



Coach's Symposium, Canada 2010

The background is a vibrant blue gradient. At the top, there are wispy white clouds. A bright sunburst effect emanates from the left side, creating a shimmering path of light across the sky and reflecting on the water below. The water surface is depicted with fine, rhythmic ripples.

TRANSITION OF TRAINING STRUCTURE FROM JUNIOR TO SENIOR LEVEL

by Csaba Szanto ICF T.D.

INTRODUCING GENERAL OBSERVATION,

- Do we have significant differences of the training methods for various ages groups and are the coaches using that?
- Do canoeing has specific training programme for the age classes as juveniles, juniors and seniors?
- Do canoeing (coaches) use “turning points” in the training points?

- **THE CONCEPT:**

- Gradually increasing the volume and intensity of training,
- From aerobic to anaerobic energy supply
- Continuous technical and strength development

- **PRACTICE:**

- The training methods are depends on the concept, knowledge and experience of the coaches, their targets, pro and amateur athletes (sportschool system)

- **Situation** in various countries (information):
HUN, JPN, BLR

INFLUENCING FACTORS OF SPORT CAREER AT AGE 18

- **Personal orientation in education**
- **Success in canoeing**
- **Targets in canoeing**
- **Social situation (support of parents or....)**
- **Change club, training place, condition or/and coach**
- **„ugly girl / simple boys“ syndrome**

INFORMATION OF ELITE ATHLETES PARTICIPATION IN RACES (SURWAY)

TURNING POINTS	AGE
FIRST RACE	12-13
ATTEND IN JUNIOR WCH	17-18
ATTEND IN SENIOR WCH	20-21
MEDALIST IN WCH	21-22
WORLD CHAMPION	23 -

STARTING AGE IN SPORTS

The most favorable period for improvement of general motor coordination is between ages 9-12.

Coordinated ability increases at an older age as well, but its improvement rate is lower



STAGES OF THE TEACHING AND LEARNING PROCESS

THREE STAGES OF LEARNING

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graph TD; A[THREE STAGES OF LEARNING] --- B[BEGINNER  
Few months  
or years]; A --- C[ADVANCED  
Few years]; A --- D[ATHLETE]
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BEGINNER
Few months
or years

ADVANCED
Few years

ATHLETE

How fast a novice can learn to paddle depends on the novice's:

skill of learning and of sports

- **age**
- **nerve- muscular coordination**
- **sense of balance and confidence**
- **musculature. fitness and temperament**
- **frequency and duration of training**
- **water and weather condition**
- **coach's teaching ability**

4 STAGES OF LONG-TERM PREP.

Based on Issurin

Stages	No. of years (12-18)	No. of workouts per week	Duration of w.o in minute	Yearly training hours
Preliminary preparation	1-2	3-4	45-60	120-170
Initial preparation	1-2	4-5	75-90	250-300
Advanced specialised P	2-3	6-9	60-120	500-750
Sport perfection	NON DETERMINA TED	9-12	70-150	750- 1400

PREMILINARY PREPARATION 1-2 YEARS

ABILITIES	MAIN TRAINING DIRECTION
TECHNICAL	DEVELOPMENT OF SPORT SPECIFIC AND GENERAL SKILLS, COORDINATION & BALANCE
PHYSICAL	ALL-ROUND DEVELOPMENT OF MOTOR ABILITIES WITH INCREASING TRAINING CAPACITY
MENTAL	FORMATION OF STABLE MOTIVATION; ADOPTATION OF FUNDAMENTAL MORAL PRINCIPLES I.E TEAM SPIRIT

INITIAL SPECIALIZATION STAGE 1-2 YEARS

ABILITIES	MAIN TRAINING DIRECTION
TECHNICAL	FURTHER DEVELOPMENT OF SPORT SPECIFIC SKILLS, INCREASE THE TECHNICAL COORDINATION ABILITIES
PHYSICAL	MORE SPECIALIZED DEVELOPMENT OF MOTOR ABILITIES . ADAPTATION TO TYPICAL TRAINING WORKLOADS OF CANOEING
MENTAL	PROGRESSING SELF-CONFIDEENCE AND WILL POWER AT TRAINING AND RACES
OTHER	3-4 COMPETITIONS PER YEAR ARE RECOMMENDED

ADVANCED SPECIALIZATION STAGE 2-3 YEARS

ABILITIES	MAIN TRAINING DIRECTION
TECHNICAL	ATTAINING EFFICIENT/EFFECTIVE TECHNIQUE, STABILIZATION OF INDIVIDUEL STYLE TO REACH THE HIGHEST SPEED, ELEMINATION OF TECHNICAL DRAWBACKS
PHYSICAL	FURTHER ENHENCEMENT OF SPORT-SPECIFIC MOTOR ABILITIES AS INDURANCE AND STRENGTH
MENTAL	MAINTENANCE OF HIGH SELF.CONFIDENCE AND WILL POWER; HIGH MOTIVATION TO ATTAIN SPORT EXCELLENCE

Long-term preparation of young athletes TO SENIORS:

The athletic career of both world-class and less successful athletes is highly dependent on the earlier period of

long-term preparation

that usually begins in childhood

PRINCIPLE OF TRAINING

ADAPTIBILITY
(ACHIVE THE TARGET)

IN CONSIDERATION WITH

AGE, GENDER, FITNESS

PRINCIPLE OF DISTRIBUTION OF TRAINING

**NUMBER OF TRAINING IN A PERIOD
(i.e. In a WEEK)**

DURATION OF TRAINING / SESSION

PROPER TRAINING ZONE(load and intensity)

ADAPTIBILITY

GOAL SETTING

LEADS TO PROGRESSING

SPECIFICITY OF TRAINING

considering with:

- **The athlete's age and gender**
- **The athlete's fitness**
- **The background in canoeing**
- **The athlete's target and motivation for canoeing**
- **Specialisation of distance**

REQUIRED NUMBERS OF TRAINING for „PROFESSIONALS“

AGE GROUP	AGE	Number of Training per week	Hours of Training per week
JUVENAL	10 – 14	3 – 5	8 – 12
JUNIOR	14 – 18	6 – 10	14 – 20
SENIOR	18 -UP	10 – 14	20 – 30

NO OF TRAINING SPECIFICS and GENERAL

LEVEL	GENERAL TRAINING % Fitness, strength,running/ swimming, games	SPECIFIC TRAINING% (PADDLING)
<i>BEGINNERS</i>	70	30
<i>ADVANCED</i>	30 - 40	60 -70
<i>PROFESSIONAL</i>	15 - 20	80 -90

KIND AND NO OF TRAINING

LEVEL	NUMBER OF TRAINING PER WEEK		
	PADDLING	RUNNING	STRENGTH
BEGINNERS 12-14	2 - 3	2- 3	1-2
ADVANCED 14 -17	5 - 8	2 -3	2 -3
PROFESSIONAL JUN / SEN 18 TO-	10 - 12	3 - 4	3 -5

TRAINING DISTANCE OF PADDLING IN KM

LEVEL	1 DAY		1 WEEK	
	KAYAK MEN	WOMEN KAYAK AND CANOEISTS	KAYAK MEN	WOMEN KAYAK AND CANOEIST
ADVANCED ATHLETES	14 - 20	12 - 18	80 - 120	70 - 100
PRO ATHLETES	24 - 40	18 - 30	160 - 200	140 - 200

DISTRIBUTION OF TRAINING

AGE	ENDURANCE %	STRENGTH %	SPEED %
10-13	70-80	10-20	5-10
14-15	50-60	25-30	20-25
16-17	40-50	30-35	25-30
18 -UP	30-35	35-40	35-40

PERCENTAGE OF AEROB AND ANAEROB TRAINING

AGE	AEROBIC ENDURANCE	ANAEROBIC INDURANCE
10-13	90/80 %	10/20%
14-15	80/70 %	20-30%
16-18	70/60%	30-40%
SENIORS	50 %	50%

TRAINING DISTANCE OF PADDLING FOR SENIOR *PROFESSIONALS*

PERIOD	NO OF TRAINING	DURATION HR.	DISTANCE KM
DAY	2 - 3	3 - 5	30 - 40
WEEK	12 - 18	30 - 35	200 - 350
YEAR	500 - 550	1000 - 1100	4500 - 5000

STAGES OF TEACHING OF CANOE/KAYAK TECHNIQUE

- **Stability**
- **Technique – basics**
- **Advanced technique**
- **Single boat technique**
- **Team Boat Coordination**
- **Stoke rate development**
- **Final stage of technique**

STAGES OF TECHNIQUE PROGRESSION

STAGE 1 (0-6 MONTHS)

STABILITY
BASIC TECHNIQUE
BOAT MOVEMENTS

STAGE 2 (6-12 MONTHS)

FURTHER STABILITY
FURTHER TECHNIQUE
PROGRESSING

STAGE 3 (1- 3 YEARS)

TECHNIQUE
STABILISATION,
INDIVIDUALISATION

STAGE 4 (FINAL STAGE)

PERFECTISATION

TRAINING OF 10-13 YEAR OLDS

- Make the children **to love canoeing/sport**
- Teach the **proper technique** principals
- Make the training **enjoyable**

- **Endurance development**: Aerobic-type training is 80-90% of all training load (paddling, running, cross-country skeeing and swimming etc)
- **Strength development**: versatile workouts. Use the athlete body weight for exercises.
- **Speed/speed endurance** development gradually: 5-10 % of the training

TRAINING OF 14-15 YEAR OLDS

- Improve the physical and psychological abilities continuously
- **Confident paddling TECHNIQUE** level in single racing boats
- **Increase training frequency and volume**
- **Endurance development:** aerobic 70-80%
anaerobic 20- 30%
Suggested type of training: marathon, farthlek, repetition and long interval training
- **Strength development:** more sport specific exercises with the general strength development. 25-30% of the training regime
- **Speed development:** mainly in the racing season
- **Technique development:** continues task!

TRAINING OF 16-18 YEAR OLDS

- **Aerobic and anaerobic endurance development are among the main targets**
- Training for **speed endurance, speed and strength development**
- Increase the **training volume to 7-12 training per week**
- Increase the **intensity of training**
- **Further technique development**
- **Endurance Development:**
 - increased proportion of Anaerobic to 30-40 %
 - increased no of training at the threshold level (Pulse: approx 150)
- **Strength development:**
 - maximum strength and strength endurance
- **Speed development increased demands**

Training targets principles at various ages

	AGE GROUP	TRAINING I.	TRAINING II	TRAINING III.
AGE	10 - 12	AEROBIC ENDURANCE	TECHNIQUE	
	13 -14	AEROBIC ENDURANCE	TECHNIQUE	STRENGTH
	15 - 18	AEROB and ANAEROB E.	SPEED endurance	STRENGTH
	OVER 18	ANAEROB ENDURANCE	SPEED	STRENGTH

SUMMARY

**TRANSLATION FROM
JUNIOR TO SENIOR AGE
LEVEL
IS A PART OF THE
ATHLETE'S LONG-TERM
PREPARATION!!**

**TRANSLATION FROM JUNIOR TO SENIOR LEVEL IS A PART OF
THE LONG-TERM PREPARATION!!**

**In the process of the long-term preparation the
„ADVANCED SPECIALISATION” period
the athletes
ATTAIN THE REAL BASES OF MASTARY!**

**Usually it corresponds to the age (18) at which athletes
complete their junior preparation and join the
adult athletes. The training workloads and intensity
increase substantially and may approach those of adult
athletes.**

**Consequently, technical, physical and mental abilities of
the athletes at age 18 year should approach the level of
qualified seniors !!**

DETERMINED FACTORS OF SPORT TALENT

- Anthropometrical,
- Physiological,
- Psychological
- Sociological
- Genetically (heredity) giftedness
- Trainability

Identifying gifted athletes

- **Giftedness are considered to be genetically transmitted properties of an individual.**
- **In sports, properly developing giftedness implies attaining sports excellence.**
- **Thus, a gifted child is potentially a talented athlete.**
- **Identification of giftedness can be based on unchangeable inherited predictors of talent.**
- **The giftedness identification in endurance sports requires several years ears**

FACTORS DETERMINING ATHLETIC TALENT

FACTORS	CHARACTERISTIC
BODY BUILD AND COMPOSITION	Body height, arm lengths, shoulder width, muscle mass
Physiological	Alactic and Glycolitic Anaerobic Power, Peak blood lactate, Strength endurance
Psychological	Self-confidence, Motivation, Concentration, Anxiety control
Sociological	Parental support, Socio-economic background, coach-child interaction

CARACTARESTICS OF ELIT ATHLETES

- high level of confidence,**
- optimism,**
- adaptive perfectionism,**
- sports intelligence**
- mental toughness**
- control anxiety**
- set and achieve real goals.**

Characteristics of ELITE men athletes (average)

- **Height** **182 cm**
- **Sitting height** **96 cm**
- **Torso height** **81 cm**
- **Shoulder width** **82 cm**
- **Upper arm circumference** **35 cm**
- **Body weight** **78 kg**
- **Body fat** **9.3 %**

AGE – HEIGHT - WEIGHT

OLYMPIC GAMES	MEN KAYAK			MEN CANOE			WOMEN KAYAK		
	AGE	cm	Kg	AGE	cm	kg	AGE	cm	kg
1996	25,8	184	81.2	27.2	182.5	81.1	25.8	171	65
2000	25.7	185	84.1	26.5	179.8	80.8	25.7	171.4	67.2
2004	25.9	185. 2	86.4	27.5	180.7	81.9	25.9	172.6	66.3

Tests of 16 years of Junior National Team

GENDER	HEIGHTS cm	WEIGHTS kg	ARM LENGTH cm	SEATED HEIGHTS cm
Man	174 – 193	53 – 89	171 – 199	92 – 102
Women	160 – 185	55 – 77	163 – 184	84 – 98

CATEGORY	Paddling		Bench press maximum kg	Running Men 1500m Women 800m
	2000m	100m		
Kayak men	9'00 - 10'30"	19"9 – 23"2	60 – 100	4'26 – 6'08"
Canoeists	9'50 - 11'30"	23"8 – 28"	60 – 100	4'26 – 6'12"
women	10'00-11'40"	23"5 – 28"	42 – 75	2'35 – 3'25"

CANOE / KAYAK BOYS PHYSICAL TEST HUNGARY 2004 (377 persons)

TEST	RANK	AGE									
		9	10	11	12	13	14	15	16	17	18
PULL UP'S 1' min	1	20	26	25	24	37	35	34	36	42	39
	2	14	25	25	24	31	30	32	36	38	36
	3	8	24	24	23	30	30	32	35	38	35
	4	5	23	24	23	28	29	31	34	37	34
	last	4	2	1	1	2	1	19	17	19	24
LEG UP'S 1' min	1	57	59	58	55	34	34	34	35	38	40
	2	54	55	57	54	26	34	33	33	37	33
	3	48	53	53	54	26	30	32	32	33	30
	4	42	51	52	51	25	29	31	31	32	27
	last	37	36	31	8	2	1	8	4	4	18
BENCH PRES S 40 KG 1' min	1	0	0	0	0	0	0	54	71	81	86
	2	0	0	0	0	0	0	41	62	81	79
	3	0	0	0	0	0	0	38	59	78	78
	4	0	0	0	0	0	0	37	59	78	69
	last	0	0	0	0	0	0	12	34	32	55
Cooper test	1	X	X	X	X	X	X	3338	3475	3483	3485
	last	x	X	X	X	x	x	2440	2000	2720	3090

CANOE / KAYAK GIRLS PHYSICAL TEST HUNGARY 2004

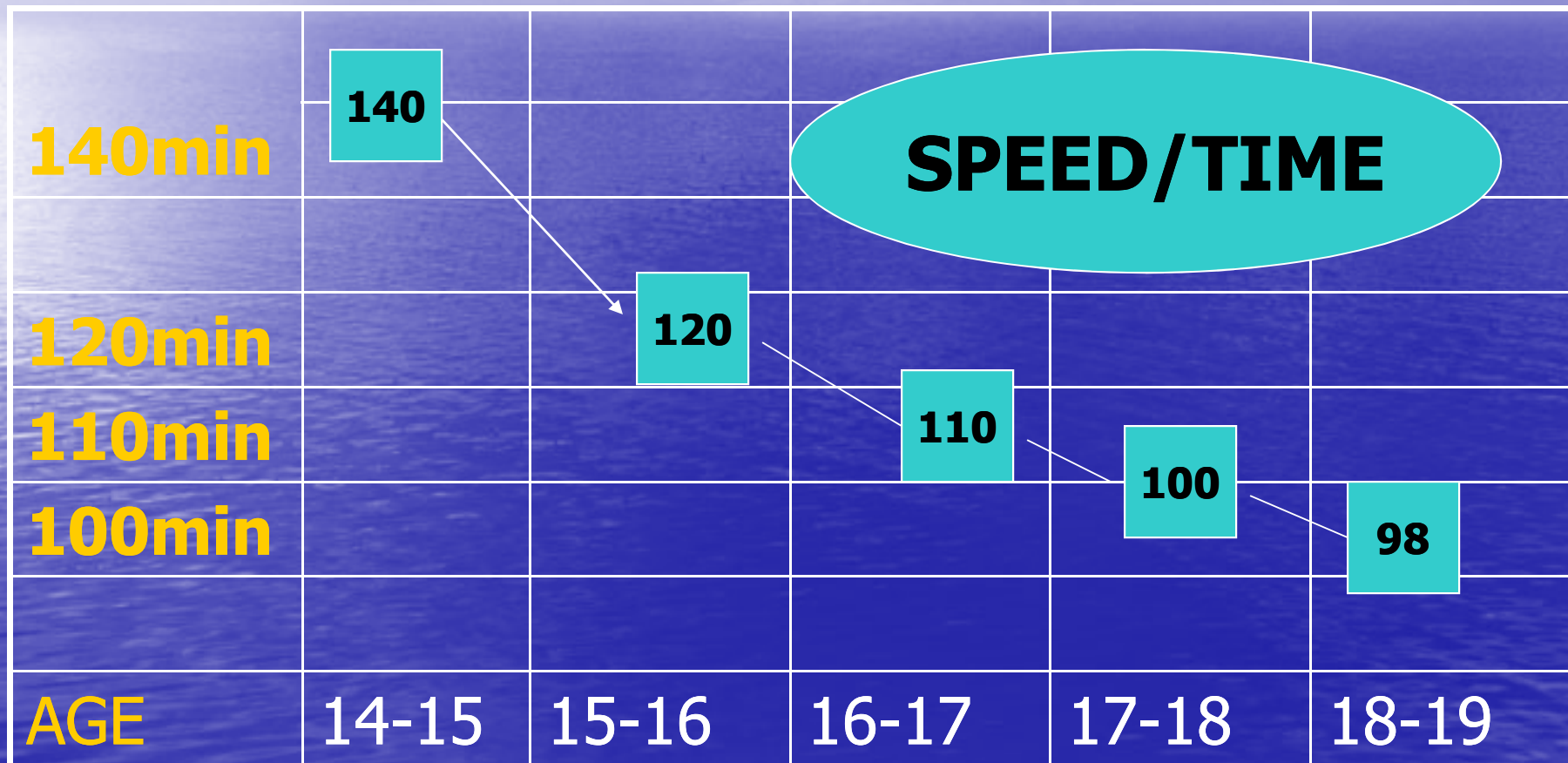
TEST	RANK	AGE									
		9	10	11	12	13	14	15	16	17	18
PUL UP'S 1`min	1	27	23	30	23	31	30	32	30	33	34
	2	12	21	30	23	26	27	30	26	29	32
	3	13	17	29	22	25	25	28	26	27	31
	4	10	8	26	20	24	24	27	24	26	29
	last	0	8	11	0	5	7	2	7	18	13
LEG UP`S 1`min	1	57	50	61	53	29	28	29	35	36	36
	2	46	49	58	52	26	24	27	32	28	33
	3	38	26	57	50	26	22	27	26	28	31
	4	54	21	54	47	19	21	27	26	23	29
	last	32	21	26	21	1	7	2	7	4	12
BENCH PRESS 30kg	1	0	0	0	0	0	0	59	72	74	86
	2	0	0	0	0	0	0	54	62	69	85
	3	0	0	0	0	0	0	43	56	66	79
	4	0	0	0	0	0	0	40	56	65	78
	last	0	0	0	0	0	0	14	17	25	28
Cooper test	1	X	X	X	X	X	2820	3005	2905	3080	2995
	2	X	X	X	X	X	2798	2949	2890	3080	2930
	3	X	X	X	X	X	2795	2840	2845	2820	2920

PHYSICAL REQUIREMENTS, BOYS

(MINIMUM)

AGE	SIT UP`S Max (1 min)	PULL UP`S Max (1 min)	COOPER TEST meter	300m SWIMMING
11	20	3	1600m	8:30
12	25	5	1950m	8:00
13	30	10	2100m	7:30
14	35	15	2300m	7:00
15	38	20	2550m	6:30
16	40	25	2800m	6:00

PERFORMANCE TIMES OF PROMISING MEN ATHLETE IN K1 500M



TRAINING PROGRAMME FOR 12-15 YEARS ATHLETES

Training in racing season

MON	TUE	WED	THU	FRI	SAT	SUN
AM	AM	AM	AM	AM	AM	AM
8 x 1km 250 hard 250m easy	interval training 2x2:20m r: 2:30; 2x3:15 r: 2:30; 2x 1:25 r: 2:30 2x2:30 r: 2:30	interval, 5x 30 sec, 4x 45sec 3 x 60 sec	10km individual 5 x 400m running	interval. 3x1m, 3x 1,35; 3x 1.10; 3x60	2x 3:30; 3x 2:15; 2x3:30	3 x500m Time Tria l
PM	PM	PM	PM	PM	PM	PM
2x2000m 3x 1200m running	Team boat practice 1x 3m increased pace 1x 5 m 1x 4m 3x1m and 2x2m 2x 45 sec	3x2000m time trial pull up's and push up's	interval 2m - 3m - 4 m - 5m-4m -3 m 2 m game 30min	10km individual Game 30min	2x 1000m time trial	off

TRAINING PROGRAMME

example for athletes at age 12-15

SEPTEMBER /OCTOBER

MON	TUE	WED	THU	FRI	SAT	SUN
12 KM PADDLING	16KM PADDLING	8km paddling with brake	2x2000m paddling	8km paddling	25km paddling	20km
150 PULL UP'S	3X1200m RUNNING		time trial	for time	long distance	walking trip
30 MIN SOCCER		2x2m, 3x3m, 1x4m	200 push up's	running: 1600 +		
		1x6m 2sets rest 1:1	100 pull up's	1200 + 800m		
			10x rope climbing			

TRAINING PROGRAMME FOR 12-15 YEARS ATHLETES

Training in off season

MON	TUE	WED	THU	FRI	SAT	SUN
10 km running	SWIMMING 800m int. 90% and	5x 800m running	12x100m swimming	12km running	Pool paddling	Rest
50 minutes circuit weights training	4x200m for time	200 pull up's		30 minutes strength development	45 min	
	PM	200 push up's	PM			
	45 soccer		1hr in gym various exercises plus 30 min and games		swimming 300m	
					Warming up	
					20x100m	

**Competition system for
youngsters at age 10 to 18**

in

HUNGARY

Competition system



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graph TD; A[Competition system] --> B[Determinates the Training system];
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Determinates the

Training system

THE RACING SYSTEM IN HUN

- **NO competition under AGE OF 10**
- **LONG distances RACES on 2000m and 4000 m and "funny relays" at AGE OF 11-13**
- **4000, 1000 and 500 m at AGE 14-18**
- **1000m 500m and 200 m over at AGE 18**

FACTORS of the Competition sytem

Age groups

Distances

Boat classes

Rules

Competition types

Officials

Calendar

AGE GROUPS

Class	Age	Category
I.	10-11 year	Children
II.	12	
III.	13	Kid
IV.	14	
V.	15	Kadet
VI.	16	
VII.	17	Junior
VIII.	18	
	19-23	U23
	23+	Senior
	25-29	Masters
	30-....	

Distances

Class	Age	Category	Maraton distances	Flatwater distances
I.	10-11 év	Children	5 km	2000 m, 4x300 m relay
II.	12			
III.	13	Kid	10 km	500, 1000, 4000 m, 3x200 m relay
IV.	14			
V.	15	Kadet	15 km	500, 1000, 4000 m
VI.	16			
VII.	17	Junior	21 km	200, 500, 1000, 4000 m
VIII.	18			
	19-23	U23	36 km	200, 500, 1000, 4000 m
	23+	Senior		200, 500, 1000 m
	25-29	Masters	10 km	200, 500 m
	30-....			

Age groups, Boat classes

<i>Age group</i>	Boat classes	Distance
<i>Children</i>		
I. class	MK-1, NMK-1, MK-2, NMK-2	2000
II. class	MK-1, NMK-1, MK-2, NMK-2, K-2, NK-2	2000
I-II. class	K-4, MC-1, PC-2, TC-4	2000
<i>Kid</i>		
III. class	MK-1 v.K-1, NMK-1 v. NK-1, K-2, NK-2, K-4, NK-4, C-1, PC-2, TC-4	4000
IV. class	K-1, NK-1, K-2, NK-2, K-4, NK-4, C-1, C-2, C-4	500, 1000, 4000
<i>Kadet</i>		
V. class	K-1, NK-1, K-2, NK-2, C-1, C-2	500, 1000, 4000
VI. class	K-1, NK-1, K-2, NK-2, C-1, C-2	500, 1000, 4000
V-VI. class	K-4, NK-4, C-4	500, 1000, 4000
<i>Junior</i>		
VII-VIII. class	K-1, NK-1, K-2, NK-2, K-4, NK-4, C-1, C-2, C-4	500, 1000, 4000

COMPETITION TYPES

International

National

Regional

Local

COMPETITION TYPES

CHAMPIONSHIPS

- **Division per discipline (flatwater, marathon etc)**
- **Division for age groups (Junior, Senior etc)**
- **No Qualification system - free entry**

STUDENT OLYMPICS

- **Regional system**
- **Qualification system to the National Final**

QUALIFICATION COMPETITIONS

- **Flatwater, marathon**
- **Senior, youth, under 18**
- **European Championships,**
- **World Championships,**
- **European Olympic Hopes Competition**

LOCAL CUP AND OTHER COMPETITIONS