

Original Article

Resistance to paddle training in cadets and juniors for canoeing

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Abstract: A paddler requires not only flexibility and strength for heavy paddling, but also muscular endurance to maintain stamina for an entire session. In creating an effective endurance program of cardiovascular activities, four elements are critical. Increasing or upgrading any one of these elements will increase the demands placed on your body as it works to develop the cardiovascular fitness essential to endurance. These elements are: Frequency – the number of times the endurance exercise is performed in a particular period of time; Duration – the length of time it takes to perform the exercise; Intensity – the effort level reached during the exercise; Type – the choice of exercise performed in a workout.

Keywords: resistance paddling; paddling upstream; interval paddling; drafting paddle;tug-of-war;back-paddling; paddle relays.

Introduction

This chapter concentrates on cardiovascular exercises that are either specific to paddling (such as resistance paddling, interval paddling and paddle relays) or can serve as cross-training activities (such as swimming, stair climbing, running and bicycling).

It's helpful at this point to understand the overload principle-general idea the by overloading or exhausting muscles in a careful, systematic manner, physiological changes will occur that make the muscles stronger and more durable. A person paddling for the first time quickly becomes exhausted. But with a program of progressively tougher workouts, that individual should grow stronger as his or her muscles are taxed to a higher and higher point of fatigue. This principle will come into play as you develop a program of increasingly rigorous endurance activities.

The photos and descriptions that follow will familiarize you with various endurance drills and exercises. You can refer back to them as you progress in your personal training program. See chapter 8 for detailed programs that include these exercises and offer recommendations on duration and intensity of the workouts.

Paddling activities to build endurance

It may seem obvious, but to become a stronger paddler, you need to paddle. A basketball player shoots baskets. A marathon runner runs, and a paddler incorporates a good bit of paddling into a well-rounded fitness program.

There are many endurance drills for paddlers. Regardless of which ones you choose, be sure to maintain proper posture and form while paddling. Improper form forces the body to compensate, placing stress in new areas and increasing the chance of injury. You can go ahead with some of the following exercises on your own, while others involve more than one boat. Rally the troops for a workout on the water: the drills can be a good deal of hard work, but they're also a lot of fun.

The experiment studied

Resistance paddling

Get a plastic bucket with a sturdy handle, or use a large coffee can. Drill holes in the container until it looks like Swiss cheese. Tie a length of rope to the container so it can be attached to the stern of your kayak or canoe. Paddle this way for just half the time of your normal paddling session, building slowly until you are able to paddle this way for the length of an entire paddling session. The bucket adds tremendous resistance as you paddle. The fewer holes you drill, the more resistance you'll feel as you work to paddle against the dead weight of the water-filled bucket. The training methodology used for this medium is:

Step 2 B. AEROB-ANAEROBIC RESISTANCE Relative O₂

(aerobic-aerobic threshold)

- 65-75% of the maximum amount of the athlete set at each stage by the aerobic test.
- pulse 150+ 5 b / min, stroc 80 hl / min
- 4-6 mM / L lactate
- 30-45 min

→ Water 6-8 Km (4x2000; 2x4000; 1x8000)

→ long repetitions, medium endurance

Paddling upstream

Runners perform a drill called hill repeats. The runner sprints up a long hill back down, then sprints back up again. This drill is repeated for several sets. You can carry out the same type of drill on a river. Find a swift stretch and paddle upstream for a distance of 50 to 200 yards. At that point, turn around and slowly paddle downstream to the starting point. Back at the beginning, paddle upstream again. Repeat this drill for 5 to 10 sets. The training methodology used for this medium is:

Step 6. MILK - OXYGEN

→ effort level - 105%, stroke 100-110 hp / m

→ >20mM / L lactate

→ pulse >180+ 5 b / min

→ short reps (8x200, 8x250, 6x300)

→ short intervals (15x30 "; 15 " - 30 " - 45 " - 30 " - 15 " x 3); speed force.

Interval paddling

Interval paddling mixes short, fast stretches of paddling with intervening recovery breaks. Warm up by paddling at a comfortable pace for at least five minutes. After the warm-up is complete, break into a fast, hard sprint. After a predetermined time or distance is covered, revert back to the comfortable paddling pace until you feel recovered or until your pulse drops below your target exercise heart rate (see the section on endurance training in chapter 1).

Repeat this speed-up and slowdown 5 to 15 times. A good distance for these high-intensity intervals is between 50 and 100 yards. If you decide instead to paddle for a set amount of time, a good choice is between 15 seconds and 1 minute. The training methodology used for this medium is:

Stage 6. + R1 - ANAEROB ALACTACID

→ effort level - 110%, stroke over 135 l / min, speed over 11.0. knots

→ Starts, sprints up to 15 "; max.

Drafting paddle

Most moving objects create a draft, pulling energy toward the back of the object from behind. The field of energy behind the object allows the objects following the first to use less effort while maintain the same velocity. Bike racers and runners are often using drafting as a technique to allow those in the back a bit of a rest. In this drill the technique is applied to paddlers. This drill involves three or more boats and usually a distance of somewhere between 500 and 1000 yards. To start, you might do well select a shorter distance, increasing it as you and other participants gain conditioning. Have the boats line up one behind the other in a straight line. The lead paddler starts out fat, with the rest close behind. The last boat in line has to break away from the line and overtake the leader. As soon as this last boat takes the lead position, the boat that is now last in line must battle to take over the lead. Some people might remember this as „Indian sprints” when conditioning for such sports as soccer, running and football. Continue the drill until the desired distance is covered or until every boat has been in the lead.

The training methodology used for this medium is:

Step 4 TOLERANCE IN LACTATE

→ 95% of the maximum amount of the athlete set at each stage by the aerobic test.

→ Pulse 180+ 5 b / min, stroc 100 l / min, speed 9.0-9.5. knots

→ 12-14 mM / L lactate

→ 8-25 min

→ Water 2-6 Km (4x500; 3x1000)

→ average ranges 1'-2'-1 ')

→ medium repetitions, short endurance

Tug-of-war

With two boats facing in opposite directions, connect a rope to the stern of each. Tie a handkerchief midway along the rope. Position two flotation devices about 10 feet apart – each 5 feet from the handkerchief. Now comes the fun: flow a whistle to begin the tug-of-war. When one of the paddlers pulls the other far enough that the handkerchief reaches a flotation device, the battle is over.(Fig.1)

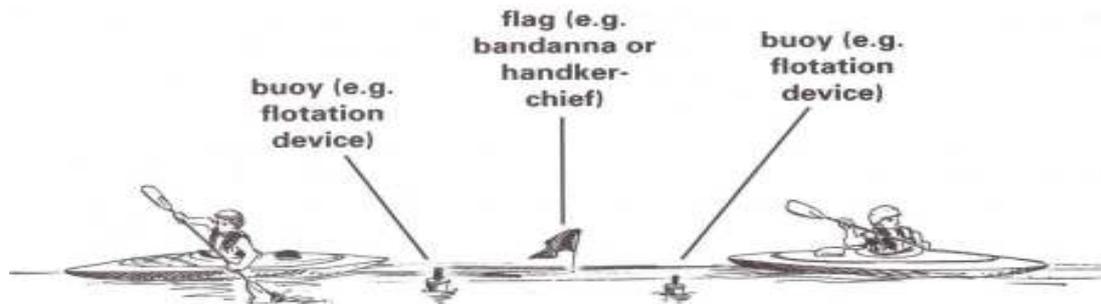


Fig.1. Tug-of-war (Graphic A, Cosmin Stefan)

Back-paddling

Padding backward incorporates many of the opposing muscle groups of forward paddling. So much time is spent training the forward paddling movements that the opposite muscles get neglected. A body that develops a balance of muscle tension becomes very efficient. Therefore, try paddling as an endurance routine. The training methodology used for this medium is:

Step experience

- effort level - 25%, stroke 40-45 hl / min
- < 12mM / L lactate
- pulse 120+ 5 b / min
- 1000 m and 500 m race
- control sample, 1000 m and 500 m race

Paddle relays

Start with a minimum of eight boats and divide the group into two teams. Half the boats in Team A and half the boats in Team B remain at the starting line, while the rest of the boats get in position at a turnaround point 50 to 100 yards away.

As the whistle blows to start the relay, one paddler from Team A and one from Team B paddle their boats furiously to reach and tag a teammate at the turnaround. Once tagged, a paddler races as hard as possible back to the start line to tag another compatriot, who then takes off. Continue the relay until the last boat finishes. For added incentive, have the winning squad choose a fitting punishment for the losing team. Make the losers load boats and gear back on the trailer, or let them buy dinner for all.

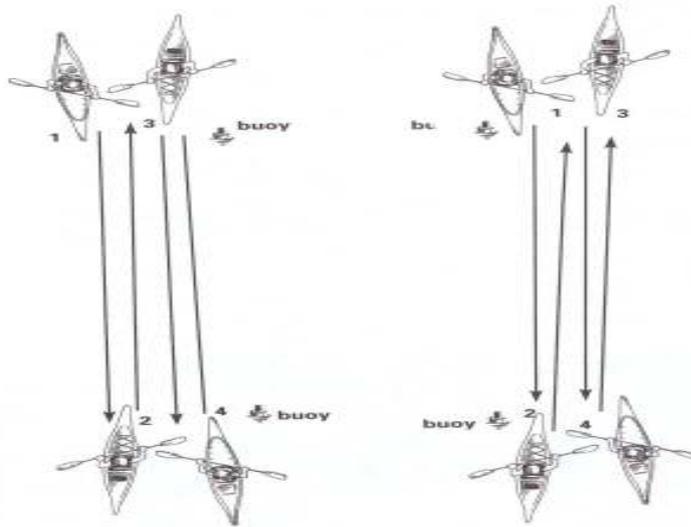


Fig.2 Paddle relays (Graphic A, Cosmin Stefan)

The training methodology used for this medium is:

Stage 6. + R1 - ANAEROB ALACTACID

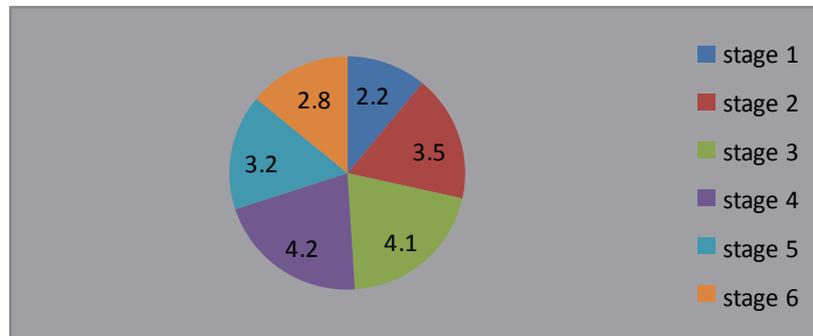
- effort level - 110%, stroke over 135 l / min, speed over 11.0. knots
- Starts, sprints up to 15 "- 20", max. ; 50m-100m

Results

In the studied and monitored-evaluated studies, a six-month increase was achieved with a 20% paella resistance at the athletes cadets and juniors, the control samples performed: 2X1000m(1X1000m) and 2X500m(1X500m) end media races.

Table no.1. Results of specific evaluation tests

Nr crt	Name end last name	Specific evaluation tests				
		1x 500m	1x 1000m	2x 1000m	Media races	
					2x 500	Media
1.	D. V.	2,45"	5,51"	5,55"	2,50"	1,23%
2.	A. D.	2,35"	5,48"	5,52"	2,40"	1,17%
3.	G. A.	2,48"	5,47"	5,50"	2,50"	1,19%
4.	A. S.	2,40"	5,55"	5,57"	2,41"	1,20%
5.	J. R.	2,48"	5,45"	5,49"	2,49"	1,21%

**Fig.3 Resistance to paddle**

Conclusions

Following the use of the means shown in the canoe training programmed in the annual macrocycle, the results are-resistance training for cadets and juniors is done in a number of ways, the importance of the diversity of the means and the way of taking good in the training.

- increases the resistance to the specific loading effort (paddle)
- it's a good-luck activity
- improves the features of sport
- ensuring optimal competition behavior
- competitiveness increases in competition
- training and reinforcing the motoring qualities of the athlete

References

- Alecu, A., 2013, *Initiation Teaching Competition in canoeing*, Pim Publishing, Iasi
- Alecu,A., 2012, *Dynamics of effort in the kayak training*, Pim Publishing, Iasi
- Alecu,A., 2011, *Specific adaptations in muscle endurance effort for sample of 1000 Kayak*, International Annual Conference,, Physical Education and Sports "Pitesti November 2011, page 498(ISSN1453-1194)), WebSite: www.sportconference.ro
- Alecu,A., 2010, *Aspects of workforce optimization in kayak training for 200m Olympic samples*, International Annual Conference,, Physical Education and Sports "Pitesti November 2010
- Bompa, T., 2002, *Theory and Methodology of Training*, Ex Ponto Publishing, Bucharest
- Dragnea, A., Bota, A.,1999, *Theory of motrical activities*, Didactic and Pedagogic Publishing, Bucharest
- Epuran, M., 2005, *Research Methodology of bodily activities*
- Eusebiu Tihan, M.Sc. (sub red.), Laura Ghiza, M.Sc © 2002, Institute of Human Ecology and Social Protection Publishing - PUBLIC HEALTH FOCUS (collection of texts)
- Mihailescu, L., 2006, *Theory of Physical Education and Sports*, Pitesti University Publishing,
- Gledhill N, Warburton D, Jamnik V. *Haemoglobin, blood volume, cardiac function, and aerobic power. Can J Appl Physiol* 24: 54–65, 1999. [\[ISI\]\[Medline\]](#)
- Godsen, R., Carroll, T. and Stone, S.,1991, How well does Polar Vantage XL Heart Rate Monitor estimate actual heart rate? *Medicine and Science in Sports and Exercise*, 23(4), Suppl., S14,
- GOODIE, A.S. and C.L. CROOKS, 2004. [Time-Pressure Effects on Performance in a Base-Rate Task](#). *The Journal of General Psychology*.
- Krustrup P, Soderlund K, Mohr M, Bangsbo J. *The slow component of oxygen uptake during intense, sub-maximal exercise in man is associated with additional fibre recruitment. Pflügers Arch* 447: 855–866, 2004. [\[CrossRef\]\[ISI\]\[Medline\]](#),
- Jones A.M. Campbell I.T. and Pringle J.S. *Influence of muscle fibre type and pedal rate on the VO₂ work rate slope during ramp exercise. Eur J Appl Physiol* 91 (2-3): 238-245. 2004a