

Self Selected Cadence- *What is right?*

I hear this advice all the time from other coaches when advising a client on proper cadence: “Don’t worry about your cadence. You will self select what is most efficient for you.” This is fairly common coaching advice. The practical result of this coaching advice is good and bad news. The good news is that the athlete does not have to change their cadence because they are already using the best most efficient cadence for them. The bad news? Since the athlete will not gain efficiency by changing their cadence, the athlete could already be maxed out on speed and unable to improve... I completely disagree with this line of thinking. Quite frankly, I think a coach that recommends the “self select” philosophy does not understand the relationship between technique, cadence and speed.

Why is this advice given out by so many coaches? Most of them quote “scientific” studies that show athletes perform best when choosing their own cadence. However, the problem I have seen with most of these studies is that they do not allow time for change of technique and adaptation by the athlete. Generally the studies will tell an athlete to do a 10 minute all out effort on a bike at their normal self selected cadence (say 90rpm in this case). The testers will record all relevant data like power produced, heart rate, VO₂, etc....The next day the same athlete will do the same test, changing only one variable, in this case cadence. The testers will ask the athlete to do the same test but hold 110 rpms for the second test. The result? Not surprising to me, the athlete will perform worse with the higher cadence. Everyone therefore concludes that there is no need to change an athlete’s cadence since they will naturally self select the most efficient cadence. But as I stated above, the test does not control for what would happen if, before the athlete does the second test, the athlete is trained in technique and allowed to adapt for a significant length of time to the changes.

I do agree that we “self select” a cadence. However, I do not agree with the conclusion that we automatically self select the cadence that will be the most efficient or fastest for us *in the long run*. If you have never consciously counted strokes, run with a metronome or monitored your cadence on a bike computer, you are self selecting a cadence that feels good or natural to you. Basically, you are choosing a cadence that feels easy to you based on your current technique level. However, simply because that is what we have chosen does not mean that is the best cadence for us or that we can’t improve over time and become faster and more efficient at a different, generally higher cadence. *The bottom line is that to increase speed, you have to have the highest cadence that your technique supports*. Increasing cadence alone will not increase speed by itself but must be accompanied by better technique.

Speed is a function of strength and technique. Technique is comprised of two functions: how well you perform your action and how quickly you perform your action. Cadence or turnover is the second part of that speed equation: how quickly or how often you perform your technique. In theory, the faster or more frequently you perform your technique, the faster you should go. If you observe elite athletes in swimming, cycling and running, they all have very high cadences compared to average age groupers. [Here](#) is a video of Lance doing a training run in the aero position getting ready for Kona. You will see his cadence is around 110 rpms. In my experience, most age groupers have a cycling cadence in the 80-90 rpm range. Similar is true for both swimming and running: elites have higher cadences than age

groupers. Funny that elite athletes “self select” higher cadences (and go faster) than age groupers who generally “self select” lower cadences (and go slower). So, in order for us age groupers to go faster, all we have to do is increase our cadence to the level of the elites and we should go as fast as them, right?

Well, we all know it is not that simple. For example, if you determine that your stroke rate swimming is 30 per minute, increasing your stroke rate to 60 per minute (roughly Michael Phelps stroke rate) will not double your speed or cause you to swim as fast as Phelps. Most likely, you won't swim much faster at all and end up feeling like a squirrel on a wheel. The reason for this is simple: *your technique is not good enough to support the extra cadence or turnover*. This extra turnover becomes wasted motion and you become significantly less efficient. Clearly speed is a function of both good technique *and* high turnover.

Since speed is dependent on how well you perform your technique and how quickly you perform it, you will need to know currently what type of athlete you are. Once you find your category, you will know what to focus on in order to improve. There are 4 categories of athletes:

- 1) Poor technique/low cadence-This is the typical beginner athlete. This athlete needs to work on both cadence and technique simultaneously. Increasing cadence alone will only cause problems.
- 2) Poor technique/ high cadence-This is not as common. I have not really seen this as often in my coaching experience. However, this athlete may have to slow down the cadence first, focus on the technique then raise cadence back up.
- 3) Good technique/low cadence-I see this combination in very good athletes that typically do not have a background in the sport. For example, a good runner who never ran competitively in high school or college and took up running later in life generally runs well, but with a slow cadence (compared to elite runners). Generally this athlete can simply increase cadence gradually and really improve their speed.
- 4) Good technique/high cadence- This is the elite category that we all want might as well work towards. It is fairly rare that this happens naturally without any intervention.

In conclusion, we do “self select” a cadence for our actions. That cadence may be the most efficient for us at that particular time based on our current technique level. However, that does not mean that we can't get faster and more efficient by raising our cadence as long as we also work on improving technique. Unless you are lucky enough to fall into category 4, you will improve by working on your technique, cadence or some combination of the two. This is not a process that produces instant results. Give yourself time and allow your body to adapt to your changes. You will be more efficient in the long run.