

Development Curves

By Dan Henderson

Purpose

The purpose of this article is to try to help young American Sprint canoe/kayak athletes understand the reality of international racing at a young enough age where they can effectively prepare – to understand reality. And for them to be inspired to effectively pursue goals at the world level. The target audience are paddlers 13 to 16 years old, their parents, coaches, club leadership, and the national federation (American Canoe Association). I'm writing this because I believe we as a country can be a strong canoe/kayak sprint nation. My only agenda is to help stakeholders learn, prepare, and be successful at the highest levels. It's also my hope that this will stimulate a conversation between athletes, parents, coaches, clubs, and the ACA to improve American international performance. I hope this helps you.

Do you want to successfully race with the best in the world?

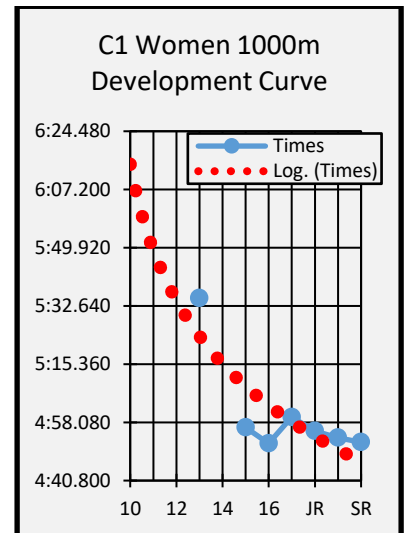
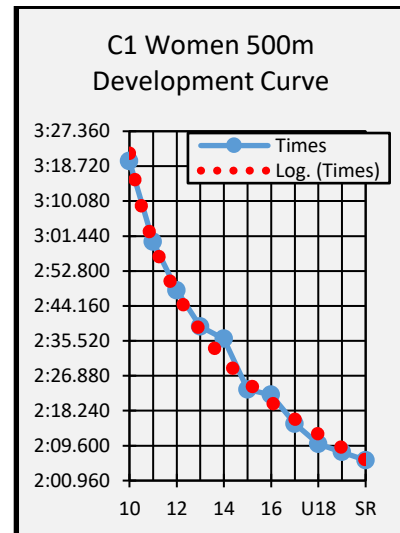
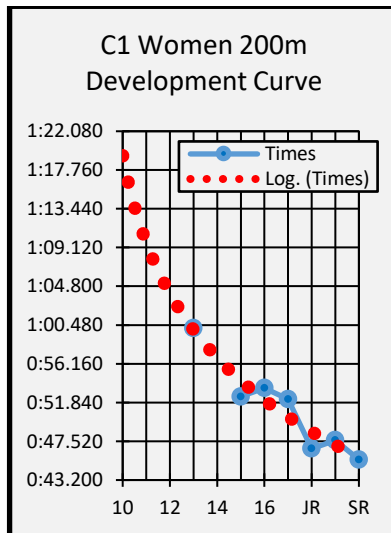
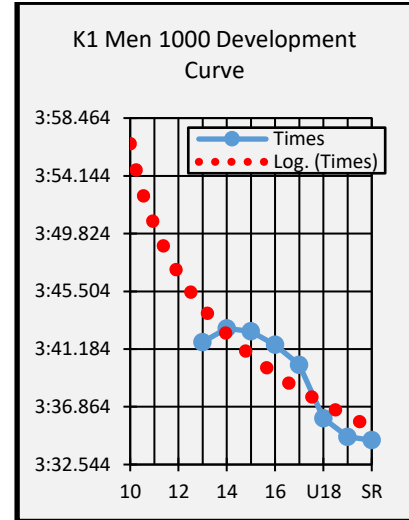
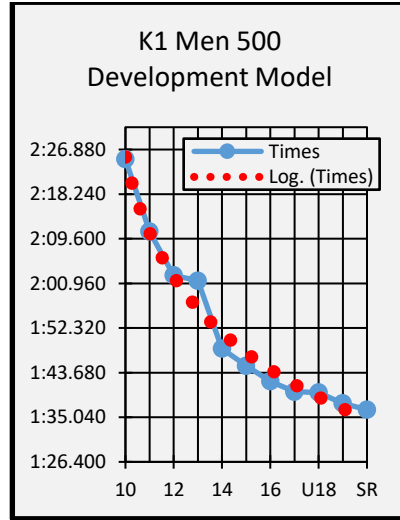
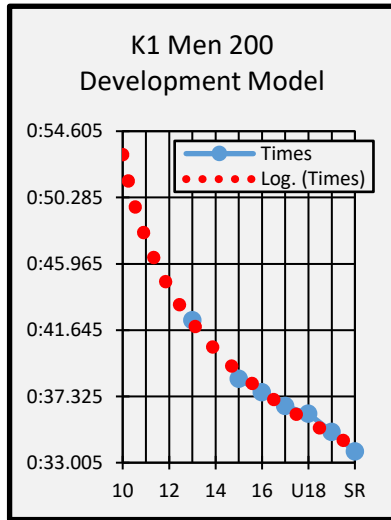
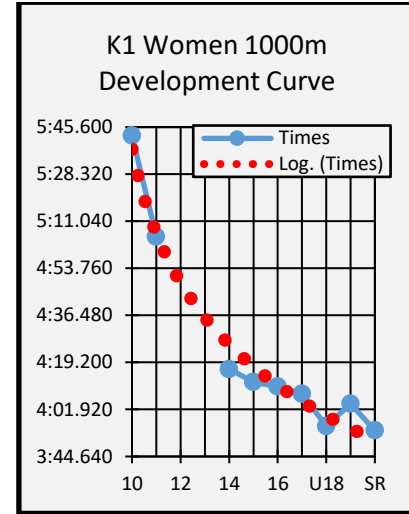
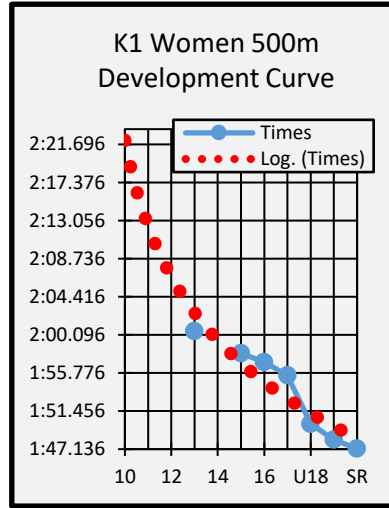
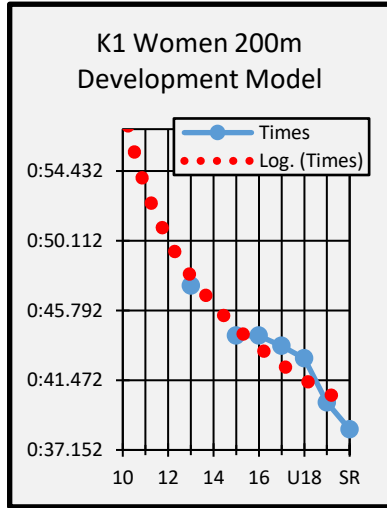
If you aspire to compete at the world level, and you get there, one way or another you're going to learn what it means to be competitive. You can learn it here and now while we're having a discussion. If you're young enough (under 16 years old) and need to make changes, you probably have time. Or you can learn it at Junior Worlds when it's too late and you're out in the heats. If you want to be realistic about achieving your goals on the international podium, read on.

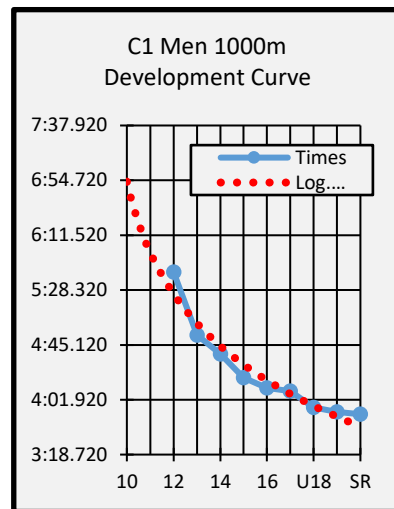
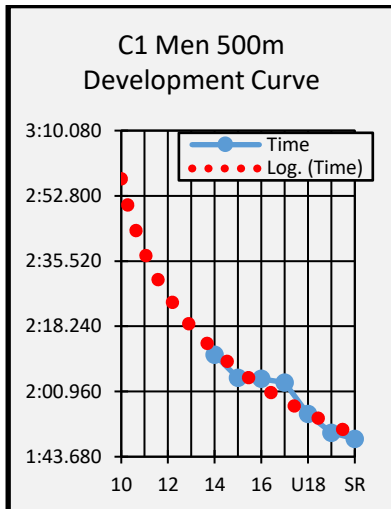
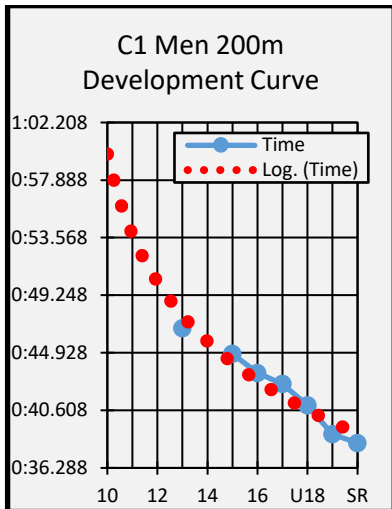
To be on track to be competitive as a Senior, how fast do you need to go at different ages? Getting fast enough takes several years and that process needs to start when you're between 10 and 13 years old, and the earlier during this period the better. It's not something many people can start when they're 18 years old or older, there's just too much to develop, your competitors from other countries are already going really fast, and the gap to catch up gets greater and greater each year.

Creating Development Curves

I've put together a set of spreadsheets that includes results from hundreds of Age Group, Junior, U23, and Senior results. For younger age groups, I've used the results from the Budapest and Country Championships in Hungary. There are so many paddlers in Hungary they have one National Championships for the Budapest clubs (my club in Hungary had 600 kids), and another for the rest of the county. For older age groups, Olympic Hopes Regatta, and World Championships (Junior, U23, Senior) times were included. I did make some minor adjustments based on obvious bad weather conditions. From that I've run a logarithmic regression to create a set of development curves that describe world championship level speeds at different ages. Here they are. The blue lines are the actual times, while the red dots are the regressions.

The Development Curves





Pretty fast times aren't they!

Now that you have an idea of the times you need to achieve, you, your parents, coach, and club leaders should sit down and have a discussion about what preparation it takes to achieve those speeds. How much and what kind of training, how you get race experience, meet equipment needs, meet social needs, etc. Who will get the kids to training sessions, conduct all those workouts, and get athletes to races, etc.

How to use your development curve to track your progress

Now that you have a development curve model to follow, you can plot your times each year next to the curve. Then draw your curve by connecting the dots.

- If you're **on the development curve**, you're as good as the best in the world and you're good to go. Keep up the great work and try to get below (faster than) the curve!
- If you're curve is **above but approaching** the development curve (slower but steeper slope), that's a really good track. Keep in mind that everyone develops at a different rate and matures on a unique timeline. So if you're above the curve and approaching it, keep up the good work and keep the slope of your curve on an intersect course with the development curve. Keep at it and you'll intersect eventually.
- If you're curve is **trending away** from the development curve (slower with a flatter slope), that's of concern, and you need to get with your parents, coach, and club leaders and decide how to increase your rate of development. If your curve is moving away from the development curve for more than a year or two, it will be very difficult to ever get on track.
- The last scenario is that **your curve parallels the development curve** (slower with the same slope). This is the most common curve for the Seniors on Team USA. It means you're improving, but at the same rate as the best in the world, so you're not closing the gap. It means your percentage off the winners is consistent, but your rank is probably falling off year after year. That's because as you get closer to the top level, there are more and more athletes who are closing the gap between the top racers who are on the curve and you. To make a change, you, your parents, coach, and club leaders need to figure out how to accelerate your rate of development.

One last note on a development curve – it's not static. As a trend, every year times improve a little bit. So targeting a certain speed many years out is not recommended, because when you get to that age, that targeted time will be too slow.

At what age do you need to decide to pursue world-level goals?

In most of the top countries, Hungary for example, young paddlers spend a lot of time learning to paddle, developing paddling aerobic endurance and technique, and learning to love to race and train, until they're about 14 years old. The pre-teen and early teen years are the best time in a person's life to learn complex motor skills – like paddling technique. It's also one of the best times to develop general aerobic endurance. This is in line with the Long-Term Athlete Development Model adopted by the American Canoe Association, and is added to the Level 1 Coach Course in 2019.

Sometime between 14 and 16 the top athletes decided to pursue high level goals, and if you're headed in that direction, you should too. And the earlier during this period you make your decision, the greater the likelihood you will achieve success. During the mid-teenage years, your body can develop endurance, strength, body mass, and power faster than any other time in your life – you just can't lose those years. Make the most of those raging hormones!

Make the decision to pursue high-level goals, and prepare to achieve them, to put yourself into the best position possible to be successful between 14 and 16 years old. The younger you can make this decision during this period, the greater your likelihood of success as an adult. Choosing to not make a decision is the same as choosing to not pursue high-level goals.

All healthy kids get faster as they get older. They get bigger, heavier, stronger, and have better endurance just by growing from a child to an adult. As they spend more and more time in the boat, they develop their stability and technique. They will improve, even without much training. Sadly, they may even be competitive in the USA. But at some point, those who are training really hard move ahead, and the Americans who do not train to accelerate their development fall behind.

At my very core, I believe that Americans are capable of training and racing at a level where they find the top of the podium at the World Championships and Olympic Games. I believe that American adult leadership, in clubs and the ACA, are capable of providing the opportunities necessary for American youth to be champions, see the Stars and Stripes raised, and hear the Star Spangled Banner played to honor the efforts of American athletes and those who provided support. We can do this – let's get going!

More complete article that includes training recommendations can be found on my web site www.dhcanoe kayak.org. can Hope this helps.

Who is Dan Henderson?

My background is as a past member of the US Team, 4 time bronze medalist in C2 at the Pan American Championships, trained and raced in Hungary for 4 seasons, 29 years coaching, past US Team Leader and Coach at the World Championships and Olympic Hopes Regattas, co-author of the International Canoe Federation (ICF – the World and Olympic governing body for canoe/kayak racing) Level 1 Coaching Manual 1st Edition, graduate-level course work in exercise science including kinesiology, biomechanics, neuromechanics, exercise physiology, and exercise prescription, graduate teaching assistant in Kinesiology as well as Strength and Conditioning, Adjunct Professor of Administration of Physical Activity Programs, and a US Air Force veteran. I also presented at the 2008 ICF Coach Conference on my biomechanics research in kayak technique, the second and last American to ever present at that level. I'm a USA-ACA Canoe/Kayak Sprint National Team Coach and Head Coach at Cascade Canoe & Kayak Racing Team in Bothell, Washington. My passion is sharing sprint canoe/kayak racing and helping American athletes become more powerful people.