans, specialization, focusing on one sport now, and so on and so forth. If you make it to college or sometimes or any situation past high school, now we're, we're elite into specialization. You're basically optimizing everything you're doing for that individual sport or activity that you've chosen to.

The final step, like always for every LTAD model, is then life and getting back to the basics, lacking specialization, opening movement back up, being less, uh, precise with the programming and, and more varied, more movement patterns and so forth. So you can actually kind of see you're, you're going back to the basics, uh, in one way to think about it. If you want to think about, uh, some more specifics in terms of the exercise selection, we generally would call this movement skills rather than exercises.

Again, child-centric versus adult-centric. Just a handful of concepts to think about. First one is, which I said one moment ago, you want to think about games rather than drills. An adult, you're gonna go do this exercise. A kid, we're gonna play this game, okay? In both how you're speaking to the person as well as how you're actually treating it. You're building games versus doing an exercise.

Number two, you want to let them solve those movement problems themselves. They want to figure out what's faster, what's slower. Where an adult, you're gonna be coaching. You're gonna go right to the techniques that you know are gonna be work most likely for their body. Number

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three, in terms of the loading, you want to use a variety, uh, especially during your warm-ups. And so you really want to hit them with tons of different movements, way more than-- You want to use a lot of variety with adults, but way more in children than you do later in life.

Range of motion should be exceptionally high. One thing we want to be really careful of is not many coaches are going to spend a lot of time specifically working on flexibility in kids, and you don't necessarily need to. You want to build range of motion through the activities that you're, that you're going after rather than sitting down and doing static stretching. If you're doing a lot of variety and a lot of movement patterns in the way we were discussing earlier, the range of motion should take care of itself.

Obviously, the younger the kid, the less organized you are with range of motion, the wider range of activities. The older they get, the more organized you need to get, the more specific you need to get. You need to be doing dynamic warm-ups, but maybe now you're incorporating some static stretching based on an individual's needs or limitations or movement pattern restrictions or so forth.

But the default setting for kids is a large range of motion possible. Once you get into those later high school years and you're becoming more specialized, if you want to change ra-- and alter or shorten a range of motion for a very specific goal or outcome, that's fine. But at this stage, we're not optimizing for sport, so we should be optimizing for range of motion most of the time as our default strategy and setting.

Last thing to think about, and conceptually for these basic movement pattern skill development tools, you're rarely doing exercises at high volume. You want to go low volume, high intent, very moderate to low fatigue most of the time. You can do some fatiguing stuff if it's-- if, say, you're playing a game of dodgeball and kids are, you know, working really hard for ten minutes.

That's your conditioning, right? Or you're doing some other game there where there's some fatigue associated. But most of the exercise, most of the lifting, most of the drills, they're a couple of seconds. They're a few repetitions. You're trying really hard, you're going really fast, you're focusing, trying to win, and you're resting and recovering. The goal is not at this point in their life to develop fatigue resistance.

We're not trying to enhance fatigue resistance at this stage of life. We're trying to develop better skills. That means they need to be somewhat fresh. They need a lot of practice, a lot of repetitions at it. They need a lot of repetitions and a lot of different scenarios, setups, situations, and implements, and they need to do it with high intent, right? Figure out what works for them.

So those are the big concepts. Some of the targets, in terms of the, the skill development things,

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you want to go after balance. We said that earlier. Something people don't talk about a lot though is grappling. Grappling is a very important skill for kids. This is pushing, this is pulling, this is lifting and carrying. We would collectively again call that grappling. Locomotion is everything from sprinting and running and agility, jumping and landing, two-legged, one-legged, rotating, so jump and turn and land, jumping on things, jumping off of things.

These are actually fundamental skills for kids. Tumbling, rolling, side rolls, shoulder rolls, butt rolls, all of those things are important. You also want to incorporate target practice, so be able to throw, be able to catch, be able to hit something, be able to aim at something with the upper body and the lower body. Kids often get this with the upper body, right? They're gonna throw a football at something or try to hit something.But make sure they're getting those same skills with the lower body as well.

Climbing very specifically, whether this is hanging from a bar, this is rock climbing, this is Ninja Warrior or parkour or climbing fences. Fundamental movement skills that are a little bit different than everything that we've talked about thus far. Pay attention to rhythm. I said this really briefly earlier, but this is something that is oftentimes forgotten. So this is of-- You think about this in, in drills where you have to do multiple things at different speeds.

So imagine like a three-part drill or game, I should say. Sorry, violated my own rule there. Where the first part, they have to step over some hurdles that are pretty high. Now, they can't do that very fast, so they're going at one particular speed. They finish that, and then they sprint fifteen yards, backpedal fifteen yards back. That'll be really fast. And then they get that, and they do a fast foot drill on a ladder on the ground.

Those are all gonna happen at three different speeds, so they're practicing learning to try as hard as they can, to try to go fast, but the actual rate of movement, the rhythm, big steps, small steps, change of pace, not change of pace, open up the throttle, hold things back. These are all how you develop rhythm of movement, which is critical to overall skill development. Spatial awareness, judging distance, right?

So be able to throw a, an implement. I actually was funny enough doing this with my kids very recently, where you take a, an object and put them at many different distances, and they have to learn to throw. In, in our case, we were throwing a medicine ball at... We were knocking something over, but one of them was short, one of them was a long ways away, one of them was close.

And so they're starting to realize and figure out, how do I manage force input to give me a very specific distance? Same thing with their own body, figuring out how close I am to another kid. So we'll do activities where we're in close environments, and you can't hit somebody. So spatial

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awareness, kinesthetic awareness, distance judging, uh, hitting a ball that's coming at you, right?

Hitting a volleyball. You get the idea, right? Reaction time is another independent one. You all know what reaction time is. And then a similar one, but that's actually uniquely different, is what we actually call decision-making with speed. And so this is something like, you know, you, you're gonna... Your coach is gonna give you a signal, and you have to interpret that signal and make a decision fast as you possibly can.

This happens naturally in many sports, but not all. But that's a different thing than just reaction alone because now we're enhancing the cognitive demand. Make the right choice and then give me the physical reaction as well. I could go on and on, but that was, you know, eleven or twelve or thirteen different targets to go after. So as you're either designing your own program or you're really watching your kids' program, you're watching what your kids are doing, you can use a list like this and go, "Hey, geez, we're only doing...

We haven't done any tumbling in forever. We don't do any climbing. Uh, we haven't done any spatial awareness." And then you maybe you can add something, one or two things, to what your kids are doing overall and give them a, a more well-rounded, uh, physical training approach. That's the best way, I think, to use information like I just covered. Look at what your kid is doing and what you're having them do or what your coaches are doing, then maybe say, "Ah, geez, we have some big things we haven't filled in there," and see if we can add a drill here and there or a game here and there or an activity at home to fill in some gaps.

One of the things that's also nice about a list like this, as I said at the beginning, none of this takes special equipment. None of this takes highly trained, skilled coaches or trainers. Everyone can do this. Not every kid will be great at all these things. You shouldn't do this all every day. But almost anyone in the world, regardless of access, can look at a list like that and just try to get a bunch of these things done.

And if you were to do that, and you were to do it often, as often as you can or as you're willing to do, it's gonna be a huge help, and you're gonna get most of the things we talked about earlier for overall physical development and be in a really good spot with free or zero cost for you at all. I think it'd be nice for me to cover one actual direct example. The way I'm gonna do that is I looked at an actual program from Jeremy that he was able to share, and I said, "Okay, if I were to take the concepts and apply it to one individual kid, what could that look like?" So I've s-sketched up a program here based on, again, Jeremy's actual program, as well as some concepts, made some modifications, and I just said, "If I had a seven-year-old, what would one day of a workout look like for that seven-year-old?" I like Jeremy's approach because in that model, he has everything from what is the drill, what is the intent, what's the coaching cues and strategy, how long is it gonna take, and what's the actual outcome.

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It's really high, really highly organized stuff. I'm not gonna share all that with you. It just... It would drag on a little bit. But I love that part of the model, so I'll share with you the first couple. So let's say the kid walks in, seven-year-old kid, right? Nothing else we know about the individual but seven years old, roughly. We're always gonna start with some sort of warm-up.

Now, the goal of the warm-up, balance, stability, and reaction time, in addition to having some fun. Again, you could switch out these goals, but what is the goal? Okay, therefore, we know those are the four goals we identified. How long are we gonna invest? Ten minutes. Got it. What's the coaching cue? You wanna be relaxed and semi-structural. So you, one more time, as the parent or the coach or the individual going through it, y- they're warming up.

You wanna coach, but you don't wanna be all on them, you know, really grilling them with the details. So it's relaxed, get things going, and semi-structured, but a lot of freedom as well. What are the actual exercises? Ones that I saw actually videos of Jeremy doing. Uh, one called a get up to hop. This is the kid is laying on the belly, and either the kid does it or on a, you know, a, a stopwatch or a start or, you know, ready, go.

The kid gets up from their belly and goes immediately to one leg and starts hopping on one leg. So it's a multiple-step approach. He showed examples of doing that as well with a hop to a turn or hop to a twist, hop to one leg, hop to another one, but it's a multi-step thing. That is a dynamic warm-up. We've already checked balance off 'cause we're hopping.We check stability up because we're hopping on one leg, right?

Reaction time because we're listening to the coach's cue, and it's pretty fun. It's also pretty safe. Not a huge injury risk there. There's not a high load or velocity or fatigue, not multiple steps when the kid isn't ready for it yet. Pretty simple instructions. I think most seven-year-olds, regardless of athletic ability, would be able to be-- execute that just fine. And you do that for ten minutes, right?

Now, real-reality is you probably do two or three or four or five of those games, but I'm just picking you one for an example. From the warm-up, you then move on to step number two or stage number two, which is coordination. So the focus is to work on coordination. The more specific goal is movement efficiency and power. Maybe spend fifteen minutes here. The coaching is fast and loose, right?

You're picking things up a little bit. You're trying to be competitive 'cause you want them to work on some power. So they gotta move with high intent. Exercises, things like a bear crawl through different hoops, a hula hoop to a cone throw drill. So you're literally doing a hula hoop and then doing a throw relay, maybe multiple kids at a time. You got a couple of groups going.

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We've knocked off movement efficiency, we've knocked off power, and we've added-- we, we made intent stay high because they're competing. That's what got the kids to try to throw the thing as hard as they could or go as fast as they could. Okay? So warm up, then coordination, then we're gonna move on to movement skill. So in this case, movement skill was a focus on speed, agility, and reaction time again, maybe now ten minutes long, something a little bit shorter.

The exercises, a, a tennis ball catch, uh, coach reaction drills. You could fill in a bunch of them here. You're getting the point, right? You guys can kinda see how this model is working. Again, really highly structured, but probably isn't landing in your head like the way you think about it when you get your workout programs. Adult-centric, kid-centric. Okay, fourth final thing we'll do is a game.

This is a five-minute fun finisher. You wanna get the kids leaving with happiness and joy and remembering the fun part. Develop athleticism. Coaches are gonna serve as the referees, and maybe you play a competitive game. You know, flag tag, where you-- each kid gets a, a little flag on their back, and you try to grab it from them. Uh, you can do this in a lot of different ways.

One-legged hops only so that the kids aren't just the biggest, fastest, strongest kids are gonna kinda always win. You could make the game really ridiculous if you want, but you get the point. We have some structure. We're going after multiple outcome goals. Here's how we put it together. We're doing it in a short time domain. Nothing is to maximum fatigue. Nothing is maximum load, complicated movements, multiple steps, and we got a lot of stuff done in a total of, I don't know, forty minutes, including warm-up, cool-down.

We can't walk away from this entirely without talking about plyometrics, just because I get a trillion questions about that. Plyometrics is a, a fancy way of saying, like, jumping and landing. It's really crazy. People for years... I remember, actually, I showed this in class for probably a decade. I think it was, like, WebMD. Yeah, it was WebMD, where you would go on, and they would just show you all the dangers about plyometrics in kids, and don't do it, and so forth.

It's probably still up there. Honestly, I didn't check. And so I bring it up for these exact reasons. Here's the rub with plyometrics. We've already covered it all. It's common sense. Kids jump and land every day. It can be dangerous, like anything can be dangerous. Riding a bike can be dangerous. Playing baseball can be dangerous. For my kids, w-writing with a pencil can be dangerous.

Who knows, right? There's no danger to plyometrics. There's a danger to too much volume. There's a danger to playing twelve months a year of a sport and then adding a bunch of plyometrics on top. That's the danger, right? So just use some common sense here, and it

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should be fine. Kids are meant to jump and land. They do it all the time, all day. Normal plyometrics are not any different from that.

So don't want to, to spend too much more time on that. I do wanna spend a little more time, though, specifically on what I call the ten rules of lifting weights for kids. You know the concepts already. What are things that are specific to weights and free weights and strength training and resistance exercise for a kid? Let me run you through my personal list of ten. Number one, and stop me when you've heard this before.

We're gonna focus on quality, positivity, and fun. I will give you numbers, but this is not how I have ever coached kids or ever had any of my students, and I've actually mentored more than a few master students who went on and did their projects in this area of kids' strength training. So I'm pretty familiar with the research and, again, speaking to many people. This is always about quality.

Repetition ranges are really rough guidelines for adults, and they're hyper, hyper rough guidelines for kids. I've made that point now, and you're probably sick of it. But number one, again, is that. Number two, something I have not brought up yet. Make sure the environment is safe. In other words, the equipment. Don't have kettlebells laying around. Don't have dumbbells on benches.

Kids will find a way to get hurt. So strength training will hurt kids if that part isn't taken care of, and way more important to do it in kids and youth than it is for adults. So make sure the environment is safe for those little squirrels. Number three, generally, we're looking at, for strength training, two to three times per week, twenty to thirty minutes per session. Now, the model I laid out a, a minute ago was probably more like forty minutes, but that was a warm-up and a cool-down and different activities and games.

The actual lifting part, you're probably talking about twenty to thirty minutes at max. Start off more conservative, two days a week. As they get more competent, build up to three. Number f-four, full range of motion with good technique. Now that we're introducing load, we're gonna put more of an emphasis on technique. When a kid is moving his own body, I'm gonna let her do whatever she wants for the most part.

When she's putting a load on, now more rules come into play. Not gonna restrict everything and get everything really tight, but you get the point, right? More sense, more load on the bar. More load on the, on the implement rather. Number five, we're always still gonna start with those dynamic movements, and we're gonna try to instill warm-ups and movement quality like that. Number six, in terms of the actual number of sets, probably one to three sets with somewhere between six to 15 repetitions at a light load.

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What's light? I don't know, call it less than sixty percent. Maybe counterintuitive, but you can do a one-rep max with kids. You're not gonna do it for every exercise. A one-rep max is not gonna be the same. You're not gonna rip smelling salts and, you know, really take them up to the end, but you can get a rough sense of what their maximal strength is and program like that. But think about it.

You're doing two sets, six to eight to ten to twelve reps at forty, fifty, sixty percent of their max. We're not here to maximize muscle growth. We're here to just use weights as a way to develop tendons, bones, muscles, movement capacity, motor skills, focus, movement literacy. It's just another tool in the tool bag, so it's a different outcome goal that we're looking at entirely.

We'll increase load five to ten percent as they become more competent. If they're not, then we don't. We're not gonna hold tight to specific numbers. You're watching every repetition, and you're s-- when you think the kid has learned enough for the day, then we're done for the day. That's all we're after. So we're not gonna push more than moderate fatigue. You can push to pretty high fatigue when you're playing games, and y-you're out there moving around, but when you got loads and we're strength training, moderate fatigue at best at this age range.

At times, you can go past these numbers, so you can get to maybe, you know, eighty percent of your one-rep max in certain kids if they're ready for it, but you're only gonna dip into that pretty f-infrequently, and you're gonna do it for small doses. You wanna, you know, kinda run a check and see where they're at. Uh, you wanna actually do some more advanced strength training 'cause they've got, you know, two or three or four years behind their belt.

Okay. But it's gonna come in small doses. Most of your time is gonna be spent at those much lighter loads. You can go at a lower repetition range below this six if you're working on technique or if you're working on speed and power. And that point makes sense to do three or five repetitions or something close to that. But for the most part, most of our time with these kids is gonna be spent, again, one to two, three at most sets per exercise, six to twelve reps at, at a pretty light load.

Past that, we wanna be working on some basic movement patterns. So you wanna do upper body. You wanna do mo-- and lower body rather. You wanna do multi-joint exercises. We're rarely doing isolation work. Right? We're looking at squatting and hinging and pressing and pulling, horizontal, rotational, vertical, big movement groups, a couple of exercises per day, and then get out of there.

If you identified a particular weakness, an asymmetry has developed, or you're concerned about one, then you can add a couple of corrective exercises. Those can be a little bit more single joint, a little bit more isolation, depending on what's going on there, but that's the appropriate

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dose. So you add all that stuff together, you do it in a large variety, right? So we wanna alter the stimulus, you wanna alter the position, and everything that we can.

You're in and out, you know, in twenty to thirty minutes of actual lifting. You're doing that a couple of days a week. You're progressing somewhat conservatively. You do all those things, you're very, very likely to have a high-quality result, low likelihood of negative consequences and injury, and you probably aren't likely to burn the kid out, uh, anytime soon. So those would be my, again, ten rules of lifting weights for kids.

If we go past physical activity, which was where we started these guidelines, and then we went into strength training, I wanna go all the way up to now what about exercise and sports specifically. Generally, five recommendations here. For youth athletes, again, we're now talking about people in competitive organized sports. Very first thing we wanna recognize is you don't want to come into your sport after large periods of inactivity and then just start competing.

What's the most common one? You will see university injuries in kids goes way up in the fall. Why? Kids go off in the summer. They don't do anything. They show right back up. They immediately st- jump into football practice or soccer practice or whatever they're doing, so they go from periods of really low activity to really high activity, and boom, injuries start to happen. So don't do that.

Number two, you still wanna focus on foundational movements more and skill development less. Direct example. Let's say that you're getting ready for football season or basketball, baseball season, whatever the case is. We're in baseball spr- season right now, spring training. The mistake here would be, "Oh, I got hurt. My shoulder got hurt." "Oh, really? What happened?" "Well, I, I, I threw a bunch, you know, getting ready for season." So throwing a baseball would be sport-specific preparation.

But that said, you should still spend more time working on running and jumping and sprinting and landing. So if your only preparation for season is the sport technique, you're not fundamentally developing everything you need to be to actually be ready for the loads that will happen in your sport. And so overemphasizing skill development and underemphasizing movement development is still gonna potentially leave you in a spot for a bunch of problems.

The rule of thumb here roughly is, what we'll say, two to one. You don't wanna spend more than two times the amount of hours or volume or however you're thinking about it in sport as you do in playtime. If your sport to play breakdown is three to one, four to one, five to oneNow we're gonna have problems because we're under-developing those foundational movements. If it's closer to at least two to one, you still got an okay chance.

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Again, numbers will vary based on individual and age, but it's a really, really so-- And, and that number actually is directly from research. That was actually been sussed out to figure out like that is seems to be the number. Kids that have a higher ratio of the, of two to one sport to play end up getting hurt more often. So important to know there. Another important guideline for youth athletes, similar things.

W- It's this is what we call no permanent seasons. Eight months is roughly the number. You generally don't wanna spend more than eight months in a year playing a single sport. You see this routinely. Kids go through their, their, uh, local school season, and they go into special season or AAU or club, and they end up having these like perpetual seasons. We have seen this with golfers, we have seen this with baseball players and volleyball players.

We've seen this with runners, cross country going into track and then off-season and indoor, and you end up in a 12-month-long season. For kids, eight months is the rule. Can't exactly tell you why, but the research is gonna say that's the breaking point where longer than that, we start seeing a greater increase in injury risk. So something to keep a, uh, your kid aware of at that point.

Lastly, here's what we call no early specialization. Below 16 years old, kids should be participating in more than one sport. After that, if you wanna specialize to one, you can, but the more sports, the better, and at minimum two below the age of 16 if you can pull it off. At this point, I've probably gotten myself into a lot of hot water regarding this specialization. I have actually talked about this in small parts before in the past, and man, the internet got mad.

And so I do want to make sure we're all really clear when we talk about early specialization in sports since we're right here. Firstly, it does not harm your ability to become an elite athlete by playing multiple sports. I can say this a bunch of different ways, but that is obnoxiously clear. If you have your kid play more sports, it will not compromise their ability to be a world champion at all.

Pick the data point you want here. There's a fun thing that happens every year during the Super Bowl, where they will report right before the game the amount of people playing in the Super Bowl, how many were multi-sport athletes, and how many only played football. You wanna guess what that number is? It varies year to year, but it's generally somewhere between ninety-one to ninety-six percent of the athletes on those rosters were multi-sport athletes.

So that point alone should end the conversation. Very rarely do people become world champions at the highest level in sports by only doing one sport. In fact, the data will show the exact opposite. Second point, if I didn't convince you right there. Specific studies have shown kids who play three or more sports from ages eleven to fifteen are more likely to play in national versus

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club-level teams by the time they get to the ages of sixteen to eighteen.

So if you have your twelve-year-old and you think your twelve-year-old is something special, hopefully they are, a-all the best of luck to you. But if you want that twelve-year-old to reach the highest level possible, have that twelve-year-old playing in three or more sports. That will give you a stronger chance to be truly elite by the time that twelve-year-old turns sixteen or eighteen than staying in the one sport.

Routinely shown, all right? Now, obviously, there's some correlation there and associations, but second piece of evidence, right? Third piece of evidence. A re- a recent meta-analysis, and this is really about the most concrete thing I can tell you. This meta-analysis covered fifty-one different studies. Over the course of it, it was about six thousand kids, and what's cool about it is it included almost eight hundred world top performers.

So who actually becomes the best or close in the world? World top performers usually differentiated as things like, again, who made the world championships versus only national championships, who made, uh, Olympic teams versus just national teams, who made club teams versus higher end. So like that's oftentimes how they break these things down. Handful of things that came out of that meta-analysis.

One, the best kids played the most multi-sports. It's just really clear. You will not stop your kid's ability to be the best possible by making them play multiple sports. In fact, more likely, you're giving them a better chance to become elite by giving them a more well-rounded experience physically and cognitively. In my opinion, that is the most important stuff for us to understand for exercising kids.

We talked about just from a general physical activity perspective, from a lifting weights directly, from a motor development, from an overall sport perspective. The last little tidbit I wanted to throw at you here was what we know about how to motivate kids. You could use a different term if you'd like, but how to just get kids to be more physically active when they don't want to be?

Some kids are just more into movement and sports, and others are not. What do you do if you're that parent thinking, "How do I get them moving? I don't wanna push them too much," right? You don't want to do that negative thing and you have them get mad and so on and so forth. What's the right amount of pushing? What are some strategies? Well, number one, just be more active yourself.

That is always a good thing. If your kid is not active and you are not active, that is the easiest way. Kids will model parents, so kids will model community. So that said, the second one is get them in more environments where more kids and more adults are moving. If your community,

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your friends, your family is on TV, is on phones and stuff all day, they're going to mimic that.

If they're just in different environments, they will mimic that. Those are the two biggest steps you can take. You yourself as well as get them in peer groups of kids who are more active. Doesn't mean you can't let them be friends with their kids who want to play video games all day anymore, but you get the point. Put them around environments where people are just more active.

Three, and this is actually something that has worked a lot with my kid, try different physical environments. This means play on the ground, play in the snow, play in the water, go into the forest, go into playgrounds, go into gyms, go into courts. Get them in different environments. Maybe they hate sport courts, but they love to play around in the forest. Great. Maybe they are cold and they hate the outdoors.

Awesome. Try an indoor pool. Whatever you can do to change the physical environment, maybe something will resonate and hit with them there that hasn't resonated in the sports that you liked or the activities that your spouse or your family liked. Another thing, similar idea. Try different movement modes. If they don't like running because they don't like playing soccer, they don't like playing football or basketball, try swimming.

Try in the water. Make them move their body differently. Put them on a bike. Put them on a board. Have them do skateboarding. Do different things that are different, not just you moving your own body. Other stuff may do it. I can tell you right now, my daughter absolutely goes bonkers over swimming. Great. I hate swimming. Hate it personally. Don't like it at all. She's all into it.

Fantastic. I will take that kid to the pool anytime she wants to go and we can take her there, right? Her brother doesn't like it at all. Awesome. Whatever it takes, different environments. Similar concept, try different implements. So bats, different rackets, different balls, long things, short things, sticks, flags, whatever. You're getting the point, right? Just try different exposures.

Another thing that's worked a lot, try different play partners. One thing that happens with kids being so far behind other kids, if they're around their peers only, they tend to withdraw and fall back if they're below them or delayed. So having them always compete against the same kids who are better than them may not be your best option. Play with them directly yourself. A lot of little kids don't want to play with other kids for that reason, but they will play with you.

So you'll be the one to play catch with them. You'll be the one to play the sports with them. And not only are you modeling the behavior, but they actually are more comfortable not being good at something with you because they don't have any reference point. They know mom and dad are

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better. They just know uncle's going to be better. They know auntie's going to be better. So they don't have that negative experience being the worst one in the group like that.

If they have siblings, same thing. Maybe don't have them play with the sibling if it's causing that negative dynamic or cousin or whatever the case is or the neighbor, so on and so forth. Or themselves. Maybe the best scenario is have them play with themselves more. Practice by themselves rather than in front of the other ones if that's causing the problem. Finally, try to make things a differentiator between task goals versus sport goals.

Here's what I mean. Maybe the kid has no interest in sports, but you can get them to build a fort. You can get them to do something where, hey, we got to get all these rocks into the water over there. Great. They're still going to be playing sports, but they don't care about winning. They don't care about points on the board, but they will do something like that. Maybe it wasn't the best example, but hopefully you can come up with your own example there where you're getting them to do different things, have a start, a stop.

Here's what we're trying to do. We're going to accumulate points, but the points are different. It has an outcome that they like. And it's not just reward-based. It is this actual intrinsic reward. We did our thing, but the thing is now not a sport or a score. It is great. We build that cool deck. Awesome. We put that bridge across the water. Now we can go all the way over. You get the idea.

I hope that was informative and I gave something for everybody. We try to do our best to stick to what we know from the literature as it stands. I also wanted to cover a lot of different options to meet you at your individual needs, your kid at their individual needs, and make sure we've got tools and tactics for everybody. Last thing I wanted to mention, and I will go over this stuff briefly, and I'll put them all directly in the show notes.

And this is just what I'm calling additional resources. I promised this earlier. There are a handful of books that I know I have personally read, certifications and courses that I thought were great, and I wanted to directly mention those. More, again, will be available in the show notes. But from a textbook perspective, the NSCA's High School Strength and Conditioning book is fantastic if your kid is at that age.

You want to know direct exercise examples, programs, how to teach the exercises, the techniques, all that stuff. It's wonderful. Patrick McHenry, I've known Patrick for a long time. Mike Nitka, Mike is just a legendary figure in youth strength training. They both wrote that book with a bunch of other people. It is fantastic. Avery Feigenbaum, I've mentioned multiple times, he has a book called Youth Strength Training.

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Also awesome. And then finally, the American College of Sports Medicine has a book called Essentials of Youth Fitness, written actually by Avery Feigenbaum, Rhodri Lloyd, and John Oliver. Again, three super prominent scientists and practitioners in this field of LTAD. They actually have a certification as well called the Youth Fitness Specialist Certification. All of those are available.

Jeremy Frisch, who I've mentioned multiple times now, has a master's course. All of these books I mentioned, including Jeremy's course, are all $50 or less. And so again, not everyone can afford that, but many folks can, and these are great resources if this is a field you care about. Something completely different that I couldn't do this episode without mentioning is something my friend Jim Davis created out of Chicago.

It is called the Good Athlete Project. This is a combination of leadership and mental health and psychology smuggled into an exercise and sport program. The Good Athlete Project is phenomenal. I've done some stuff with it in the past. I've known Jim for some time now, and it is great, and Jim is great himself. Lastly, and this is a really big one. Another group that I have been a part of and am actively a part of, this is led by a guy named Brian Finnegan.

Brian spent a lot of time in Amazon's sports department. And this is called the Global Youth Sports Innovation Challenge. And Brian specifically is running a project called The Future of Play. Now, why this is important, this innovation allows funding of research. So if you're a scientist in this area and you're looking for funding, you can go there. If you're a donor and you want to contribute, they, they have a mechanism for that as well.

They also allow you to pitch companies, big ones, the biggest of the big ones in youth sports, whether it's your project, your activity, or whatever you're trying to do, you can get in front of these groups and tell them how you're trying to enhance youth sport quality in America, at least. Lots of awesome stuff happening by Brian and his group. And again, it's called The Future of Play Initiative.

If I had to take these last couple of hours and summarize them all down to ten things, here's what I'd say. Number one, unfortunately, we are just in a position in our human history where your kids need specific exercise and strength conditioning for their short and long-term health, and this is probably the first generation where I would truly say that, but I just don't think we can argue that anymore.

Number two, while many people, and probably my circle knows a lot of the things I talked about or at least conceptually agree with me, we still need to keep spreading the word. This is a very important topic to share, as evidenced by the amount of misinformation that is out there, the misconceptions, and some of the things that are still prevalent in the scientific, clinical, and

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practical field regarding specifically strength training in kids.

Number three, always, always make sure whatever you're doing, you're promoting a positive relationship with human movement, physical activity, and exercise in kids. Number four, differentiate between developing an athlete and making sure we're developing overall athleticism. Everybody has a body, so everybody's an athlete in their own right. This may look, feel, and smell different for everybody.

That's fine. Nobody has to play sports, but everybody should have the ability to be athletic. Number five, this is all about movement literacy for life. We want big movement vocabularies. You can solve a lot of problems. You can give yourself a lot of options, the bigger your vocabulary is. Number six, you start maximizing that vocabulary at birth. Of course, everything is appropriate to age and desire and abilities, but this thing starts as soon as we can move because we've started moving.

So we need to start working on movement, and we need to get better at movement. Number seven, each kid is their own athlete. They are one of one. It's not always possible. I get it. I've taught summer camps before. I've taught kids. I've taught the middle school fifty-plus groups of kids at a time. You gotta do group stuff. You gotta bucket however you can. I get it. That's realistic.

But when possible, try to meet every kid where they are at and treat them as a one of one. Number eight, all this starts with you. The more you can do, the more you can model, the more you can help promote these activities, the more likely it is your kid or your nephew, your neighbor is gonna have success in those things. Number nine, don't overspecialize, especially early. We can do that later in life, probably a lot later than you think.

There are some exceptions. Gymnastics peaks at, like, twelve. Yes, I get it. I hear you out there. But for the most part, as a general rule, we wanna specialize later in life and spend more of our time on foundational basic human movement principles and concepts and less on sports tactics and skills for younger kids. And tenth, and finally, if we can fundamentally frame this as games and not drills, as fun and not workouts and not exercises, we re-switch our brain.

We take a kid-centric rather than a adult-centric approach to how we think about, how we program, how we implement, and how we coach strength training in kids, we're gonna be more effective in the short and long term. I wanna leave you on one final thought, and that is a quote from former President of the United States, Franklin D. Roosevelt, from nineteen forty, and he said, effectively, "We can't always build a future for our youth, but we can build our youth for the future." Thank you for joining for today's episode.

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