Are You Training Wrong? The Truth About 4x4 Workouts

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[00:00:00] Four by four intervals. They are all over the place right now. Cycling, swimming in the gym, and obviously running and coaches everywhere they're recommending them. But my opinion, I think they're overhyped. There are better ways to get faster that are scientifically proven. And here's what. Actually works.

[00:00:17] In this episode, you're gonna find out what four by four intervals are and why everyone does them. The real science behind VO two max training. So you learn the fundamentals of how all this works, why four by fours don't work for beginners or experienced runners, sometimes other VO two max research backed workouts that are just as good, if not better.

[00:00:35] Plus, you'll get my free, improve your VO two max guide that you can start using. Today, I'm Daren D Lake, and I've been running for almost 30 years. I've researched and tested everything about VO two max that I can, or as much as I can, and that's helped me run a 1645 5K. But my goal for all this stuff is to help self coach runners learn the secrets that I've discovered so that you can get 1% better each day.

[00:00:58] Let's get into it. So what are these four by four intervals that you may have seen on YouTube and the interwebs, et cetera? Think of your heart and lungs like a car engine. VO two max is your engine's max. Horsepower VO two max measures how much oxygen your body can use during intense exercise. So you're going very fast, but you're using oxygen.

[00:01:15] It's like the limit of the oxygen and it's measured in milliliters per kilogram per minute. So that's how it is. The VO two max, the higher VO two max equals more endurance, more speed, better race times, and it's also taking into account, obviously the kilograms, your body weight. So the lighter your body weight and the more power or speed that you can produce, the higher vo O2 max you are.

[00:01:37] That's simple four by four intervals. Work like this, you redline your engine for four minutes at 90 to about 95% maximum heart rate. You need to know your maximum heart rate, and you rest for three minutes. Then do it again four times total. The idea you're pushing your max capacity over and over, and this kind of pushes out and trains your engine to handle more.

[00:01:56] And why the four by four method became so popular? It is a good method. And why is it so popular? So a 2007 study from Norway. Tested four by four intervals on active runners. The result, a seven to 13% boost in VO two max in just eight weeks. That's more than double the 3% from if you were to do zone one, zone two, steady state cardio on however you wanted to kind of progress and train yourself.

[00:02:20] And the research showed big VO two max improvement obviously. It was great for heart health. They tested out cardiac patients and it was time efficient versus longer. Slower. Runs 30, 45, 60 minute easier runs, lower heart rate, and you got similar benefits. But here's the problem. This study only tested four by fours against easy cardio.

[00:02:38] It didn't compare them against hard interval workouts and variations that also can improve your VO two max later studies did that, which I'll get into because this is. Why it all gets super interesting. So over the last 15 to 20 plus years, I've tested a bunch of these VO two max workouts myself and have given them to runners that I coach at all different levels.

[00:02:57] And I've found four alternatives that I really like that work and I think are just as good if not better, than the four by fours. Four different goals and different experience levels. Which I'll break down very shortly. So why exactly do you think four by four intervals are overrated? Problem one too hard for beginners.

[00:03:14] If you're new to intervals, 16 minutes of near maximum effort is brutal. Most beginners can't handle 90 to 95% max heart rate for four minutes without falling apart. They end up doing a broken version. They go out too hard because they don't know their VO two max 5K pace. Then intervals three and four become absolute survival mode because they've already redlined, they've already popped, and it's not an actual VO two max workout 'cause you're not hitting the speeds.

[00:03:37] That's another thing with VO two max where you need to go fast enough to actually. Quote unquote, turn on your VO two max. You enter VO two max zone, and you have to be at a certain speed. You can't just have a heart rate go up because you spiked earlier in the session, which leads me to problem too. So if it's too hard for new runners, it's also too short for experienced runners and not hard enough.

[00:03:55] Here's the science. It takes about two minutes of hard running to hit. Peak VO two max. So in a four minute interval, you really only get about two minutes at maximum intensity. That's what we'll call that. And that's when you turn on your VO two max, as some people call it Pete McGill calls it that, who wrote the book Fast?

[00:04:10] 5K, which I love. If you want to go check that out. Uh, the rest of that is still good training the two minutes before you turn it on, but it's not peak stimulus of what we're doing. This is a very precise workout. This also comes from Jack. Daniels, yes, the running coach and he has the VO calculator and his decades of coaching research and his book For experienced runners with strong aerobic systems, four minutes really isn't enough at VO two max to create the gains that you need.

[00:04:35] Once you get to that levels where you have to really, really be pushing yourself, you are getting fit. But if you wanna get super fit. You gotta gotta go a bit longer. You're leaving the results and the gains on the table. Problem number three, it's not race specific enough. So think about a 5K race. Elite runners are at or near VO two max for 13 to 15 minutes straight.

[00:04:53] Good amateurs stay there 16 to 20 minutes. If you're only training your body to hold VO two max for two minutes at a time, that's the peak VO two max. You're not preparing for the race. You need longer intervals for race specific endurance. So the law of specificity, the rule of specificity, whatever you call it, you gotta do the thing.

[00:05:11] To do the thing, you gotta do the thing well to do the thing. Problem four, limited research. So that original Norwegian study, it was great, but it only tested

four by fours against easy cardio. This is a beautiful thing about science. It can't test everything. It didn't compare them to other hard interval types.

[00:05:25] Enter this episode. So what we do, so the other research shows different protocols. There are other research in science that showed this, and it's just as good sometimes better for improving VO two max depends on a lot of factors, experience level, your race, goals, et cetera. So what should you do instead?

[00:05:41] I made it super easy for you and I created the Improve your VO two max Guide. It's a free training plan with science backed interval workouts. Think of it like the sampler platter, tapas appetizers for VO two max for more information and to get that free training plan, click the QR code here or link below in the episode description to get it right now.

[00:06:00] But here are the actual four workouts. That I recommend. Here we go. Let's start simple and work up to advance. When I start my race build phase, I always begin with the easier ones. I even do the easier ones in the off season. I'm experimenting with that and my body is liking it. I do shorter ones. You can modify them in a lot of different ways.

[00:06:17] Warning. VO two max work is quite stressful and hard on your body, especially tendons and ligaments. Higher injury risk if you're not prepared or coming back from time off. So I highly recommend you get my base training plan. The link is below or up here. You can watch the episode on base training six weeks minimum before you go into VO two max.

[00:06:36] Work proper. Here we go. Option one or variable or alternative workout one 30. By 30 protocol. This is the method, and this is for pretty much anyone. So I like to give it to beginner runners in the beginning of their race build phase. And I like to do it because I have fast twitch muscles and I do very well with sprinting.

[00:06:53] So I give this to sprinty type runners that I coach. What is it? 30 seconds hard effort. 95, 200% vo, two max and 30 seconds. Easy jog. Repeat 13 times, rest three minutes. Do three sets. That is 39 reps. That's a lot and it's quite difficult if you're not ready for it. I'll talk about variation in a second, but since they're so short, those 30 seconds, the GPS doesn't really get exact pacing, so I would base this on effort unless you have a foot pod or you could do power for the last 10 seconds, or if you're on a treadmill, you can actually know the exact speed, but you really want to get your heart rate up.

[00:07:28] On the last bits, like the last five to 10 seconds, right at the end, your heart rate should be touching your zone four VO two max area. Where to do it? I like

to do this on softer surfaces, like a track or grass or packed dirt just because it's so hard on your body, especially in the beginning, and I've found that the older I get.

[00:07:45] The more my body is just sore. Achilles especially. And if you've never done these before, just start with six of them, one set of six. Then the next week you can do two sets of six. Next week you can do two sets of eight, and then you can work your way up to 13 and then do the third set of 13. It does take a a bit of time to get there also, 'cause you have the three minutes rest in between.

[00:08:06] All 13. Why I think it's better, it actually gets you up to VO O2 max fast. So within those 30 seconds and 'cause you don't have that much time off, you only have 30 seconds to be recovering, your heart rate stays elevated. So you actually can turn on your VO two max faster. 'cause you just keep going, going, going.

[00:08:22] So you're running at a fast speed, which means that VO two max is being activated and you're keeping your heart rate elevated. It's a double win without tiring out. You don't run out of a TP and you don't feel depleted because if you just sprinted with no rest, you would. Tire out. Try sprinting at the start of a marathon, you're not gonna be able to hold that pace for the marathon.

[00:08:39] Or do you run a marathon in one hours? Uh, you also do more total time at VO two max because you're running so fast, as I said before, and I think it's a mental game changer. The 30 seconds feels way more doable even when you're hurting. And this whole method was put together by French researcher B'Av.

[00:08:55] They discovered something wild by alternating the 30 seconds hard with 30 seconds. Easy runner spent almost. Eight minutes at VO two max, that's nearly triple the time versus steady hard running. Your oxygen consumption stays high even during these easy intervals. Here is the do part while four by four intervals get you about eight minutes at VO two max, the OTT 30.

[00:09:14] 30 gets you nearly the same time, about seven minutes, 50 seconds, but again, it feels way more manageable mentally. Alright. Option two, workout two 12 by 400 meters. This is for all levels, but again, speedier folks that like to go fast and at different times of the year, you can use these, what is it, 12 rounds or reps, or a lapse of 400 meters.

[00:09:34] So 400 meters, one lap of a normal track at your current 5K fitness pace. Use the VO calculator, which I did an episode on. Check out the V capital up there or link below. Do half the time for recovery as it took you to do the rep example. Run 400 meters again or one lap. 80 seconds, that's what I would do.

[00:09:50] And then take 40 seconds. Super easy jog recovery. I walk the first 10 seconds and then I do a little shuffle, and then I'm ready to go at 35, 37 seconds, and then 40 seconds watch goes off. Or you can actually vary this, and it's very similar. If you wanna do slightly longer, you can do eight by six hundreds or six by eight hundreds.

[00:10:08] If you do the math, 12 by 400 gets you to 4,800 meters. Eight by six gets you to 48. Six by eight gets you 48. So it's all 4 4800 and you wanna do a similar half recovery protocol. So of 600 meters, I think that takes me two minutes, a hundred seconds, a hundred seconds. Then I'll do 50 seconds recovery. I did a whole episode breaking this workout down a.

[00:10:27] Up here or below in the episode description. I've done so much on this. Please check it all out. Why is this so good for VO two max training? The short recovery, again, it keeps you in an elevated metabolic state. The whole workout similar to 30 thirties, just a bit longer. You accumulate significant time in the VO two max zone, even with the shorter intervals, 5K pace with short recovery.

[00:10:46] Proven effective by coaches like Pete McGill. He's led 19 teams to National Championships and he wrote a awesome book, run A Faster 5K that I highly recommend if you're into running faster. Five Ks. I base a lot of my training principles off of that book. It's beginner friendly. These 12 by four hundreds shorter intervals.

[00:11:02] Again, they feel more manageable. It's distance based. It's easier to pace on a track. Try to do this on a track or area that you know is 400 meters versus G-P-S-G-P-S bounces around, or an open field, straight flat. Try to do softish surface or just straight pavement if you can. You can progress. If you wanna start out, you can regress it and then progress it.

[00:11:22] So you start at six by 400 instead of 12 if you're new. And then you can build up to 8, 10, 12, even if you want to go further. 16, some guys do 20. That's more of like a 10 K workout, but you're doing it at your 10 K pace. But that's a conversation for another day when you do 400 meter intervals at 5K pace.

[00:11:39] With short recovery, the combined effect keeps you near VO two max. Most is a workout again, 'cause your heart rate stays elevated. It's like the 30 30 principle, but I think it's even more manageable 'cause you're not going as fast with the 30 30, you're going quite fast. This isn't as fast 'cause you're going longer.

[00:11:55] Here's a bit more science. So longer intervals, three to five minutes, you do spend more total time above 90% VO two max. But 12 by 400 meters is still legit

because it's beginner friendly and it builds running economy. So you actually get used to running faster than 5K slightly. And it's super. To 5K racing.

[00:12:10] Alright, before I get to the third option, can you do one thing for me? Watch this to the end. I would appreciate it. That's all you gotta do. It tells the algorithms to show it to other runners. Boom. Your good deed of the day is done. And you know what? Tell me in the comments, if you hate four by four workout or if you love it, I want to know, here's options.

[00:12:27] Three six by three minutes for intermediate runners. What is it? Six rounds of three minutes at vo, two max effort. So you take a two and a half minute jog Recovery for this. Again, you do not shorten the rest. The goal is to feel for. Fresh, not tired. Why? It's better. Shorter intervals equal more doable. For intermediate runners, you still get 18 minutes total work.

[00:12:46] With six minutes at VO two max, you can maintain intensity across all six reps, and it's less scary than the four minute intervals. For newer runners, the research shows that three minute intervals hit the optimal duration for building early on and maintaining VO two max work. It's long enough to reach and sustain VO two max, but short enough to maintain.

[00:13:05] Quality, and here we go. Option four, the four by five minutes Jack Daniels method. This is probably for experience runners. You're adding that extra one minute, which is 25% onto the four by four, but it's very, very different. What is it? Four rounds of five minutes? FV O2 max pace, again, roughly your current 5K pace.

[00:13:23] I actually do slightly slower for these longer intervals. And you want to use the VDOT calculator to get exact paces you put in your latest time trial, erase time. You plug it in, it gives you where you should be at. It is very, very accurate. You wanna take three minutes? Jogging recovery. Do not shorten the rest because you feel good.

[00:13:41] The gains happen between the sets. Always three minutes. Do not go, Ooh, I wanna do two minutes, 20 seconds. Don't play around with that until you're way more advanced, like years later. Why I think four by four is better. 20 minutes total versus 16 minutes. Of work four by four. So it's 25% more than the four by four.

[00:13:59] More time at peak VO two max, so this is 12 minutes versus eight minutes. This is 50% more peak time for just one minute more rep, and it's better for 5K and 10 k. Race prep. Jack Daniels, who's coached Olympic Runners, et

cetera. He found that five minute intervals hit the sweet spot. They maximize VO two max time, but they minimize how much lactate we build.

[00:14:19] Because you have that three minute rest, you wanna clear the lactate outta your system and then you start again. If you go any longer, once you start getting to 6, 7, 8, 10 minutes, you have too much lactate. We end up ruining. The next few workouts, the next few days, it takes you longer to recover. So this is like just enough in there and then we pull right back out.

[00:14:36] So for faster runners that can do 5K in 20 minutes or less, you can work up to five and a half minutes. I know Jack Daniels basically says a mile, so you need to be able to run a mile very quickly, 1.6 kilometers, and you can do, I touch five and a half minutes, but I'm out. So I get an extra two minutes total because that's 30 seconds.

[00:14:55] On top of the 12 minutes at VO two max, so it's actually worth it just to go 30 seconds and you can actually cruise. This is something that I've actually been doing. You can cruise for the last 30, 45 seconds. Once you get your heart rate up, you don't have to keep going really hard. You can actually get it up.

[00:15:12] Cruise on those last two minutes. And then the last 45 seconds, 30 seconds, I actually back it down effort down to like a, a seven outta 10. My heart rate's still elevated, but I'm still running fast, and you get very, very, very similar benefits without smashing itself. Again, it's just a little bit in, and then we're coming out.

[00:15:28] This is not a, a. Raced feeling. You should feel very good at the end of your whole workout, like you could have done one more. So how would you fit this all in your schedule? I'd say weeks one to two of your race build. So this is probably about 12 to 16 weeks out from your race build. I would start with 12 by 400 meters.

[00:15:47] You wanna build from six reps. If you're brand new to this, then weeks three to four, you can progress to six by three minutes and you're doing only one of these a week, by the way, one workout a week, and then weeks five to six advance to. Four to five minutes and then anytime if you wanna throw 'em in, you can do 30 on, 30 off for variety.

[00:16:03] You could start with that for the first week, then do six by four hundreds or eight by four hundreds. And again, I stress this VO two max work once a week is fine for new runners. Your body needs probably about three to four days to recover from this. So you can do a tempo run if you want, two to three days after a VO two max workout.

[00:16:20] Experienced runners can do two of these a week, but that's like some next level stuff, advanced stuff, so I wouldn't mess around with that just yet. So if you want to implement this right now into your training, go and get that free VO two max training plan. Kind of tap us little sampler platter of sorts, the QR code here, or link below.

[00:16:38] In the episode description, you'll also get my newsletter that has deeper dives on threshold training strides and other running. Tools and tactics. It's five minutes per week in your inbox so that you can get 1% better. But nailing VO two max workouts is only part of the equation. Knowing what VO two max actually is, how it's measured, and how your smart watches might be lying to you is actually the step before this.

[00:17:00] Go and watch that episode below on the episode description. Peace.