

The Basics of Sprint training

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With the arrival of the domestic sprint season, there seems to be a resurgence of interest in this Olympic discipline. Here is a guide to some basic elements of sprint training that I have gathered over the years.

Through the years numerous training methods have been developed for kayak sprinting. There are indeed many ways to skin the cat. The Hungarian and German teams train to very different programs, and yet are fractions of seconds apart at the end of a 1000m K4 race.

In addition, one always needs to bear in mind that everybody is different, and what works for one person may not necessarily be the best for another. While there are many ways to train for sprints, there are some general guidelines and principles that apply to most training approaches for sprints. This article thus does not deal with specifics of training but rather touches on a few basic sprint-training principles.

Flatwater kayak sprinting is physiologically unique, in that it requires not only good **endurance**, but also **power** and strength to move the boat. Thus, even at the novice level there needs to be a training goal of developing both endurance and power. In addition, kayaking is highly technical, and it is critical to be efficient. A good **technique** is thus also a key component. So how does one improve on these three essential ingredients of endurance, strength and technique to improve ones sprinting potential in kayaking?

IMPROVING YOUR ENDURANCE

Interval training:

The most favored method of training to increase endurance is interval training. This consists of time/distance on combined with a time/distance off or at a lower intensity. There are multitudes of different interval formats. While there are many combinations of types of intervals, the way to work out how long the interval should be, how many intervals to do, at what intensity to do the interval, and how long the recovery between intervals should be, depends on at what phase of training one is in.

Periodisation:

One needs to see the bigger picture. There are different phases of training, namely a basework period of establishing an aerobic base, an intensive phase where intensity and tempo are increased, followed by a racing phase. It works a little bit like a pyramid where one needs the aerobic base to train at a higher intensity, and one needs both aerobic base and hard intensity training to be able to get to a your racing potential. The better your base the easier it will be to reach and hold your peak.

During the basework period the intervals are longer (from 4 to 50 minutes or 1000m to 10 000m), at a lower intensity, and with shorter rests in-between (30 seconds to 2 minutes).

During the intensive phase of training the intervals decrease in time and distance (e.g. 30 seconds to 8 minutes or 100m to 2000m), are performed at a higher intensity, and the rests get longer (1 to 3 minutes). One needs to work at increasing the anaerobic capacity during this phase by training at close to ones anaerobic threshold. During the intensive phase it is important to also include lower intensity aerobic sessions to maintain the base.

As one gets closer to competition (race phase), the overall volume of training decreases. Intervals are shorter in time and distance (eg. 10 seconds to 4 minutes or 50m to 1000m), and generally at a very high intensity, including lots of speed-work and race planning. The rests in-between intervals can be very long (2 to 10 minutes). These high intensity sessions should be interspersed by recovery and technique sessions.

Whether you have 4 weeks or a year to prepare for a race, one should always aim to include these different phases in preparation for a race. There may also be two racing seasons that are months apart. If so it may be necessary to return to the basework and intensive phases of training following the first competition phase to prepare for the second competition phase.

If you are preparing over a relatively long period for a race (3-month to a year), it's a good idea to work in cycles of 3 to 4 weeks (often known as meso-cycles). 2 to 3 of the weeks in the cycle are hard followed by a lower volume lighter recovery week. Its also a good idea to work on the principle of adaptation where the overall load is built on from meso-cycle to meso-cycle. In other words, don't start off with too much too soon, it should be a building process.

Typical basework season sessions:

- 4 x 12 min @ 80-85% (with bungee)/ 1 min rest + 5x 20 secs max every 2 minutes (with bungee and ball)
- 5x 8min at 85% / 1 min rest
- 10x4min at 85-90% / 1 min rest
- 10 km time trial (with bungee)
- 5 x 2000m at 85-90% (with bungee) / 3 min rest
- 60 min at 70% , working on technique

Typical intensive season sessions

- 4x1000m @ 90- 95%/ 2 min rest, 4x 500m @ 90-95%/2min rest
- 5x3min @ 90 %/ 2min rest, 5 x 1 min @ 95%/ 1 min rest
- 3 x 2000m time trial with 5 min rest
- 2,4,6,6,4,2 min @ 90%/ 1 min rest, 5 x10 secs max
- 6x2 min @ 90%/ 1 min rest, 6x 1 min @ 95%/ 1min rest, 6x30secs @ 97%/ 1 min rest, 6 x 15 secs @ max / 1 min 45 secs rest
- 10x4 min @ 90-95% / 2 min rest
- 15 x 2min @ 95%/ 2 min rest
- 20 x 30 sec @ 95%/ 90 secs rest (with bungee and ball)
- 60 min recovery paddle @ 70% working on technique

Typical race season sessions

- 1 x 300m max, 2x200m max, 4x100m max / long rests
- 5x 500m reaceplan @ 95% / 3 min rests
- 2x25 min @ 80% every 5th min max for 15 secs/ 5 min rest between sets
- 3x3min @ 95%/ 2 min rest, 3x1 min @ 97%/ 2min rest, 3x 15 secs @ max/ 1 min 45 sec rest
- 1x 1000m time trial, 1x500m time trial
- 6 x250 m @ max / 4 min rest
- 45 min easy paddle

Intensity:

Intensity of training has been mentioned at various times and is worth elaborating on. If there is one single physiological variable that best identifies the total stress load under which an athlete is performing, it is heart rate. Training to heart rate is an extremely valuable tool, and can be easily measured using a pulse monitor. Training using ones pulse requires knowledge of ones maximum heart rate. To do this simply do a 5000m time trial where for each 1000m the tempo is increased, and then for the last 300m do a flat-out sprint for the line. Work out a scale of intensities relative to your maximum pulse rate. For example one may choose 5 different zones of intensity for training (as do the Norwegians). Zone 1 is overdistance very low intensity (60-70% of max), zone 2 is aerobic (70-85% of max), zone 3 is also aerobic but at a higher intensity (85-93% of max), zone 4 is race pace and largely anaerobic (93-98% of max), and zone 5 is maximum intensity.

If you don't have a pulse monitor, then you will have to go by feeling and stroke rate. A good indication of when you are reaching your anaerobic intensity is when the breathing becomes very heavy and the muscles start burning.

Running:

Running is a useful form of cross training to increase your aerobic and anaerobic capacity. It also keeps the legs fit for the sprint race. One should run throughout the season, including some interval work.

IMPROVING YOUR STRENGTH

The primary muscles used in kayaking involve the trunk, arms and shoulders. There are two main ways to improve the strength of these muscles. One is through resistance training on the water, and the other is with weight training off the water.

For resistance training on the water one can use an elastic cord or rope tied around the boat. One can increase this resistance by attaching balls (tennis balls are fine) to the cord which drag underneath the boat. This increases the load on the boat making it heavier to pull through the water. The basework phase of training is a good time to do a lot of resistance work. During the intensive phase one should restrict resistance work to one or two sessions a week

The other form of strength training can be done off the water doing exercises using ones own body weight or free weights. The exercises most commonly used in kayaking are

chin-ups or pull-ups, bench press, bench pull (reverse of bench press), one arm cable pull (simulating a paddle stroke), one arm dumbbell pull, sit-ups and abdominal rotation work, and various tricep exercises. Critical to weight training is that the proper muscle groups are exposed to progressively increasing functional demands. 3 to 10 sets of 5 to 15 repetitions of each exercise can be used as a rough guideline for performing these exercises. Most gym work should be done during the basework and intensive phase of training. During the competition phase, strength work can be kept to maintain strength but reduced in volume.