
THE CrossFit JOURNAL

All About the Peak?

Most athletes train to be their best for a certain event—but does “peaking” work?
Brian MacKenzie and Anthony Roberts don’t think so.

By Brian MacKenzie with Anthony Roberts

July 2011



Staff/CrossFit Journal

One of my most vivid high-school memories was swimming at Belmont Plaza each year for CIF, although only one of my top performances came at this meet. Most of the people I swam with (20-plus kids went to CIF each year from my school alone) rarely set a personal record (PR) or even posted a season-best (SB) performance. And those who did turn in their best performances of the year often weren’t strong swimmers in general. This year, two kids from Wilson High School set personal bests and school records—but didn’t win a single race.

Most of us, kids to coaches, look at this race as the premier competition of the season, yet our times didn't reflect this. Although plenty of folks I swam with and plenty of kids from other teams would hit PRs at the final meets of the season, it was so few and far between that some questions on peaking need to be asked.

Ready For a Day or Ready for Anything?

Every year, there's a two-week break between the final set of NFL playoff games and the Super Bowl, during which the coach of each team dutifully trots out in front of a battery of microphones to tell us that his team is peaking at just the right time to win the big game. Peaking. And why not? These guys are professionals and they have the some of the best coaches in the world. Plus, they've had all year to reach this peak.

I remember watching the 1984 Olympics in Mission Viejo, Calif., with my old man. The bike course was set up in and around Lake Mission Viejo and the surrounding cities. It was my first real memory of watching Olympic sport. Mark Gorski brought home gold in the 1,000-meter individual sprint, a rare American victory in a sport dominated by Europeans. The Olympics are incredible—the highest level of sport—and we should expect peak performances all around.

And why not? These guys are professionals, and they have some of the best coaches in the world. Plus, they've had four years to reach their peak. Gorski explained his victory in the context of European dominance in the sport:

"There's a big difference between Americans and the Soviet Bloc athletes. After the Games, we tend to relax and then work toward a peak. The East Germans and Russians have to stay up all the time. If they have one bad night, there are 10 guys waiting in their place."

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Do you train for one event or for life's many events?

So even though Gorski took the gold, he had some interesting comments on peaking vs. constantly being able to perform. He even seemed to be—dare we say it?—praising the idea of staying “up” all the time as the reason Soviet Bloc athletes were able to be so dominant for so long.

Still, America was the big winner in the '84 Games in overall medal count as well as total golds. Short track events saw Carl Lewis winning numerous medals (some by less than a 10th of a second), and on the field side we took a bunch of medals, including both the silver and bronze medals in the shot put, an event won by Italian Alessandro Andrei with a 21.26-meter throw. Our silver medalist missed gold by less than 0.3 meters, but don't feel too bad for him: Michael Carter went on to win three Super Bowls as a nose tackle with the San Francisco 49ers.

With all the razor-thin victories seen at the Olympics, have you ever wondered how many professional athletes actually set a personal best or season best at the Games? Surely it must be a high percentage. How about state championships or even nationals or worlds? I didn't question this for five Olympic Games. Granted, I was only 10 years old in 1984, but because all these athletes are peaking at the same time, they're probably all running and throwing a personal best when it counts.

In 1984, in that first Olympics I watched, the winning throw in the shot put was 21.26 meters, impressive by any standards but almost a meter less than the best throw of the season (22.19 meters). In other words, in 1984, the guy who threw the shot put the farthest was not the guy who won Olympic gold. But wait—what about hitting that magic peak? The truth is that what we see every Olympic year—and I mean literally every year—is the season's best throw is never the one that takes home the gold (see Table 1).

Year	Best Olympic Throw	Season-Best Throw
1984	21.26 m	22.19 m
1988	22.47 m	23.06 m
1992	21.70 m	21.98 m
1996	21.62 m	22.40 m
2000	21.29 m	22.12 m
2004	21.16 m	22.54 m
2008	21.51 m	22.12 m

Table 1: Gold-medal-winning shot-put throws vs. season-best throws in seven Olympic years.

We understand that a lot of these athletes are more concerned with big-money events and have perhaps focused their “peaking” on them, but bringing home an Olympic gold medal (or silver or bronze) will almost always result in a lucrative sponsorship deal.

If these guys, professional athletes with great coaches and four-year periodized training schemes, can't peak for a single two-second event, what happens when we look at events that take longer than a couple of seconds? Surely the statistics on shot-putting are just an anomaly.

Win Once or Win Often?

In the 2004 Olympics, the men's 100-meter sprint final comprised 10 of the fastest men on that day, not in the world. Eighty dudes qualified for a spot in the Games, all

hoping to get to the finals. That's four years of training, eating and sleeping for a single shot at Olympic gold. Ten guys made the final for a shot at the medals, and how many of those 10 do you think peaked or PR'd? Justin Gatlin (U.S.A.) hit a time of 9.85 for a PR and took gold. Maurice Greene (U.S.A.) had an SB time of 9.87 for third, and Kim Collins (St. Kitts and Nevis) had an SB of 10.00 for sixth.

But at the World Championships in 1999, Greene ran a 9.80, which would have been good enough to beat Gatlin had he run it at the Olympics in 2004. He followed the 9.80 up with a 9.82 in 2001. In numerous other instances throughout the years, he had run times that would have won gold in 2004. So while we count him among those who managed to peak for that event (that season), the Olympic final still wasn't a PR.

Three men from the top 10 were able to run SB times for an event they were all training to PR in. The math shows us that 30 percent of the programs worked, and 70 percent did not deliver. This is being incredibly giving, as it gets much, much worse if you take a look at the entire field of 80 who qualified: 12 of them managed to run an SB (for themselves), and a total of seven ran a PB (and four of those were in last place in their heats). So we're left with seven out of 80—8.75 percent of the field—having a legitimate peak for the 100 meters, and more than half were the absolute slowest guys in their heats.

To add insult to injury, Greene actually beat Gatlin in the United States Olympic Qualifier. If a potentially gold-medal-winning runner can't peak even when he needs to compete for about 10 seconds and is given four years to peak, how is it this system is still in place?

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I'm not saying people don't get PRs or SBs at big competitions or that you can't plot a timeline where you see an athlete doing consistently better; I'm saying that the majority of people trying to peak will fail, and the majority who stay consistent will eventually turn out championships. Going back to team sports, I've coached a team, and that team has won huge tournaments and championships more than once. But some of the kids still had bad games in those victories. So did I peak the whole team except for one kid? How in the world did I manage to accomplish that?

We can even point to sports where entire teams compete as individuals in various events (swimming, running, take your pick) and see one or two players who did poorly on the day, while another may have had a great day. But they all trained on the same track or in the same pool together. Why did some appear to peak and some hit a valley? The answer is that the ones who have been more consistent are usually the ones who appear to peak more often. It's just a matter of consistency.

If we take a look at the current Hawaiian Ironman course record, we will see that Luc Van Lierde crushed Kona in 1996. With a time of 8:04.08, he has yet to be touched. How many pros every year show up at Kona with dreams of setting a PR or even winning? Of those professional athletes, how many hit a PR for that year? This is the biggest event of the year for triathletes, and one who has a pro card and shows up at this race would want to do well



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Would you rather be great once or good every single time you compete?

so that sponsorship money and relationships stay healthy ... right? Maybe they are preparing for a different race? The results are the same wherever we look: these athletes hit about about 30 percent of the time and miss about 70 percent of the time (the same percentages as for our top sprinters in the 2004 Olympic final).

And who's dominating the Ironman at the moment? Chris McCormack won the 2010 Ironman in 8:10.37, five minutes faster than his 2007 victory but only two-and-a-half minutes faster than his 2006 second place. The lesson here is consistency.

McCormack is an amazing athlete, and his consistency has put him at the top of the pack more than once. But imagine if he were even more consistent? If we take his second-best result (8:13.07, which earned him second place in 2006), we find that if he were to turn in that time for every Ironman since then, he'd have won 100 percent of the time, as opposed to 50 percent (and only one of those wins was actually a faster time). Hitting a peak performance instead of repeating his personal best was actually counterproductive, even if we argue that he successfully peaked. And his third-best time would be good enough to win 70 percent of the Ironman championships over the past decade.

More often than not, we find this to be the case, where athletes who stay consistent are standing at the top of the podium. Intuitively, good coaches know that consistency is the key. Why bother peaking, even if you can, when it only brings you a couple of victories and consistency will bring you two or three times as many? Even if it worked (which it doesn't), wouldn't you prefer running your third-best time and winning seven of 10 races (McCormack) than running your second-best time and bringing home Olympic gold (Greene)? Shouldn't training be geared towards producing consistently great performances rather than one or two outliers?

Take a look at the NFL Combine. Every year we'll see a guy bench-press 40-plus reps, and when they talk to his coach, he'll say, "Yeah, I knew he could do that. He's done it in training." In other words, the coach is saying that he expects to see what he's already seen. The great performance, therefore, is a result of consistency. We never hear a coach say, "I figured he could do 41 reps because he's done 35 in training."

We get better results betting on consistent performance than trying to shoehorn our training into a peak. It's the difference between being a great player and having a great game.

Does peaking for two weeks after preparing for an Ironman over six months make sense? Yet this is a routine thing that we run into when talking to people. I have friends and athletes who have been doing, marathons, ultra-marathons, and Ironmans for decades, and in looking back on their programming we see so many misses on "A" races that something still doesn't add up.

Prepared at All Times

Some people will argue that peaking is a necessary part of optimal performance. But is that really the case? Can you imagine a United States Marine arriving in Afghanistan out of shape but telling the rest of his platoon that he'll be in shape by the end of the war, when it matters? That's absurd. Members of our fighting units are expected to be in optimal shape, year round, for the duration of their service. They don't get a second chance, and they don't get an off-season.

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A study was done out of the University of Nebraska at Omaha on training methods and cross-country and 10,000-meter running performance (1). Fourteen teams were studied in a single season to see which program provided the most effective training. When we looked into this study, there was a direct correlation that the lower-mileage (per run) teams that utilized intervals to "peak" were those that qualified for the national championship. The higher-mileage-per-run teams didn't make it



Staff/CrossFit Journal

Heather Begeron is consistently a top athlete in any CrossFit competition. What is she doing right?

into the postseason. And the guys who did make it were doing more speed training as opposed to distance, and the better placings were highly correlated with a greater variety of training methods, with less repetition of the same types of workout. Strange? We think not, as it is basis for our programming.

Here is the frightening part of this type of thinking (as if it weren't bad enough already): no matter how you evaluate the information we present here, you cannot argue that the percentages do not add up against the peaking approach. If we cannot peak an individual correctly, how in the world is a coach going to take the members of an entire cross-country team, an NFL football team or any team and get all of them to peak? No coach in his or her right mind would try to do this after looking at the abject failure of the paradigm, yet year after year, contract after lucrative contract is given to those who create programs that are based on a failed system—a system that only works 30 percent of the time.

Remember, folks, C is a passing grade, and a C is 70 percent and above.



References

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About the Authors

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Courtesy of Anthony Roberts

Anthony Roberts is a CrossFit Level 1 trainer and holds a CrossFit Endurance certificate. He is also a USARFU Level 1 coach.