

## Stroke rate as a training tool for kayak athletes.

Cadence is useful in all aspects of kayak training. Some athletes are using it instead of heart rate or lactate testing to structure training intensity levels. It can help with the development of an efficient powerful technique and as a tool to fine tune performance for sprint and endurance racing. In this article I want to focus on the intermediate to advanced level athlete and the use of real time cadence feedback to help develop a powerful efficient paddling technique. Until a kayak athlete has built a base of a powerful efficient stroke there is much less to be gained from higher cadence training. For those of you who feel you are ready to up your intensity, the last part of this article will cover race pace cadence training.

### So how can real time cadence feedback help you as a kayak athlete?

Every kayaker knows that if they spin their arms like a thrashing propeller and speed up their stroke rate the kayak will briefly go faster. Every kayaker also knows that if they pump iron in the gym and get strong they can pull harder on a longer paddle and the kayak will go faster. And of course whatever your level of fitness and strength your biggest gains will always come from improved kayak paddle technique.

So what is best? How much emphasis should be on technique? Should we be aiming for good aerobic capacity and a high stroke rate or should we spend more time in the gym building strength? The answer of course, will be a combination of all these elements and different for each individual athlete.

Until now athletes and coaches have used the tried and tested methods of lactate testing, heart rate and training intensity levels to structure and periodise training. Cadence has been for analysis only with coaches and athletes counting strokes and working out stroke rate after the event. Rowers, cyclists and runners have known the benefits of using cadence feedback in their training for years. Why has cadence not been available to kayakers? Real time stroke rate feedback for kayak athletes is now possible using the Vaaka kayak cadence sensor which attaches to the paddle shaft and sends stroke rate data (cadence) to any ANT+ compatible GPS watch such as Garmin 310xt or Timex global trainer. This allows stroke rate data to be viewed alongside speed, distance and heart rate while training and racing.

It's a technology breakthrough and the first novel training tool for kayakers for many years. I hope this article will give you some alternate training ideas and show you how real time stroke rate feedback can help you achieve that subtle balance of technique, strength and fitness to improve your kayak performance.

## Fixed Cadence Work

### Building the base

With kayaking not all movements are created equal. When paddling, the strain on your shoulders, arms and back is obvious but what you do with your feet, bum and head also makes a difference to how fast you go. Your task is to convert muscle power, body movement and the leverage on the paddle into forward movement of the kayak. So how can real time cadence feedback help make your body movements and stroke more efficient?

There is no substitute for individualized technique feedback from a good kayak coach but if you are out on the water and want to improve your technique the next best thing is to use real time cadence and speed feedback to power up your stroke.

Here is a sample session for you to try. Do one or two of these sessions each week along with your usual program.

#### ***Week one***

Pick a comfortable cadence such as 30-35 double strokes per minute (dspm) and paddle 1km taking note of your speed. Try not to increase your cadence just keep it steady.

Repeat this process over 10km with 1 minute active rest between each 1km of paddling.

Whatever speed you managed on the first 1km is the speed you are aiming for on each of the subsequent 1km efforts.

Try to maintain a steady speed over the 10 x 1km efforts while not increasing cadence. This will keep your technique consistent and prevent sloppy technique developing as you get tired.

#### ***Week two, three, four, five and six.***

Repeat the week one session at the comfortable cadence you initially chose but gradually increase the speed of the 1km efforts. For example, if in week one you are managing 10x 1km at 11km/hr then by week three aim for 10x 1km at 11.5km/hr and by week six 10x 1km at 12km/hr.

By generating more speed without any increase in cadence you are converting more of your body movement into forward kayak motion, hence generating more power from each stroke.

The vaaka cadence sensor is the closest device we have to an affordable on water power meter. Using cadence and speed as described above will enable you to squeeze more power out of every stroke without specific focus on any one aspect of technique.

Remember your biggest gains will come from a powerful efficient stroke, your strength and fitness will go to waste if it can't be converted into forward kayak motion. So do the work on your base technique before moving on to higher cadence work.



## Race Cadence Work

### Developing quick arms

Now that you have a solid efficient technique the next step is to work on an increased stroke rate. In elite level paddlers, who can maintain good technique, speed and cadence have an almost linear relationship, so as you increase cadence you increase speed.

An elite paddler racing over 10km will sustain a cadence of 40-45 dspm. Over 1km he/she will maintain 55 dspm and over 200m will hit 80 dspm.

Every athlete has their own strengths and weaknesses. If you have a muscular build with long arms you may find you sustain higher speeds with a long paddle and slower cadence while those of you who are lean and fit may be better suited to a shorter paddle and a higher cadence.

Elite paddlers will use current world champions as a guide to paddle cadence and paddle length, but this will still need to be modified to suit the particular athlete.

For intermediate and advance level paddlers, cadence will be lower and paddle length shorter but these can be gradually increased as fitness and strength develop.

As a guide, when racing distances over 8km you should be aiming for a cadence of 40 dspm, and if you can't sustain this your paddle is probably too long for your strength and fitness level.

Over 1km you are aiming for a sustainable cadence of 50+ dspm and over 200m a cadence of 65+ dspm.

Here are a couple of sample sessions to help increase cadence.

1. Perform intense efforts at distances shorter than you intend to race. If you are racing over 10km do 5km efforts, and for 1km

sprints do efforts of 500m. The key is to maintain high cadence, similar to your intended race cadence, over these shorter distances to build neuromuscular connections and develop quick arms. Aim for a one hour session with work to rest ration of about 2:1. Ensure you maintain good technique at the higher cadence and if you are not able to maintain form, then stop and rest.

2. K2's and double multisport boats are always paddled with a slightly higher cadence so repeat the session above in a team boat.
3. If you find it easy to maintain these higher cadences work on gradually lengthening your paddle which will increase your speed but ensure you can still sustain the higher cadence. As you approach your racing season build up your sessions to full race distance at race cadence.

Real time cadence feedback enables you to convert those nonproductive training days into valuable on water sessions.

Smart training is about clearly identifying what you are trying to achieve with each of your training sessions.

With fixed cadence sessions you are using real time cadence feedback to develop a powerful efficient paddling technique which will help you develop more power in each stroke. Using the race cadence sessions you are developing quick arms and the ability to sustain high cadence over your race distance.

Cadence feedback using the Vaaka kayak cadence sensor is the new guy on the block. Kayak coaches are still exploring new ways of incorporating cadence feedback into training sessions. Look out for more training ideas on the Vaaka web site or facebook page.

<http://www.vaaka.co.nz>

<http://www.facebook.com/vaakapaddlecadence/>