

## TiP<sup>12</sup> sprint canoeing Training Intensity Zones

Name	Aerobic 0 <sup>1</sup> (A0)	Aerobic 1 <sup>2</sup> (A1)	Aerobic 2 (A2)	Aerobic 3 (A3)	Race Pace (RP)	Speed Endurance (SE)	Speed (SP)	Stroke energy <sup>3</sup>			Technique Drills <sup>4</sup> (TEHabc)	
								Using resistance <sup>5</sup>		DPS <sup>6</sup> Optimization <sup>7</sup>		
								Strength endurance	Power			Special conditions <sup>8</sup>
Definition	<i>Below or on the aerobic threshold</i>	<i>Between the aerobic threshold and the anaerobic threshold</i>	<i>Between the anaerobic threshold and the VO2max</i>	<i>On or beyond VO2max</i>	<i>Race pace for the chosen event</i>	<i>Above Race Pace</i>	<i>Max Speed or very close</i>	<i>Maximizing the endurance side of stroke energy</i>	<i>Maximizing peak energy per stroke(power)/using resistance</i>	<i>Using special conditions to increase maximal energy per stroke: paddling 'into shore', technique drills, team boats, into wind or with current</i>	<i>Optimizing SR/DPS</i>	<i>Drills designed to improve: balance, water feel, glide, ability to manipulate technique parameters, body/boat awareness, teach proper stroke patterns</i>
Goals	Compensation Active recovery Boat and paddle feel Warm up & cool down	Maintenance and development of aerobic capacity	Maintenance and development of aerobic power	Maintenance and development of anaerobic capacity	Adaptation of technique parameters, SR/DPS and physiology to race effort  Technique stabilization/adaptation	Maintenance and development of anaerobic power  Technique stabilization/adaptation	Maintenance and development of maximal speed  Technique stabilization/adaptation	Maintenance and development of special strength endurance  Technique stabilization/adaptation	Maintenance and development of special power  Technique stabilization/adaptation	Individual solutions for technique adaptations  Technique stabilization/adaptation	Optimizing the relationship between SR and DPS for the race performance (parts and complete race)  Technique stabilization/adaptation	Working on parts of the stroke and abilities needed for optimal technique  Technique stabilization/adaptation
SR <sup>9</sup> male	56-60	62-68	75-85	86-100	1000m 100-110 200m 140-170	1000m 120-150 200m 130-160	optimal/maximal	1000m 75-85 200m (?)	1000m 120-140 200m 120-150	/	According to planned SR and SPD	/
SR female	56-60	62-68	72-85	86-96	500m 110-120 200m 130-150	500m 110-140 200m 120-150		500m 72-85 200m (?)	500m 110-130 200m 115-135			
Distance	...	8-18km	500-2000m	250-1000m (race distance or shorter)	500m/1000m	100m - 350m	50m - 100m	250 - 1000m	50m - 100m	50m - 100m	50m - 100m	50m - 100m
HR <sup>10</sup> (approx)	110-130*	140-160*	170-180*	>180	...	...	...	170-180	...	...	...	...
% Race Pace	...	75-85%	85 - 95%	95-100%	100%	>100%	>112%	Speed depending on DPS	Speed depending on DPS	...	...	...
Lactate value <sup>11</sup>	/	2 - 4	4 - 7	7 - 10	/	7-12	/			...	...	...

<sup>1</sup>A0: low intensity zone but the athlete is still connected, feels the water, works on the glide, posture is correct, relaxed but mindful.

<sup>2</sup>A1: it is a large zone ranging from 'easy A1' (the athlete can still talk to the coach), 'medium A1' (where communication becomes scarce) and 'hard A1' (close to anaerobic threshold).

<sup>3</sup>Stroke Energy: in these zones we try to either maximize (margins) or optimize the stroke parameters in order to obtain maximal or optimal distance per stroke at a given speed/stroke rate.

<sup>4</sup>TEHabc are drills designed to either work on a specific part of the stroke, an ability needed for proper technique execution, motor learning, balance or the ability to adapt all the basic stroke parameters to outside conditions.

<sup>5</sup>Using resistance: we advocate using resistance on the hull mounted in the far front part of the boat or using additional weight placed in the boat. Make sure the resistance you are using is not deteriorating your technique execution.

<sup>6</sup>DPS: distance per stroke (for simplicity we express it as SPD=strokes per distance, eg. 36str/100m).

<sup>7</sup>According to the Andrea Pace theory about energy per stroke distribution and the H-Graph of champion kayakers it is becoming more and more clear to us that it is not about maximizing but optimizing the DPS/SR relationship and working towards a constant DPS in the central part of races.

<sup>8</sup>We can attempt to increase stroke energy also by using simple drills such as: paddling into shore, paddling with current or into the wind, paddling in group boats or different type of boats – such exercises are best combined with technique drills (TEHabc) and shall always have a clear goal.

<sup>9</sup>SR (stroke rate) are zone, gender and distance used specific; in certain zones not applicable.

<sup>10</sup>HR (heart rate) is highly individual and the values serve only as rough guidelines.

<sup>11</sup>LA (blood lactate) values are also individual.

<sup>12</sup>At TiP we use this table adapted from the German training system (Kahl, Jens. 2005. DKV – Rahmentrainingskonzeption, Kanurennsport und Kanuslalom) with an addition of our Technique drills and Stroke Energy optimization. You can find different training zones intensity tables from either: ESP/POR, ITA, DAN, GBR, RUS et.al. We prefer ours because it enables the athlete/coach to keep an emphasis on learning and optimizing the best possible paddling technique.