

International Canoe Federation Development Programme

Daily training programme for advanced athletes

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Forewords

The aim of introducing training plans, as part of the ICF Development Programme on the ICF's homepage is to give guidance for those coaches and athletes who may not have enough experience in planning a suitable training programme.

How to use this programme

This training programme is intended to serve as a guideline for daily training for those advanced senior athletes who have the opportunity to train two times a day. Those who train once or not every day or if they are at a junior age could select a reduced number of training sessions from the weekly programme. When reduction is necessary retain the endurance or speed endurance training and give priority to the training in the boat.

The weather and training condition as well the level of the athletes varies in each country and this must be taken into account in using the programme. Please notice that athletes who have a background of high volume and intensity training for years would gain progress from the execution of the full training. Others should reduce the volume of the daily training programme according to the ability of the athletes.

The training programme

This programme made for six months from March 1st to August 31st 2004. The half-year has been divided into six macro cycles – the duration of each is one month.

This six months training programme should be use before the planned peak of the athletes performance of the year, either national championships or international competition. The peak competition will be at the end of August 2004, which is the date of the Canoeing competitions in the Olympic Games.

The following daily training plan is a part of a full year programme and therefore requires the athletes to have been in training in the previous period.

Please notice that warming- up and cooling -down is not included in the training programme but is necessary to do these before and after each training including paddling, strength development and running.

The volume of training:

-Time requirement:

To follow this programme fully for 6 months, you will need approximately 3 hours of effective training a day, 18-20 hours a week and 400-450 hours total.

-Training on the water:

In this programme the quality is more important than the quantity, however you should estimate approximately 25-35 km paddling a day (total in two sections), 160-200 km per week.

Terminology

To avoid misunderstandings, the following terms are found in the programme and are defined as follows:

Aerobic training: “steady state” low intensity training with oxygen balance. Energy is covered 100% –or almost- aerobically without accumulated lactic acidity. Heart rate is maximum 150/beats/min.

Anaerobic training: high intensity -using for speed or/and speed endurance- training with oxygen debt. Energy is covered by an oxidizing system (ATP -CP) with accumulated lactic acid in the blood and muscles. Heart rate is 180 to maximum. (Could be 220/beats/min)

Stroke rate: means strokes per minutes –(strokes counted each side of the kayak) The stroke rate is closely related to the speed of the boats and to the heart rate of the athletes.

Training intensity. The intensity of training is expressed in heart rate, boat speed or stroke rate.

Training effect: all training in the programme has a primary intended physiological effect what will be used for progress in canoeing. The physiological effects are related to the aerobic and anaerobic energy system:

HEART RATE RANGE	% OF MAXIMUM HR	PHYSIOLOGICAL EFFECT
130 to 150	65 to 75 %	Utilization mainly fats
140 to 160	70 to 80 %	Utilization mainly glycogen
160 to 170	80 to 85 %	Anaerobic threshold
170 to 190	85 to 95 %	Transportation
maximum	maximum	Anaerobic

(Thor S. Nilsen FISA)

Training methods:

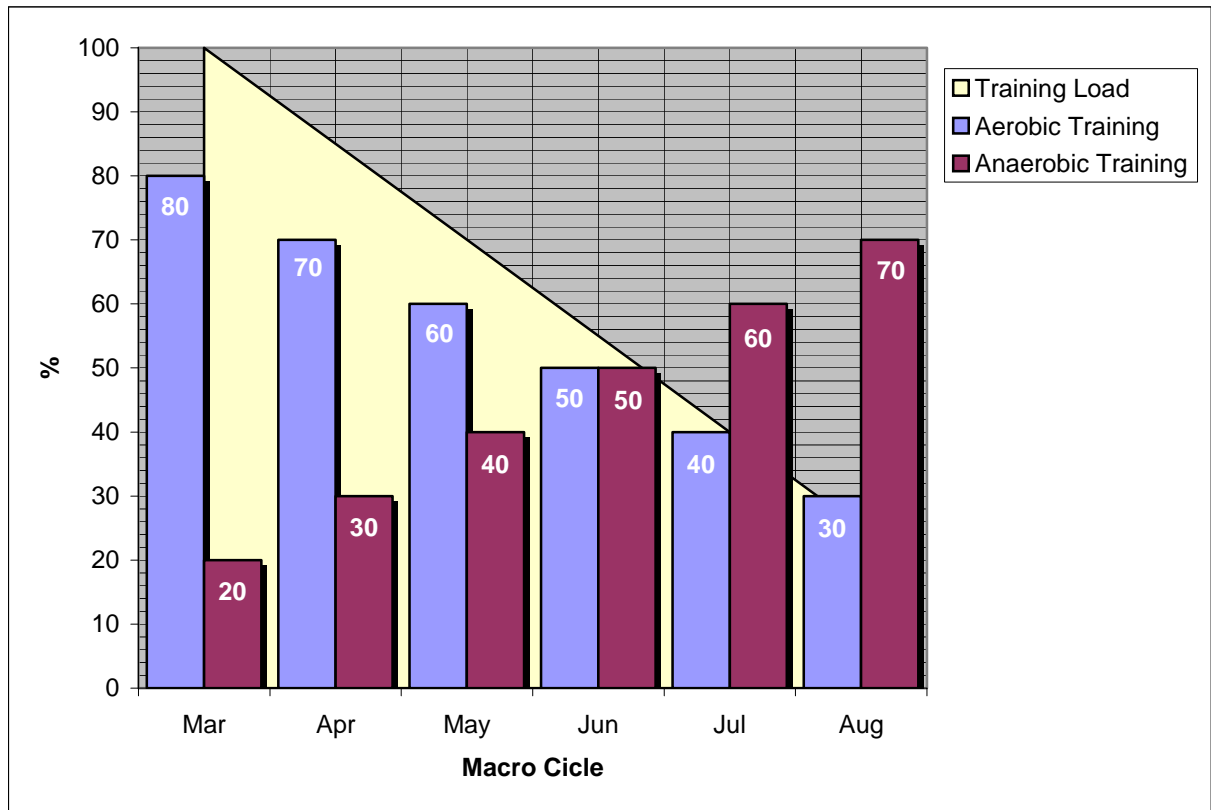
- **Long distance training:** a relatively long duration –non stop- training (10-40km) with constant speed, which maintains the heart rate about 120-150 beats per minute. The distance and intensity may have a large-scale variation.
- **Fartlek or speed play:** a relatively long duration training 8-15km with improvised or planned alteration between higher and lower intensity.
- **Repetition training:** involves various distances repeatedly as: short: 50 –250m; medium 300-1000m and long 1200-3000m. The number of repetitions is determined by the intensity on the given distance.
- **Interval training:** training with periodic changes between exertion and rest. The various types of interval training can be divided into three categories; short (5 sec to 30 sec)–medium (30 sec to 120 sec) and long interval training (2 – 6 minutes) Important to determinate the working and resting phases as well intensity of each interval training.
- **Time trial or model training:** simulates race conditions and measure the highest actual performance of athletes.

You can create a training programme for your athlete/team yourself in using the following table:

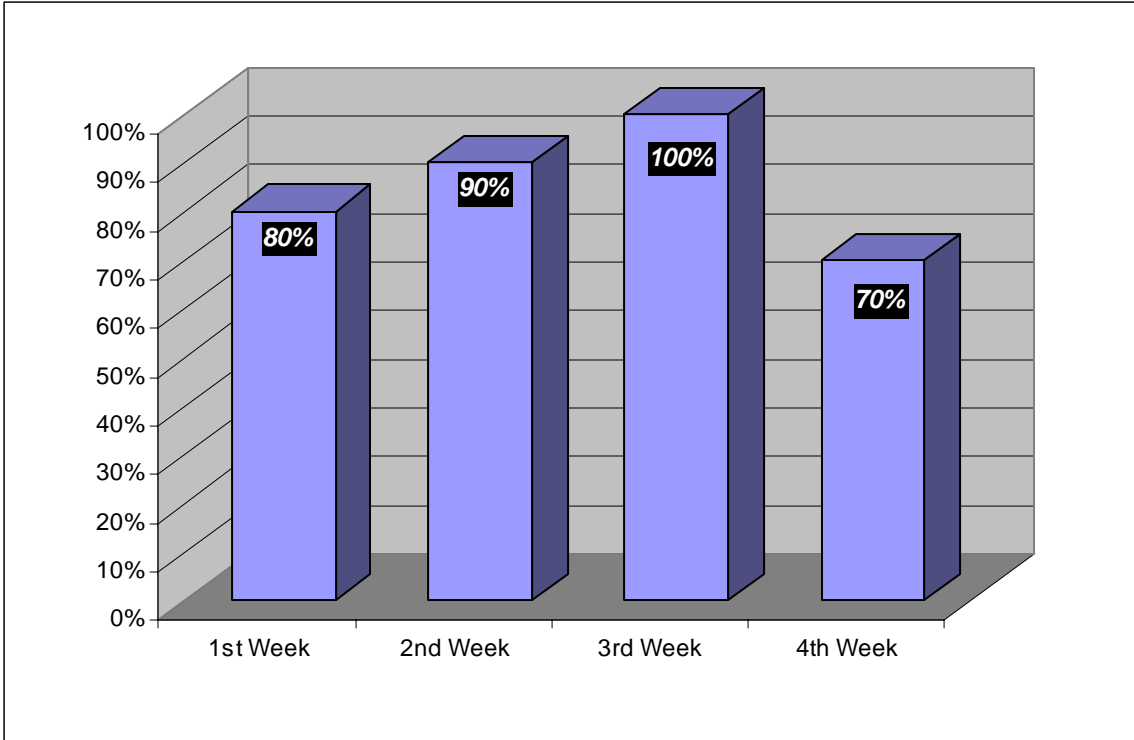
INFORMATION	INTENSITY ZONE I.	INTENSITY ZONE II.	INTENSITY ZONE III.
Developing of	Aerobic endurance	Speed endurance	Speed
Boat speed %	60-80	85-100	100
Stroke rate K1	64-82/min	84-120/min	Maximum
Stroke rate C1	32-50/min	52-68/min	Maximum
Distance of paddling	10-40 km	100 – 300m / reps	10-100 m /reps
Training time /reps	50 –180 minutes	30 sec – 45 sec	5 sec to 25 sec
Training time total	50 –180 minutes	30 minutes (Effective phase)	15 minutes (Effective phase)
Work-rest ratio	Non regulated	1:1-3	1: 3-5
Heart rate	130-150 beats/min	150-180 beats/min	180 – max beats/min
Energy sources	Aerobic glycolysis	Anaerobic glycolysis	ATP-CP
Lactic Acid in blood	2-6 mmol / ml	8-20 mmol/ ml	3-5 mmol/ ml

Daily Training programme March 1st to August 31st 2004

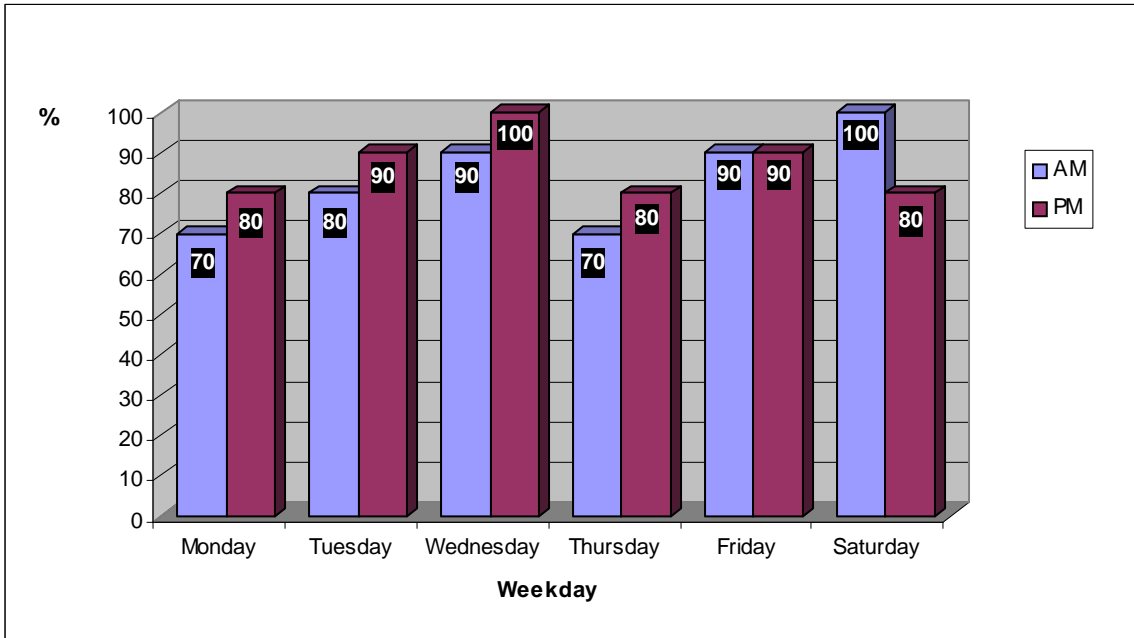
Schematic Figure of Training Programme (six months)



The schematic figure of training load in the Macro cycle I.



The schematic figure of training load of a week in the Macro cycle I.



**DAILY TRAINING PROGRAMME
MACROCYCLE I.
1st week (March 1st to March 28)**

DAYS	MORNING	AFTERNOON	SUPLAMENTARY training
Mo	Long distance: 10km Stroke rates: K: 70 -74 C: 32 -36	Fartlek: 12km individual	
Tue	Repetition 4 x 1500m Int: 80 % -85% rest 500m or 3 minutes	Fartlek 12 km 6x1000m hard 6x 1000m easy	Weights 1
Wed	Interval long 10 x 4 minutes Int. 85 % Rest. 2 min	Long distance 16 km Stroke rates: K: 72 - 74 C: 34 - 36	Running 1
Thu	Individual, Technique practice	Fartlek: 12 km	Weights 2
Fri	Interval long: 6 - 5 – 4- 3min 3 sets, Rests are 2 min and between sets are 4 min	Fartlek with programme: 1000m hard 2000 easy 4 sets	Running 2
Sat	Time trial: 2 x 2000m Rests: 15 minutes	Long distance: 10-12km	Weights 3
Sun	off	off	

**DAILY TRAINING PROGRAMME
MACROCYCLE I.
2nd week (March 29th to April 4th)**

DAYS	MORNING	AFTERNOON	SUPLAMENTARY training
Mo	Long distance: 10 -12km Stroke rates: K: 72-76 C: 36 -38	Fartlek: 14 km individual	
Tue	Repetition 6 x 1200m Int: 80 % -85% rest 500m or 3 minutes	Fartlek 14 km 7x1000m hard 7x 1000m easy	Weights 4
Wed	Interval long 10 x 4 minutes Int. 85 % Rest. 2 min	Long distance 16-18 km Stroke rates: K: 72- 74 C: 34- 36	Running 3
Thu	Long distance 10-12km technique practice	Fartlek: 12 km	Weights 5
Fri	Interval long: 5 – 4- 3- 2min 3 sets, Rests are 90 sec and between sets are 4 min	Fartlek with programme: 2000 easy -1000m hard 4 sets	Running 4
Sat	Time trial: 3 x 2000m Rests: 15 minutes	Long distance: 10-12km	Weights 6
Sun	off	off	

**DAILY TRAINING PROGRAMME
MACROCYCLE I.
3rd week (April 5th to 11th)**

DAYS	MORNING	AFTERNOON	SUPLAMENTARY training
Mo	Long distance: 12 -14km Stroke rates: K: 74 -78 C: 34 -38	Fartlek: 14 km individual	
Tue	Repetition 8 x 1000m Int: 80 % -85% rest 300m or 2 minutes	Fartlek 16km 7x 500m hard 7x 1500m easy	Weights 7
Wed	Interval long 10 x 5 minutes Int. 85 % Rest. 2 min	Long distance 16-18 km Stroke rates: K: 74- 76 C: 34- 36	Running 5
Thu	Long distance 12 -14km technique practice	Fartlek: 12 km	Weights 8
Fri	Interval medium: 15 x 2min Rests are 30 sec and between sets are 1 min	Fartlek with programme: 1500 easy -1500m hard 4 sets	Running 6
Sat	Time trial: 3 x 2000m Rests: 15 minutes	Long distance: 14-16km	Weights 9
Sun	off	off	

**DAILY TRAINING PROGRAMME
MACROCYCLE I.
4th week (April 12th to 18th)**

DAYS	MORNING	AFTERNOON	SUPLAMENTARY training
Mo	Long distance: 10-12km Stroke rates: K: 70-72 C: 30 -34	Fartlek: 12 km Individual	
Tue	Repetition 4 x 1200m Int: 80 % -85% rest 800m or 4 minutes	Fartlek 12km Individual	Weights 10
Wed	Interval long 8 x 4 minutes Int. 85 % Rest. 90 seconds	Long distance 12-14 km Stroke rates: K: 74- 76 C: 34- 36	Running 7
Thu	Technique practice	Fartlek: 12 km	Weights 11
Fri	Interval long: 6- 3- 2 min 3 sets, Rests are 90 –60 -30 sec and between sets are 3 min	Fartlek with programme: 2000 easy -1000m hard 4 sets	Running 8
Sat	Time trial: 1 x 2000m	Long distance: 12 - 14km	Weights 12
Sun	off	off	

STRENGTH DEVELOPMENT

Weights training 1

Kind	Strength endurance development-general
Method	Series
Volume	6 exercises, 6 sets of each, number of repetitions are various
Load	70-80 % of maximum strength
Rest	Individual (approx 30 sec –60 sec)
Exercises e.g.	Pull-up's behind neck /max reps/; Seated trunk twist with 15-20kg weights /40 reps/; Bench press /12-15 reps/; Bench Chest pull's /15-20 reps/; Dip's / 15 –20/; Seated press/12-15/ behind neck.

Weights training 2

Kind	Strength endurance development
Method	Circuits training
Volume	10 exercises, 30 minutes non-stop, 30 seconds working phases
Load	40 %
Rest	Not any –only changes to one exercises to another
Exercises e.g.	Cable rowing; Sit up's; Bench press, Bench rowing; Biceps curl; Upside row; Pull up's; Dip's; Side lat. lift; Military press.

Weights training 3

Kind	Explosive/quick strengths development
Method	Circuits, athletes running from one exercise to the other, one-by one and repeat the exercises as quick as possible
Volume	8 circuits – sets, (each duration about 2 minutes)
Load	50% of maximum strength
Rest	4-6 minutes between sets
Exercises e.g.	Pull up's 15 reps - Dips 15 – Sit up's 12 - Bench press 10 – Bench rowing 10 – Push up's 15 – Leg up's 10 - Fly's with dumbbell 10.

Weights training 4

Kind	Strength endurance development
Method	Series
Volume	8 exercises, 5 sets of each, 12-15 repetition per set
Load	70 %
Rest	1 minute between sets
Exercises e.g.	T-bar rowing; Pull down in cable machine; Pull ups; Bench press; Bench rowing; Sit ups on incline bench; One arm dumbbell row; Dips

Weights training 5

Kind	Strength endurance development
Method	Series
Volume	5 exercises, 6 sets of each, maximum number of repetition per sets.
Load	40-50 %
Rest	2-3 minutes between sets
Exercises e.g	Pull up's; Bench rowing; Incline press; Seated press; Cable rowing.

Weights training 6

Kind	Strength endurance development
Method	Special circuits –super sets- with quick execution
Volume	5 pairs of exercises, 3 sets per pairs, 3 circle in each set, 10 reps per exercises
Load	60 – 70 %
Rest	2-5 minutes
Exercises e.g	a) Bench press –Bench row; b) Pull ups – Push ups; c) Up right row – T bar rowing; d) Biceps curl – Triceps curl, e) Back extension –sit ups

Weights training 7

Kind	Strength endurance development
Method	Circuits
Volume	12 exercise, 10 circuits, 30 sec on 10 off, 2 times remaining in the same exercises before change,
Load	40 %
Rest	10 seconds between exercises and changes, 3-5 minutes between circuits
Exercises e.g	Flat bench press; Incline bench press; Close-grip bench press; Butterfly's; Barbell rows, Lat pull's with cable; Standing behind –the-neck presses; Leg extensions; Squats; Barbell curls; Lying skull crushers; Incline sit ups with 10kg in hands.

Weights training 8

Kind	Maximum strength development for chest and triceps muscles
Method	series
Volume	32 sets, 8 exercises –4 sets of each, 10 reps per sets
Load	80 – 85 %
Rest	Approx. 2 minutes between sets
Exercises e.g	Flat bench press; Negative incline press; Incline press with dumbbells; Close-grip bench press; Butterfly's; Cross cable extension; Lying two arms extension; One arm behind the neck extension;

Weights training 9

Kind	Maximum strength development for back and shoulder muscles
Method	series
Volume	32 sets, 8 exercises –4 sets of each, 10 reps per sets
Load	80 – 85 %
Rest	Approx. 2 minutes between sets
Exercises e.g	Seated press behind neck, Dead lift; Shrug's, Seated dumbbell press; Up right rowing; Back extension with 10 kg extra weights; Barbell rows, Dumbbell rows;

Weights training 10

Kind	Strength endurance development
Method	Circuits -small circuits-
Volume	3 kind of circuits, each consist of 4 exercises, 10 repetition in each exercises, the duration of one circuit is 4 minutes, 2 sets of each circles
Load	50 %
Rest	Only between the circles: approximately 2-4 minutes
Exercises e.g	a) Bench row – Bench press – Sit up's – Back extension b) Pull ups – Dips – Biceps curl – Triceps curls over the head - Seated press; c) Incline press – T-bar rowing – side lat dumbbells lifting - snatch

Weights training 11

Kind	Quick strength development
Method	Series with quick execution
Volume	6 exercises, 4 sets of each, 12 repetition per set
Load	60 – 70 %
Rest	2 minutes between sets
Exercises e.g	Bench press; Bench rowing; Biceps curls; Pull over in laying on a bench; Cable rowing; Up right rowing.

Weights training 12

Kind	Strength endurance development
Method	Circuits
Volume	40 minutes, 30 sec on – 15 off, 12-15 exercises
Load	40 %
Rest	No rest between circles
Exercises e.g	Flat bench press; Incline bench press; Close-grip bench press; Butterfly's; Barbell rows, Lat pull's with cable; Standing behind –the-neck presses; Leg extensions; Squats; Barbell curls; Lying skull crushers; Incline sit ups with 10kg in hands. Seated twist on bench, One arm pull's etc.

Running training 1

Method	Cross country / fartlek
Distance	5 - 6 km
Repetition	1
Rest	

Running training 2

Method	Repetition in track
Distance	1200m
Repetition	3
Rest	4-5 minutes

Running training 3

Method	Long distance
Distance	6 - 8 km
Repetition	1
Rest	

Running training 4

Method	Fartlek
Distance	4 km
Repetition	400 m easy – 400 m hard
Rest	-

Running training 5

Method	Long distance
Distance	6- 8
Repetition	1
Rest	

Running training 6

Method	Repetition in track
Distance	1200 m
Repetition	4
Rest	3-5 minutes

Running training 7

Method	Fartlek - individual
Distance	4 km
Repetition	1
Rest	-

Running training 8

Method	Cooper test
Distance	? -12 minutes running for the maximum distance
Repetition	1
Rest	-

Remarks: the training programme for the Macrocycle 2 (March 29th to April 30th) will be published soon.