

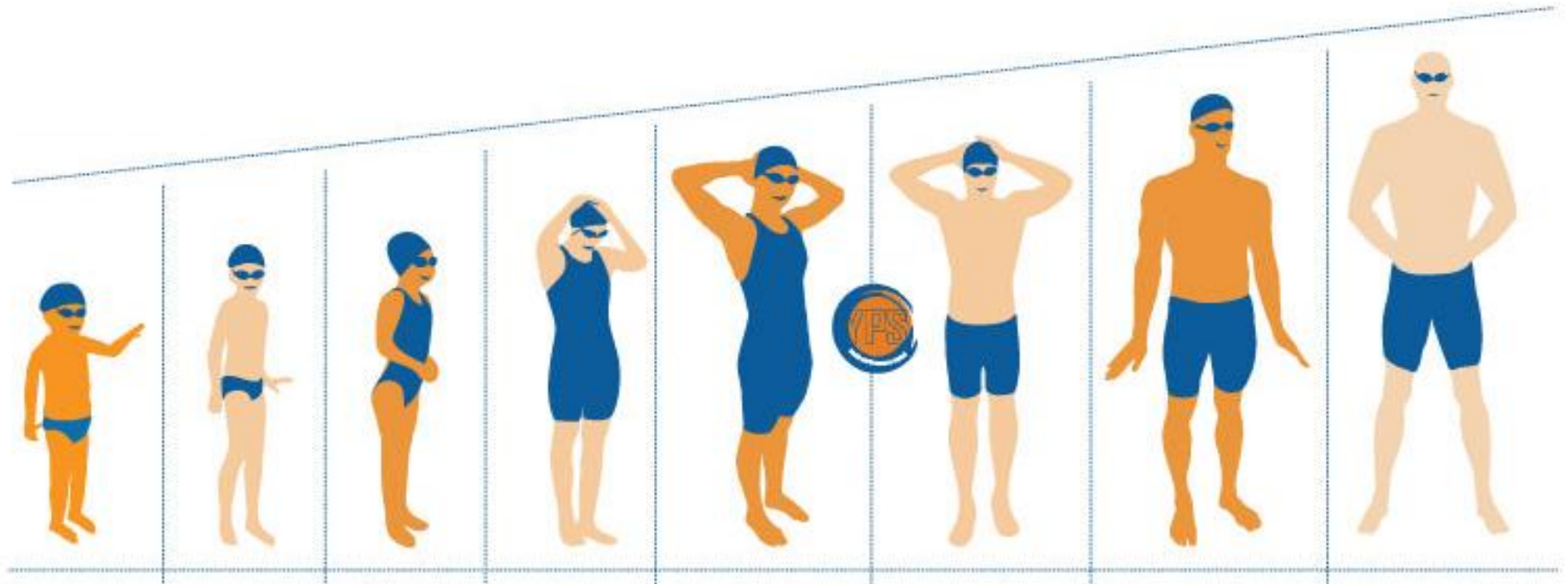
Long term development: the project of the Portuguese Swimming Federation



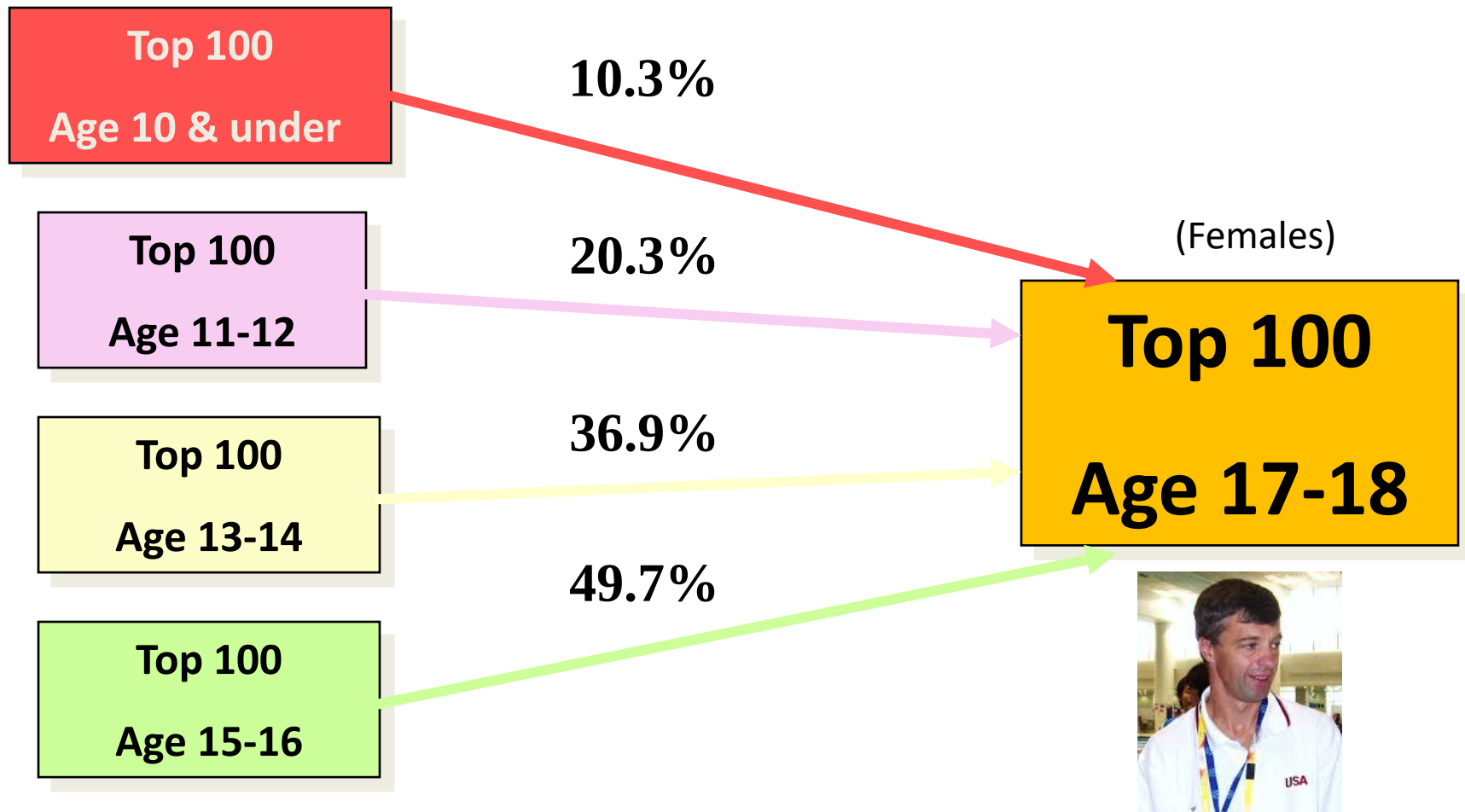
ANTÓNIO J. SILVA

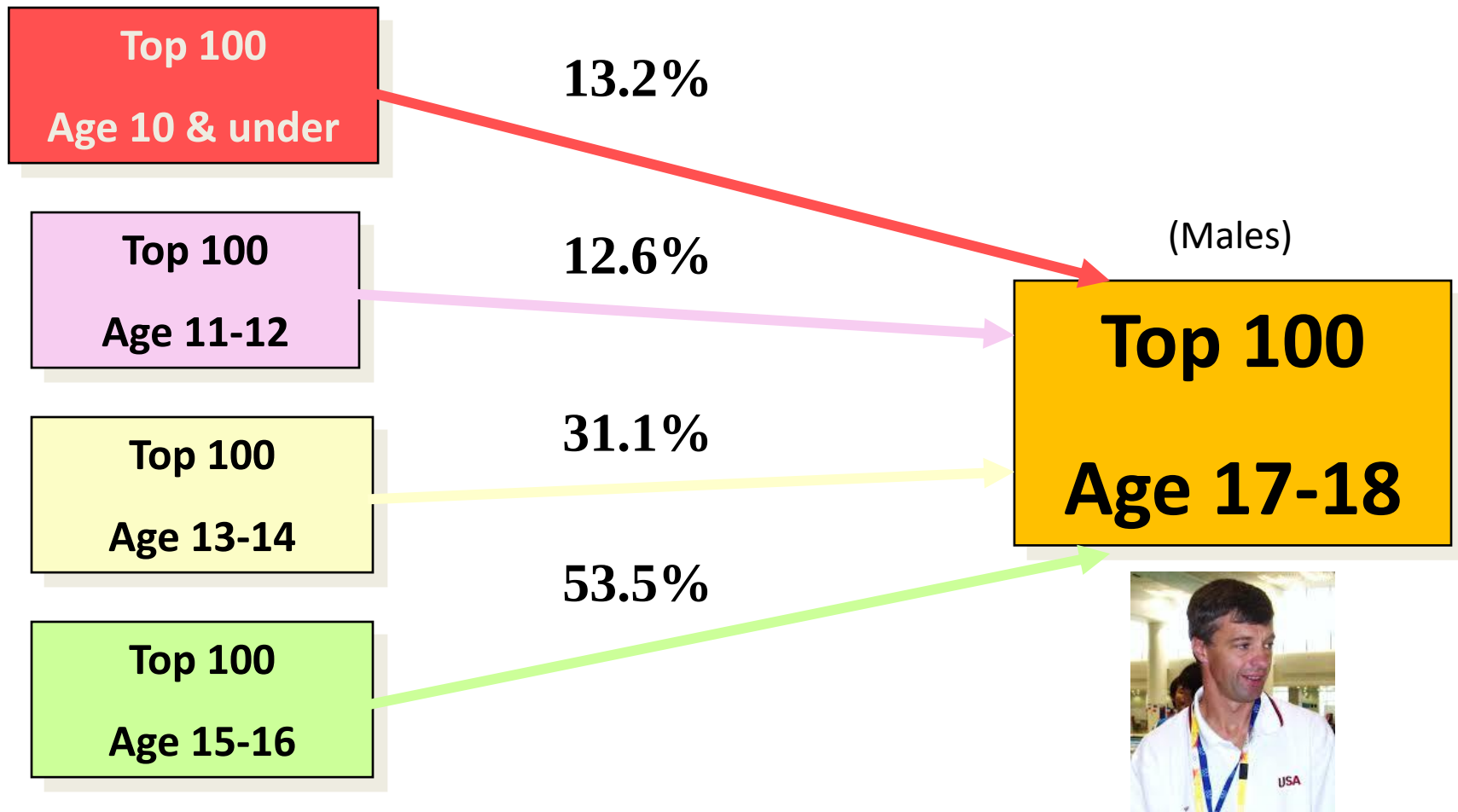
President of LEN – European Aquatics
President of the Portuguese Swimming Federation





Do the majority of swimmers reaching the top at young ages remain within the same top range as adults?





From early to adult sport success: Analysing athletes' progression in national squads

André Barreiros ^a, Jean Côté ^b & António Manuel Fonseca ^a



Table II. Prospective analysis of pre-junior international male athletes

	Pre-junior athletes <i>n</i>	Pre-juniors reselected as juniors <i>n</i> (%)	Pre-juniors reselected as seniors <i>n</i> (%)
Soccer	170	93 ^a (54.7)	58 ^a (34.1)
Volleyball	27	21 ^b (77.8)	15 ^b (55.6)
Swimming	60	34 ^c (56.7)	18 ^c (30)
Judo	32	12 ^a (37.5)	9 ^a (28.1)
Total	289	160 ^c (55.4)	100 ^c (34.6)

Table III. Prospective analysis of pre-junior international female athletes

	Pre-junior athletes <i>n</i>	Pre-juniors reselected as juniors <i>n</i> (%)	Pre-juniors reselected as seniors <i>n</i> (%)
Volleyball	27	15 ^a (55.6)	6 ^a (22.2)
Swimming	64	37 ^b (57.8)	21 ^b (32.8)
Judo	15	7 ^c (46.7)	3 ^c (20)
Total	106	59 ^d (55.7)	30 ^d (28.3)



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Melhores tempos

Associação de Natação do Norte de Portugal

Masc., 12 anos

Melhores 10

Piscina curta (25m)

Época 2009

Última construção 19 Abr 2013 - 19:18

1 Ago - 31 Jul 2009

Livres ▼

Masc. ▼

Piscina curta (25m) ▼

2009 ▼

12 anos ▼



Apelido, nome	Ano nasc.	País	Clube	Tempo	Pts.	Lugar no ranking			Data	Cidade (País)
POR ANNP Clube										

100m Livres

#Rankings.PlacesFrom 77

FERREIRA, Joao Miguel	1997	POR	Foca	1:05.38	324	6.	1.	1.	12 Jul 2009	Vila Meã
SANTOS, Andre Goncalo	1997	POR	Leixoes	1:06.56	307	9.	2.	1.	12 Jul 2009	Vila Meã
ASCENSAO, Joao Miguel	1997	POR	Futebol Clube do Porto	1:07.38	296	10.	3.	1.	12 Jul 2009	Vila Meã
RIBEIRO, Ivo Pinto	1997	POR	Foca	1:07.66	293	11.	4.	2.	12 Jul 2009	Vila Meã
SOUSA, Jose Ricardo	1997	POR	Lousada SXXI	1:08.29	284	13.	5.	1.	12 Jul 2009	Vila Meã
SILVA, Pedro Manuel	1997	POR	Ginasio Santo Tirso	1:08.65	280	17.	6.	1.	12 Jul 2009	Vila Meã
SILVA, Flavio Dias	1997	POR	Famalicao	1:09.60	269	23.	7.	1.	12 Jul 2009	Vila Meã
FERNANDES, Joao Filipe	1997	POR	Vilacondense	1:10.32	261	33.	8.	1.	21 Mar 2009	Lousada
SILVA, Ricardo David	1997	POR	Foca	1:10.55	258	34.	9.	3.	12 Jul 2009	Vila Meã
COSTA, Andre Manuel	1997	POR	Natacao da Maia	1:10.61	257	36.	10.	1.	12 Jul 2009	Vila Meã



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Melhores tempos

Procura

Associação de Natação do Norte de Portugal

Masc., 18 anos

Melhores 10

Piscina curta (25m)

Epoca 2015

Última construção 1 Feb 2015 - 22:14

1 Ago - 31 Jul 2015

Livres ▼

Masc. ▼

Piscina curta (25m) ▼

2015 ▼

18 anos ▼



Apelido, nome	Ano nasc.	País	Clube	Tempo	Pts.	Lugar no ranking			Data	Cidade (País)
						POR	ANNP	Clube		

100m Livres

#Rankings.PlacesFrom 20

ASCENSAO, Joao Miguel	1997	POR	Futebol Clube do Porto	50.73	695	1.	1.	1.	19 Dez 2014	Porto
RAMOS, Eduardo Salgado	1997	POR	Futebol Clube do Porto	52.27	635	5.	2.	2.	19 Dez 2014	Porto
CAPITAO, Simao Miguel	1997	POR	Colegio SMLamas	53.76	584	11.	3.	1.	6 Dez 2014	Ponte da Barca
MORIM, Ruben Jose	1997	POR	Vilacondense	53.94	578	13.	4.	1.	1 Feb 2015	Senhora da Hora
RIBEIRO, Ivo Pinto	1997	POR	Foca	54.23	569	15.	5.	1.	28 Nov 2014	Paços de Ferreira
SILVA, Ricardo David	1997	POR	Foca	54.96	546	20.	6.	2.	30 Nov 2014	Paços de Ferreira
PINHEIRO, Andre Resende	1997	POR	Futebol Clube do Porto	55.24	538	21.	7.	3.	28 Nov 2014	Paços de Ferreira
CUNHA, Vitor Monteiro	1997	POR	Fafe	55.60	528	25.	8.	1.	7 Dez 2014	Ponte da Barca
ALMEIDA, David Andre	1997	POR	Ginasio Santo Tirso	55.87	520	29.	9.	1.	6 Dez 2014	Ponte da Barca
RAMOS, Filipe Carmo	1997	POR	Vilacondense	56.19	511	31.	10.	2.	16 Nov 2014	Felgueiras

Only 3 swimmers

COMUNICADO N.º 004/08-09**Distribuição: CLUBES da ANNP, FPN****1. ACCÃO DE FORMAÇÃO CADETES A - 97M/98F**
Baião – 06/07ABR09

Vai a Associação de Nataçao do Norte de Portugal levar a efeito nos dias 06-07ABR09 em Baião, o Estágio em título, nas instalações das Piscinas Municipais de Baião. O mesmo destina-se aos nadadores Masculinos nascidos em 1997 e Femininos nascidas em 1998.

De acordo com os critérios de selecção publicados e por proposta do Director Técnico Regional, a Direcção da Associação de Nataçao do Norte de Portugal decidiu convocar os nadadores abaixo indicados:

Nome	Clube	Pontos	Nome	Clube	Pontos
Joao Miguel Ferreira	FOCA	713	Inês Lucas Alves	LSC	765
Jose Ricardo Sousa	LSXXI	709	Joana Cunha Sousa	FOCA	737
<u>Andre Gonçalo Santos</u>	LSC	659	Catarina Alexandra Jardim	GDNF	695
Vítor João Pereira	LSC	607	Ana Beatriz Meireles	ADF	686
Jorge Miguel Nunes	FCP	607	Maria Carolina Ribeiro	FCP	672
Pedro Manuel Silva	GCST	591	Ana Beatriz Pereira	FOCA	636
Andre Manuel Costa	CNMAIA	580	Mafalda Ho Santos	LSC	636
<u>Joao Miguel Ascensão</u>	FCP	576	Ines Conceição Ferraz	LSC	626
Tiago Miranda Silva	GDNF	546	Patrícia Goncalves Cardoso	FCP	624
Luis Carlos Oliveira	CPN	531	Ana Silva Costa	GDNF	614
Filipe Manuel Ferreira	FCP	527	Beatriz Neves Cardoso	CLAMAS	600
Ricardo David Silva	FOCA	527	Catarina Sofia Neto	GESP	600
Flávio Dias Silva	GDNF	520	Francisca Santos Pereira	FCP	600
Eduardo Salgado Ramos	FCP	520	Beatriz Pereira Vasconcelos	CFV	590
Joao Filipe Fernandes	CFV	519	Ana Margarida Santos	FCP	588
Jorge Filipe Matos	GESP	519	Beatriz Santos Lourenço	FCP	551
Artur Miguel Marques	LSC	510	Margarida Mendes Fernandes	VSC	536
Marco Andre Fernandes	GESP	510	Ana Rita Correia	LSXXI	530



André Gonçalo Santos de ouro no Luxemburgo



André Gonçalo Santos foi a principal figura dos nadadores nortenhos no Euro Meet, que se realizou no Luxemburgo entre sexta-feira e domingo. O nadador do Leixões, em representação da Seleção Nacional, conquistou a medalha de ouro de juniores nos 200m bruços com o registo de 2.20,40.

Além do leixonense, estiveram presentes os nortenhos Ana Catarina Monteiro (Fluvial Vilacondense), Diana Durães (FC Porto), Ana Beatriz Martins e Luís Vaz (Famalicão), Tomás Silva e João Ascensão (FC Porto).

[Resultados completos](#)

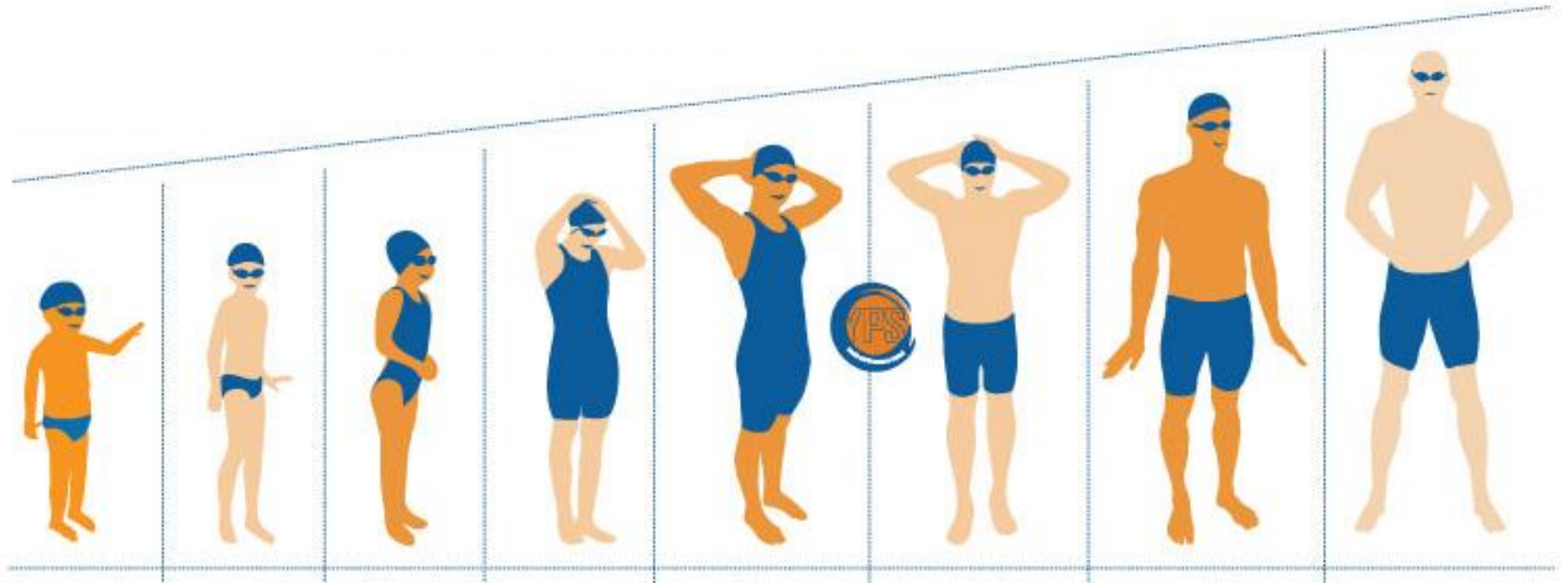
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Percentage of medalists in the Nationals of youth (13-14yrs) and Junior and Senior

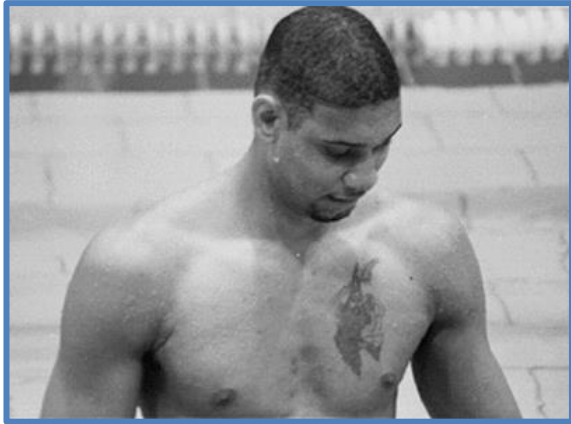
Infantis		Júnior 2º ano		Sénior 2º ano	
Época	Número	Número	%	Número	%
2002/2003	35	15	43	4	11
Rapazes	17	8	47	2	12
Raparigas	18	7	39	2	11
2003/2004	33	10	30	3	9
Rapazes	13	8	62	2	15
Raparigas	20	2	10	1	5
2004/2005	33	13	39	5	15
Rapazes	16	6	38	2	13
Raparigas	17	7	41	3	18
2005/2006	35	11	31	3	9
Rapazes	15	5	33	1	7
Raparigas	20	6	30	2	10
2006/2007	35	13	37	1	3
Rapazes	20	4	20	1	5
Raparigas	15	9	60	0	0
Média Total	34.2 ± 1.10	36.2 ± 5.3 %		9.4 ± 4.5 %	
Rapazes	16.2 ± 2.6	40.0 ± 15.5 %		10.3 ± 4.3 %	
Raparigas	18.0 ± 2.1	36.0 ± 18.2 %		8.8 ± 6.8 %	

Percentage of participation in the Nationals of youth (13-14yrs) and Junior and Senior

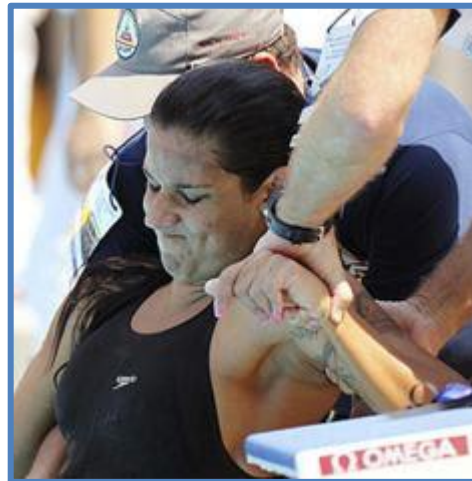
Infantis		Júnior 2º ano		Sénior 2º ano	
Época	Número	Número	%	Número	%
2002/2003	35	24	69	10	29
Rapazes	17	11	65	7	42
Raparigas	18	13	72	3	16,6
2003/2004	33	18	55	6	18
Rapazes	13	10	77	5	39
Raparigas	20	8	40	1	5
2004/2005	33	23	70	11	33
Rapazes	16	10	63	3	19
Raparigas	17	13	76	8	47
2005/2006	35	21	60	7	20
Rapazes	15	10	67	2	13
Raparigas	20	11	55	5	25
2006/2007	35	20	57	7	20
Rapazes	20	8	49	4	20
Raparigas	15	12	80	3	20
Média Total	34.2 ± 1.10	62.0 ± 6.8 %		24.0 ± 6.6 %	
Rapazes	16.2 ± 2.6	64.0 ± 10.0 %		26.5 ± 12.7 %	
Raparigas	18.0 ± 2.1	64.6 ± 16.7 %		22.7 ± 15.4 %	



So... Why the majority of swimmers who reach the top group at young ages do not remain within in the top range as adults?



Sports option



Injuries

But also...



Studies

Lack of...

CARREER PLAN

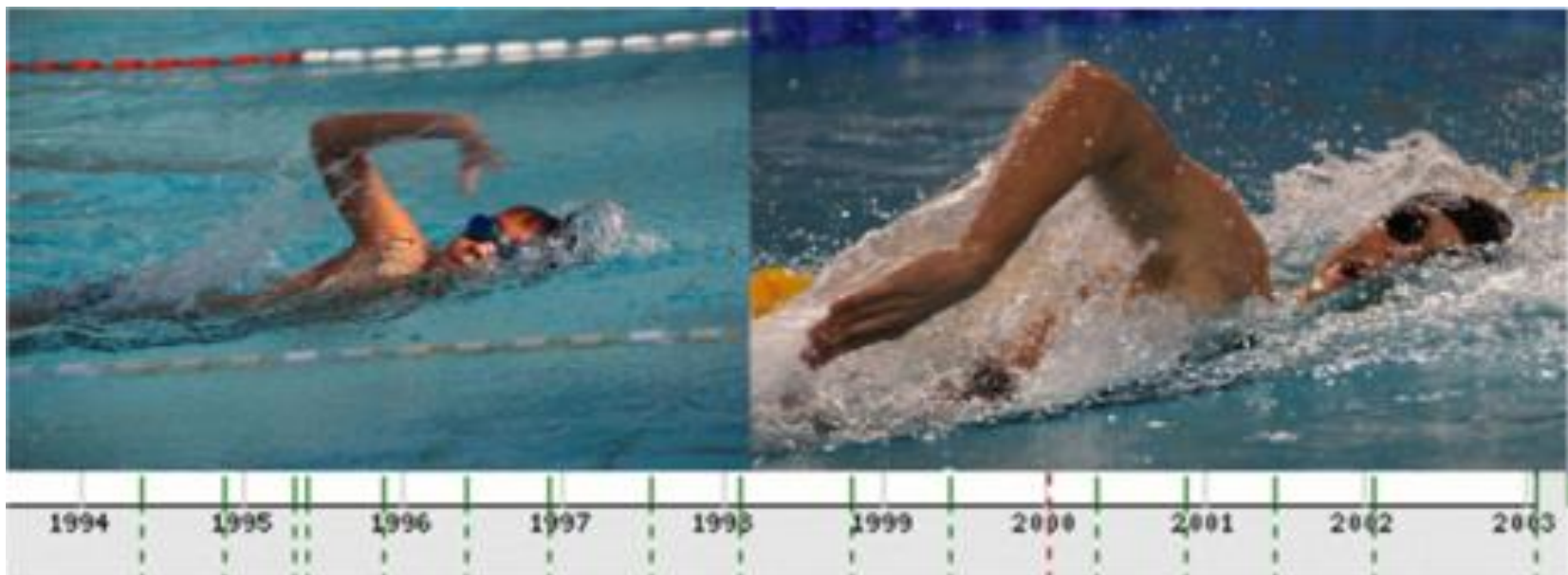
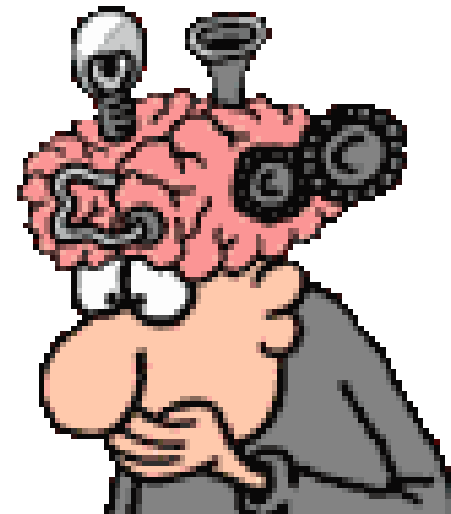
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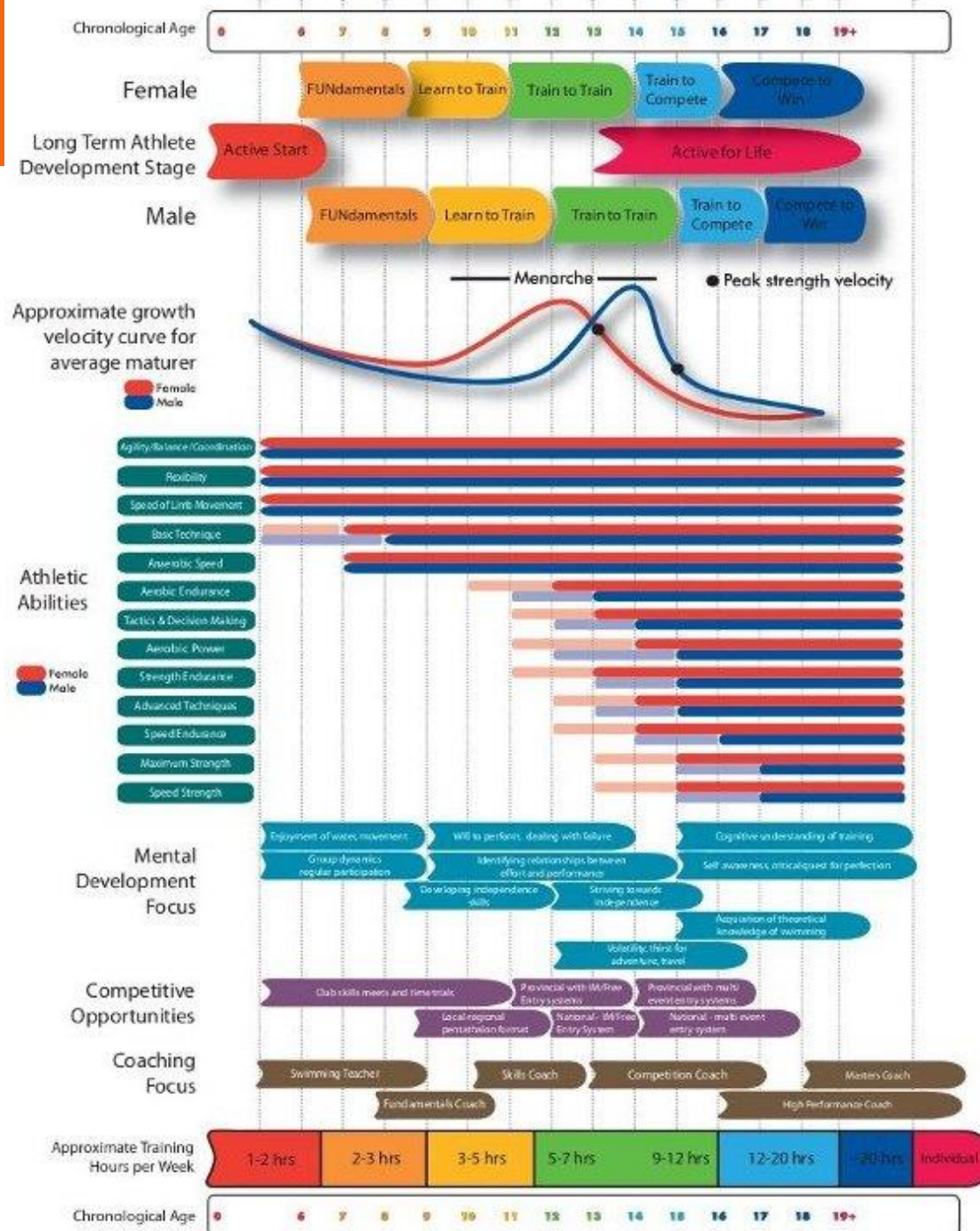
LONG TERM ATHLETE
DEVELOPMENT (LTAD)

Importance of a LTAD model:

- ❑ Ensuring adequate **preparation** for the physical, technical, and psychological abilities of the swimmer, taking into account their **maturation state** and **individual characteristics**;
- ❑ Facilitating **sustained development** to ensure a **long and rewarding career**;
- ❑ **Standardizing terminologies** to be implemented within the sport for the common good.

How to implement a LTAD model and increase the longevity of our swimmers' careers?





MULTI-YEAR AGE-GROUP SWIMMER DEVELOPMENT MODEL

Age	8 ± 1 year		10 ± 2 years		Girls 12 / Boys 13 ± 1 year		14 ± 2 years									
Training Period	2 years		2 years		2 - 3 years		3 - 5 years									
Training Time Per Week	Pool 2-4 Sessions 40 min - 1 hr	Land 1-2 Sessions 15-25 min	Pool 3-5 Sessions 1 - 1 1/4 hr	Land 2 Sessions 20-30 min	Pool 4-6 Sessions 1 1/4 - 1 1/2 hr	Land 2-3 Sessions 30-45 min	Pool 6-10 Sessions 1 1/2 - 2 hr	Land 2-3 Sessions 45 min - 1 hr								
Volume / Session	0.75 - 2 Km.		2 - 3.5 Km.		3.5 - 6 Km.*		4 - 8 Km.*									
Yearly Training Volume (Pool)	24 - 30 Weeks 75 - 250 Km.		30 - 36 Weeks 250 - 500 Km.		36 - 44 Weeks 500 - 1000 Kms.		40 - 46 Weeks 1000 - 2500 Kms.									
Training Objectives	* Technique all strokes * Racing Skills starts, turns, pace * Aerobic Endurance * Sculling Drills * Speed at 25-50m * Simple Training Sets and Games		* Flexibility * General Body Strength * Movement Co-ordination * Group Activities		* Technique * Racing Skills * Aerobic Endurance * Speed (< 50m) & Acceleration * Greater mix of Training Methods		* Increase Strength to Body Weight Ratio * Even Development of all muscle groups * Flexibility * Improve 'core' body strength		* Technique * Increased Volume * Racing Skills * Speed (< 50m) & Acceleration * Introduce some Intense Interval Training		* Musculo-Skeletal Assessment * Body Weight Exercises & Simple Gym Equipment * Flexibility & Body Strength		* Increase Volume and Intensity of Training * Integrated Training Model * Begin to Specialise * Perfect Technique & Skills		* Periodise Strength Program * Transfer Power into Swimming Performance * Cross Training Activities * Maintain Flexibility	
Motor Learning Objectives	1. Develop a feel for the water, the ability to make corrections in movement patterns. 2. Learn the technical skills of all four strokes. 3. Develop general body co-ordination and strength. 4. Learn good habits for maintaining and improving natural flexibility. 5. Learn to maintain correct technique on longer (submaximal) swims. 6. Learn to maintain correct technique on short sprints.		1. Improve stroke technique and learn race skills (such as turns, starts, pacing, and acceleration). 2. Consolidate stroke development. 3. Improve conditioning components of endurance and speed while maintaining stroke technique. 4. Develop simple race strategy and tactics.		1. Maintain efficient technique as body proportions change. 2. Accommodate increases in muscle strength to improve swimming efficiency. 3. Retain diversity of performance goals (compete in various stroke events and distances). 4. Improve both steady pace and sprint performance using ideal stroke technique (all strokes).		1. Adapt to diverse training methods. 2. Refine stroke technique during all speeds & intensity of swimming. 3. Apply strength and power to swimming performance. 4. Specialise in strokes and competition distances. 5. Retain range of motion and muscular co-ordination at all swimming speeds. 6. Refine race skills (starts & turns, tactics, pace, etc.). 7. Learn to taper for peak performance.									

[* During some developmental stages the 'average' girl may be capable of handling a greater volume of training than the 'average' boy, due to an advanced rate of maturation.]

	FUNDAMENTAL	SWIMSKILLS	TRAINING TO TRAIN	TRAINING TO COMPETE	TRAINING TO WIN
Chronological / Biological Age	Chronological/Biological Age: Male 6-9 years Female 5-8 years	Biological Age: Male 9-12 years Female 8-11 years	Biological Age: Male 12-15 years Female 11-14 years	Chronological Age: Male 15-18 years Female 14-16 years	Chronological Age: Male 18+ years Female 16+ years
Development Phases	Movement Literacy	Skill Development	Skill / Aerobic Development	Competitive / Physical Development	Specialisation and Performance Development
Progression	• FUN and participation. • General, overall development. • ABCS: Agility, Balance, Co-ordination and Speed. • RJTs: Running, Jumping and Throwing. • KGBs: Kinesthetics, Gliding, Buoyancy and Striking. • CKS: Catching, Kicking and Striking. • Speed power and endurance through FUN and games. • Introduction to simple rules and ethics of sport.	• Peak motor development. • Shoulder, elbow, core, spine and ankle stability. • Participation in complementary sports (similar energy system and movement patterns). • FUNDamental technical skills progressively more specific skills towards the end of the stage. • Medicine ball, Swiss ball and own body exercises for strength. • FUNDamentals of ancillary capacities (knowledge and experience).	• Emphasis on aerobic conditioning. • 2nd Speed window • Individualisation of fitness and technical training. • Shoulder, elbow, core, spine and ankle stability. • Participation in complementary sports (similar energy system and movement patterns). • Refinement of specific technical skills • FUNDamentals of tactical preparation. • Introduction to mental preparation. • Moral learning.	• Sport and individual specific physical conditioning. • Shoulder, elbow, core, spine and ankle stability. • Basic tactical preparation. • Individualisation of technical/tactical skills. • Basic mental preparation. • Sport and individual specific "ancillary capacities" (knowledge and experience).	• Improvement of physical capacities. • Shoulder, elbow, core, spine and ankle stability. • Modelling all possible aspects of training and performance. • Frequent prophylactic breaks. • Advanced tactical preparation • Advanced mental preparation • All aspects of training individualised. • Develop further "ancillary capacities" (knowledge and experience - there is no "ceiling limit").
Growth and Development Considerations	Emphasis on development of skills. 1st Speed (agility/quickness) Window (PSpV1): girls 6-8 yrs, boys 7-9 yrs.	Peak motor co-ordination (PMCV), emphasis on skill development before age 11 yrs for girls, age 12 yrs for boys.	Growth spurt (PHV), emphasis on aerobic development; girls 12-13 yrs, boys 13-15 yrs. 2nd Speed (alactic) Window (PSpV2): girls 12-13 yrs, boys 13-15 yrs 1st Strength Window (PSV): girls at end of PHV	Peak Strength development (PSV), emphasis on strength development; girls 2nd strength window at onset of menarche, boys 12-18 months after PHV	Development of stamina, strength, speed, skill and suppleness.
Swimming Specific Skills	Development of all 4 strokes	Improvement of all 4 strokes Sculling and "feel for water" Development of Starts & Turns	Development of aerobic base, plus all 4 strokes (200m IM).	Start to compete in a wider range of events based on strokes or distance, but not both.	Specialise in an event(s).
Periodisation	No periodisation, but well structured programmes with proper progression.	Single Periodisation (1 x 48 weeks)	Single or Double Periodisation. Double (2 x 24 week macro-cycles)	Double or Triple Periodisation. Double (2 x 24 week macro-cycles) Triple (3 x 15 week macro-cycles)	Double, Triple or Multiple Periodisation. Double (distance) Triple (middle distance) Multiple (sprinters)
Session Numbers	General sport participation 5-8 times per week. This should include land work and multi sport activity.	Sport specific training 4-6 times per week, plus participation in other sports.	Sport specific training 8-12 times per week including land work.	Sport specific technical, tactical and fitness training 8-12 times per week, including land work.	Sport specific technical, tactical and fitness training 10-15 times per week, including land work.
Session Length	30-45 minutes	60-90 minutes	2 hours	2 hours	2+ hours
Training Hours	Sessional.	4-7 hours per week in water; 1-2 hours per week land work.	12-24 hours per week in water; 2-3 hours per week land work.	16-24 hours per week in water; 3-4 hours per week land work.	20-24 hours per week in water; 3-6 hours per week land work.
Training Volume	Skill acquisition	8,000m – 16,000m/week	At beginning of Training to Train: 24,000m – 32,000m/week. Working towards breakpoint volumes (2,100–2,500+ km/year or 44km–52+ km/week over 48 weeks) at maturation (13/14/15 years).		Depends on specialisms, but breakpoint volume maintained. Distance swimmers cover more.

	FUNDAMENTAL	SWIMSKILLS	TRAINING TO TRAIN	TRAINING TO COMPETE	TRAINING TO WIN
Number of Competitions		75% training to 25% competition ratio	As a swimmer moves towards breakpoint volumes, the number of competitions is likely to reduce significantly towards a maximum of 12 per year. (A competition is defined as an event that requires alteration or modification to a swimmers training programme. All events that include a taper or rest from training should have clear performance targets set by the coach.)	Maximum of 12 competitions per year. (A competition is defined as an event that requires alteration or modification to a swimmers training programme. All events that include a taper or rest from training should have clear performance targets set by the coach.)	Maximum of 12 competitions per year but depends on specialisms. (A competition is defined as an event that requires alteration or modification to a swimmers training programme. All events that include a taper or rest from training should have clear performance targets set by the coach.)
Competition profiles			Sequence of 3 competitions below current level, 2 competitions at current level, 1 competition above current level.	2 x (3 competitions below current level, 2 competitions at current level, 1 competition above current level)	2 x (3 competitions below current level, 2 competitions at current level, 1 competition above current level)
Competition Targets			Full Training: Heat - 3% of PB/Goal time Semi Final - 2% of PB/Goal time Final - 1% of PB/Goal time Tapered: Heat - 2% of PB Semi Final - 1% of PB Final - 1% of PB	Full Training: Heat - 3% of PB/Goal time Semi Final - 2% of PB/Goal time Final - 1% of PB/Goal time Tapered: Heat - 2% of PB Semi Final - 1% of PB Final - 1% of PB	Full Training: Heat - 3% of PB/Goal time Semi Final - 2% of PB/Goal time Final - 1% of PB/Goal time Tapered: Heat - 2% of PB Semi Final - 1% of PB Final - 1% of PB Between Trials and Major International Championships, 1-2% improvement.
Competition Events	25m all strokes; 4/8/16 x 25m relays all strokes. Active Sport Festival events or based on skills for Active Sport Local Development Camps.	BAGcat events	BAGcat events at lower end of Training to Train moving towards: 100/200m BF, BK, BR; 200/400m IM; 100/200/400/800/1500m FS; 4 x 100m FS & Medley relays.	100/200m BF, BK, BR; 200/400m IM; 50/100/200/400/800/1500m FS; 4 x 100m FS & Medley relays; 4 x 200m FS relay.	100/200m BF, BK, BR; 200/400m IM; 50/100/200/400/800/1500m FS; 4 x 100m FS & Medley relays; 4 x 200m FS relay.
Competition Types	Club championships Intra club competitions. Local/mini leagues.	Club Championships Speedo Leagues Open meets (Local/County) County Championships (Age-group)	Open meets (District/National) County Championships (Junior, Senior). District Championships (Age-group)	District Championships (Youth, Senior). National Championships (Age group, Youth).	National Championships (Senior). International Championships (Youth, Senior).
Swim 21	Teaching	Skill Development	Competitive Development	Competitive Development	Performance
Coach Education	Level 1	Level 2	Level 3	Level 4	Level 5
ASA / British Swimming Programmes	National Teaching Plan ASA Awards Active Sport (Stage1)	Active Sport (Stages 2, 3 & 4).	Active Sport Talent Camps World Class Start - 200 IM World Class Start - Age group	District Camps - Age group World Class Potential - Age group World Class Potential - Youth	World Class Performance



	CADETES		INFANTIS		JUVENIS		JUNIORES		SENIORES		
	B	A	B	A	B	A	1º ANO	2º ANO	Velocistas	1/2 Fundist.	Fundistas
Kms / Época	240	400	735	1058	1267	1540	2024	2484	2277	2668	2990
Sessões / Época	120	160	210	252	264	308	368	414	414	460	460
Semanas / Época	40	40	42	42	44	44	46	46	46	46	46
Sessões / Semana	3	4	5	5,5	6	7	8	9	9	10	10
Média Kms / Semana	6	10	17,5	23,1	28,8	35	44	54	49,5	60	65
Média Kms / Sessão	2	2,5	3,5	4,2	4,8	5	5,5	6	5,5	6	6,5
AR (% anual)	10	10	10	10	10	10	15	15	15	15	15
AR (Kms/semana)	0,6	1,0	1,8	2,3	2,9	3,5	6,6	8,1	7,4	9,0	9,8
TT (% anual)	50	40	30	30	25	21	18,5	17,5	18,5	10	10
TT Kms/semana)	3,0	4,0	5,3	6,9	7,2	7,4	8,1	9,5	9,2	6,0	6,5
A1 (% anual)	35	31	34	32	33,5	37,5	36,5	41	48,5	49,5	50,5
A1 (Kms/semana)	2,1	3,1	6,0	7,4	9,6	13,1	16,1	22,1	24,0	29,7	32,8
A2 (% anual)	0	10	15	15	15	15	13	11	4	8	10
A2 (Kms/semana)	0,0	1,0	2,6	3,5	4,3	5,3	5,7	5,9	2,0	4,8	6,5
PA (% anual)		5	8	8	8	8	8	7	3	7	6
PA (Kms/semana)	0,0	0,5	1,4	1,8	2,3	2,8	3,5	3,8	1,5	4,2	3,9
PTL (% anual)	0	0	0	2	3	3	3,5	3	4	4	2
PTL (Kms/semana)	0,0	0,0	0,0	0,5	0,9	1,1	1,5	2,0	2,0	2,4	1,3
T. ESPEC. (% anual)	0	0	0	0	3	3	3	3	4	4,5	5
T. ESPE(Kms/semana)	0,0	0,0	0,0	0,0	0,9	1,1	1,3	1,6	2,0	2,7	3,3
V (% anual)	5	4	3	3	2,5	2,5	2,5	2,5	3	2	1,5
V (Kms/semana)	0,3	0,4	0,5	0,7	0,7	0,9	1,1	1,4	1,5	1,2	1,0

	INFANTIS	JUVENIS	JUNIORES	SENIORES
TAREFAS TIPO				
A1	1. 1500-2000 L 80% (FC=140-150) 2. 1500-2000 mudar téc. 50m 80% (FC=140-150) 3. 10x200 L 70% I=20" (FC=140-150)	1. 2000-3000 L 80% (FC=130-145) 2. 2000-2500 mudar téc. 50m 80% (FC=130-145) 3. 15x200 L 70% I=15" (FC=135-145)	1. 2500-3000 L 80% (FC=130-145) 2. 2500-3000 mudar téc. 100m 80% (FC=130-145) 3. 10x400 L 75% I=30" (FC=135-145)	1. 3000-4000 L 80% (FC=130-145) 2. 5x1000 75% I=1' (FC=130-145) 3. 8-12x400 L 75% I=30" (FC=135-145) 4. 1/2x(20x100 L 65% I=10" (FC=135-145)
A2	1. 1200-1500 L 100% (FC=160-170) 2. 3-4x400 L 85% I=1'(FC=160-170) 3. 2x(10x100 L 75% I=15") I=3' (FC=170-185)	1. 2000-3000 L 100% (FC=150-165) 2. 4-6x400 L 85% I=1'(FC=150-165) 3. 2x(15x100 L 75% I=15") I=3' (FC=150-165)	1. 2500-3500 L 100% (FC=150-165) 2. 5-7x400 L 85% I=1'(FC=150-165) 3. 2-3x(15x100 L 75% I=15") I=3' (FC=150-165)	1. 2000-5000 L 100% (FC=150-165) 2. 4-8x400 L 85% I=1'(FC=150-165) 3. 2-3x(15x100 L 75% I=15") I=3' (FC=150-165)
Pot. Aeróbia	1. 2x400 L 100% I=5'(FC>190) 2. 2x(4x100 L 90% I=30") I=4' (FC>190) 3. 2x(8x50 L 85% I=15") I=4' (FC>190)	1. 3x400 100% I=6' (FC>185) 2. 3x(4x100 90% I=30") I=4' (FC>185) 3. 3x(8x50 85% I=15") I=4' (FC>185)	1. 3x400 100% I=6' (FC>185) 2. 3x(5x100 90% I=30") I=4' (FC>185) 3. 3x(10x50 85% I=15") I=4' (FC>185)	1. 2-3x400 100% I=6' (FC>185) 2. 2-4x(3x200 90% I=40") I=5' (FC>185) 2. 2-4x(5x100 90% I=30") I=4' (FC>185) 3. 2-4x(10x50 85% I=15") I=4' (FC>185)
Tol. Láctica (T. Interv.)	1. 4x50 >90% I=30" (FC=max)	1. 10x50 >90% I=30" (FC=max) 2. 5x100 >90% I=45" (FC=max)	1. 2-3x(10x50 >90% I=40") I=5' (rec. act.) (FC=max) 2. 2-3x(5x100 >90% I=1') I=5-6' (rec. act.) (FC=max)	1. 2-4x(10x50 >90% I=40") I=5' (rec. act.) (FC=max) 2. 2-4x(5x100 >90% I=1') I=5-6' (rec. act.) (FC=max)
Pot. Láctica	1. 3x50 >95% I=4' 2. 2x75 >95% I=5-6'	1. 4x50 >95% I=4' 2. 3x75 >95% I=5-6'	1. 6x50 >95% I=4' 2. 4x75 >95% I=5-6'	1. 1-2x(5x50 >95% I=4') I=8' (rec. act.) 2. 1-2x(3x75 >95% I=5-6') I=8' (rec. act.)
Velocidade	1. 6 sp 15 Estilos I=2' 2. 4 sp 25 Estilos I=3' 3. 6x(10 sp+vir+15sp) Estilos I=2'	1. 8 sp 15 Estilos I=2' 2. 6 sp 25 Estilos I=3' 3. 8x(10 sp+vir+15sp) Estilos I=2'	1. 12 sp 15 I=2' 2. 8 sp 25 I=3' 3. 12x(10 sp+vir+15sp) I=2'	1. 8-16 sp 15 I=2' 2. 6-12 sp 25 I=3' 3. 8-16x(10 sp+vir+15sp) I=2'

Rama, L., Alves, F. (2006). Modelo de formação desportiva em natação pura. In: MJ Coelho e Silva, CE Gonçalves, A Figueiredo (Coord.), *Desporto de Jovens ou Jovens no Desporto?* (pp. 37-86). Coimbra: Faculdade de Ciências do Desporto e Educação Física da Universidade de Coimbra, Instituto do Desporto de Portugal.

Rama, L., Alves, F. (2007). Acompanhamento de jovens talentos em natação pura desportiva. *Boletim SPEF*, 32, 43-64.



Operating Model

1st stage – **“LEARN TO DO”** – *Cadetes* (male < 12; female < 11)

2nd stage – **“UNDERSTANDING BY DOING”** – *Infantis* (male 13-14; female 12-13)

3rd stage – **“TRAIN TO DO”** – *Juvenis* (male 15-16; female 14-15)

4th stage – **“DO TO COMPETE”** – *Juniores* (male 17-18; female 16-17)

5th stage – **“DO TO WIN”** – *Seniores* (male > 19; female > 18)

Technical Training

Physical Training

Psychological Training

Tactical Training

Regenerative Training

Competitive Training

Evaluation and Control of Training

Coach Training

	"Learn to do"	"Understand by doing"	"Train to do"	"Do to compete"	"Do to win"
	Cadetes (Male < 12 ; Female < 11)	Infantis (Male 13-14; Female 12-13)	Juvenis (Male 15-16; Female 14-15)	Juniores (Male 17-18; Female 16-17)	Seniores (Male > 19; Female > 18)
Technical Training					
Context	Perform all 4 strokes, fundamental hydrodynamic position, starts and turns	Improvement of all 4 strokes, starts and turns, underwater course, lower body work	Include individualized stroke	Stroke adjusted to the swimmer's race and specialization	Stroke adjusted to the swimmer's race and specialization
Intervention	Playful drills; specific training for lower body action; relays; other water activities	Contrast and exaggeration drills; scullings; set a specific stroke count for every 25 m; specific training for lower body action; underwater courses with a minimum of 5 m after turns	Use kinematic swimming indicators (stroke frequency, stroke length and swimming index); underwater courses with a minimum of 7.5 m after turns	Enhance stroke frequency or stroke length depending on the specialization and characteristics of the swimmers	Enhance stroke frequency or stroke length depending on the specialization and characteristics of the swimmers
Backing	Audiovisual and image analysis with reference models	Audiovisual and image analysis with reference models; evaluation/prescription and correction of technical errors	Audiovisual; use of software to overlay images of the reference model and the swimmer	Audiovisual (kinetic analysis of starts and turns using a force plate; hydrodynamic analysis); fluctuation speed (butterfly and breaststroke)	Individual analysis according to the swimmer's profile and objectives. Audiovisual (kinetic analysis of starts and turns in sprinters using a force platform; hydrodynamic analysis); fluctuation speed (butterfly and breaststroke). Tethered swimming to detect asymmetries in crawl and backstroke

Physical Training (Pool)					
Context	Introduction of aerobic bases with technical training and speed	Obtaining aerobic bases (A1, A2, A3) and speed (2nd window of opportunity)	Differentiation of energy regimes (A1, A2, A3, TL, PL, V)	Volume and intensity by specialty (sprint vs long distance vs swimming technique)	Volume and intensity by specialty (sprint vs long distance vs swimming technique)
Intervention	Weeks/year: 40 Session/week: 3-4 Duration: 60-90min; Volume: 2000/2500m Single Periodisation, following the school period.	Weeks/year: 42 Session/week: 5-6 Duration: 90-120min; Volume: 3500/4200m Single or Double Periodisation	Weeks/year: 44 Session/week: 6-7 Duration: 90-150min; Volume: 4800/5500m Double or Triple Periodisation	Weeks/year: 46 Session/week: 8-9 Duration: 90-150min; Volume: 5500/6000m (based on the specialization) Double or Triple Periodisation	Weeks/year: 46 Session/week: 9-10 Duration: 90-150min; Volume: 5500/6000m (based on the specialization) Periodisation based on the needs of the season and the swimmer's specialization
Backing		Aerobic critical velocity to define training zones	Aerobic critical velocity to define training zones	VO2 monitoring; use of lactatemia; energy cost; anaerobic power prediction; tethered swimming.	Individual and customized analysis according to the swimmer's profile and objectives. VO2 monitoring; use of lactatemia; energy cost; anaerobic power prediction; tethered swimming.

Physical Training (Land)

Context	Stability and flexibility of the various anatomical regions	Stability across different anatomical regions; strength training (1st strength window - girls)	Hypertrophic strenght and power training (1st window - boys, 2nd window - girls)	Strength training according to specialization and distance	Strength training according to specialization and distance
Intervention	2h per week Complementary games and body weight exercises	2-4h per week Elastic resistance, body weight training, medicine ball, free weights	3-4h per week Elastic and isokinetic resistance, body weight, free and fixed weight training	3-4h per week Elastic and isokinetic resistance, body weight, free and fixed weight training	3-4h per week Elastic and isokinetic resistance, body weight, free and fixed weight training
Backing	Assessment of overall physical fitness (fitnessgram tests)	Assessment of overall physical fitness (fitnessgram tests)	Recording the muscular power of the lower limbs (CMJ, SJ, horizontal jump) and upper limbs (medicine ball throw); flexibility tests	Evaluation of dryland muscular power (upper and lower limbs); assessment of shoulder rotator balance and muscle fatigue; flexibility assessment	Individual assessment based on the swimmer's profile and goals

Psychological Training					
Context	Peak motor coordination Fun Swimming	Assessing outcomes based on puberty (prepubescent vs postpubescent) Growth spurt	Assessing outcomes based on puberty (prepubescent vs postpubescent)	Envisioning the result Career commitment	Envisioning the result Career commitment
Intervention	Task orientation "Playful exercises"	Task orientation Pubertal feedback	Task orientation Pubertal feedback	Inclusion in a national high-performance center	Inclusion in a national/international high-performance center
Backing		Assessment of motivational profile	Goal assessment Assessment of motivational profile	Goal assessment Assessment of motivational profile Assessment of competition profile	Individual analysis and support based on the swimmer's profile and needs

Tactical Training

Context		Race effort management. Sense of pace.		In accordance with specialization and individual characteristics	In accordance with specialization and individual characteristics, and the opponent
Intervention		Propose tasks with different intensities (progressive, regressive, negative split, constant speed) in association with the swimming stroke (count the number of strokes, underwater course after start and turns).	Propose tasks with different intensities (progressive, regressive, negative split, constant speed) in association with the swimming stroke (count the number of strokes, underwater course after start and turns). Emphasize the distance covered in underwater swimming. Sense of stroke rate.	Train the race splits, starting, turn, swim and finish time; Stroke rate.	Train the race splits, starting, turn, swim and finish time; Stroke rate.
Backing		Set the time for the splits of the task; Count the number of strokes; set the distance for the underwater course (minimum 5 m) after the starts and turns.	Set the time for the splits of the task; Count the number of strokes; set the distance for the underwater course (count of leg stroke) after the starts and turns.	Stopwatch and analysis software (race analyser)	Individual analysis and support based on the swimmer's profile and needs. Stopwatch and analysis software (race analysis, swim watch...)

Regenerative Training					
Context	Create healthy lifestyle habits	Create healthy lifestyle habits	Set feeding, warm-up and recovery routines.	Control overtraining. Optimize recovery.	Control overtraining. Optimize recovery. Optimize performance.
Intervention	Sleep: 10-11h; Food (basics concepts); Organization of the schedule (school, training and other activities)	Sleep: 9-10h; Food (basics concepts); Organization of the schedule (school, training competitions and other activities)	Sleep: 8-10h; Diet (principles and nutritional needs). Muscle compensation exercises. Warm-up and recovery tasks.	Sleep: 7-9h; Diet (principles and nutritional needs). Muscle compensation exercises. Warm-up, recovery and muscle regeneration tasks.	Sleep: 7-9h, power nap 20-45 min; Diet (individual specificities. Muscle compensation exercises. Warm-up, recovery and muscle regeneration tasks. Individualized support based on each swimmer's needs.
Backing	Educational lectures	Educational lectures	Support from a nutritionist and physiotherapist. Development of work routines and training habits.	Multidisciplinary team support	Individual analysis and support based on the swimmer's profile and needs. Multidisciplinary team support

Competitive Training					
Context	75% training to 25% competition ratio.	A maximum of 12 competition per year.	A maximum of 12 competitions per year, including international (Youth) events, and emphasizing participation in international meetings in Portugal.	Defining competitions based on the competitive calendar, emphasizing international experience with events featuring heats and finals.	Defining competitions based on the competitive calendar and the specificity of each swimmer.
Intervention	Combined races; Relay races - emphasizing the medley relay (each swimmer swims a different stroke).	100/200 m (Butterfly, Breaststroke, Backstroke); 200/400 m Medley; 100/200/400/800/1500 m Freestyle; Relay races.	Events from the olympic calendar, including the 50 m races (as long as they have CAT at 100 and 200 m in the same stroke.	All events stipulated in the swimming regulations based on the swimmers's specialties.	Participation based on an individual and customized analysis according to the swimmer's profile and objectives
Backing	Aggregate scoring.	To value races in which the scoring is determined based on the aggregate of different events (different strokes and different distances). National Championships Middle-distance Tournament "Nadador Completo" Tournament.	Normative tables; Annual performance progression (%); National rankings.	Normative tables; Annual performance progression (%); National/international rankings.	Normative tables; Annual performance progression (%); National/international rankings.

Evaluation and Control of Training					
Context	Technique assessment.	Technique assessment. Anthropometric assessment. Aerobic critical velocity assessment.	Technique assessment. Anthropometric assessment. Aerobic critical velocity assessment. Functional profile assessment. Motivational profile assessment.	Evaluation of the different components of sporting performance, focusing on the different swimming specialties.	Individual and customized analysis according to the swimmer's profile and objectives.
Intervention	Technical analysis and evaluation and correction: - Alternating Techniques - Simultaneous Techniques - Starts and Turns. Use of normative scale and use of video images.	Technical analysis and evaluation and correction: alternating techniques, simultaneous techniques, starts and turns. Use of normative scale and use of video images. Determination of critical aerobic velocity and critical stroke frequency. Determination of anthropometric parameters (body mass, height, wingspan, predicted adult height)	Technical analysis and evaluation and correction: alternating techniques, simultaneous techniques, starts and turns. Use of normative scale and use of video images. Determination of critical aerobic velocity and critical stroke frequency. Determination of anthropometric parameters (body mass, height, wingspan, predicted adult height). Determination of the functional profile. Determination of the motivational profile.	Assessment of the different components of performance based on the swimmer's specialties.	Assessment of the different components of performance based on the swimmer's specialties and individual characteristics.
Backing	Assessment during training and during moments of concentration.	Assessment during training and during moments of concentration.	Assessment during training and during moments of concentration.	GACO/FPN, CAR Rio Maior, etc.	Evaluation in training and competition. Recovery methods and individualized training (altitude training, hypobaric chambers, cryotherapy, etc)

Coach Training					
Context	Youth coach/Assistant coach	Youth coach/Assistant coach	Youth coach/Assistant coach; High performance coach	High performance coach	High performance coach/Technical coordinator
Intervention	Level II	Level II	Level II and III	Level III	Level III and IV
Backing	Coach Training: Analysis and technical intervention. LTAD.	Coach Training: Analysis and technical intervention. Swimmer career plan. Introduction to sports training.	Coach Training: Analysis and technical intervention. Swimmer career plan. Training planning.	Coach Training: Training planning. Training methods. Land training. Training of different specialties. Evaluation and control of training.	Coach Training: Considering the needs of coaches including moments of training experience in different contexts.



Cadetes
(Male < 12; Female < 11)

- Creating aerobic bases

	"Aprender a fazer"	"Perceber a fazer"	"Treinar a fazer"	"Fazer para competir"	"Fazer para ganhar"
	Cadetes (Masc <12; Fem <11)	Infantis (Masc 13-14; Fem 12-13)	Juvenis (Masc 15-16; Fem 14-15)	Juniores (Masc 17-18; Fem 16-17)	Seniores (Masc > 19; Fem > 18)
Sessões/semana	3-4	5-6	6-7	8-9	9-10
Semanas/ano	40	42	44	46	46
Duração/sessão	60-90min	90-120min	90-150min	90-150min	90-150min
m/sessão	2000-2500	3500-4200	4800-5000	5500-6000*	5000-6200*
Km/semana	6-10	18-23	28-35	44-54*	45-62*
Horas/semana	4-6	9-12	11-17	14-23	15-25
Km/ano	240-400	735-970	1300-1500	2000-2500*	2800*

* dependendo da especialização (fundista vs velocista)

- Pre-sports games



- Flexibility training

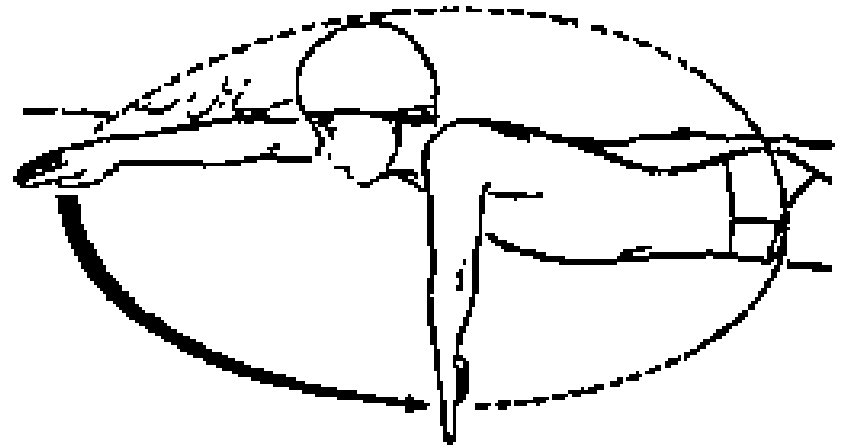


- Task orientation
- Fun Swimming



- Set a specific stroke count for every 25m





- Global image
- Playful drills

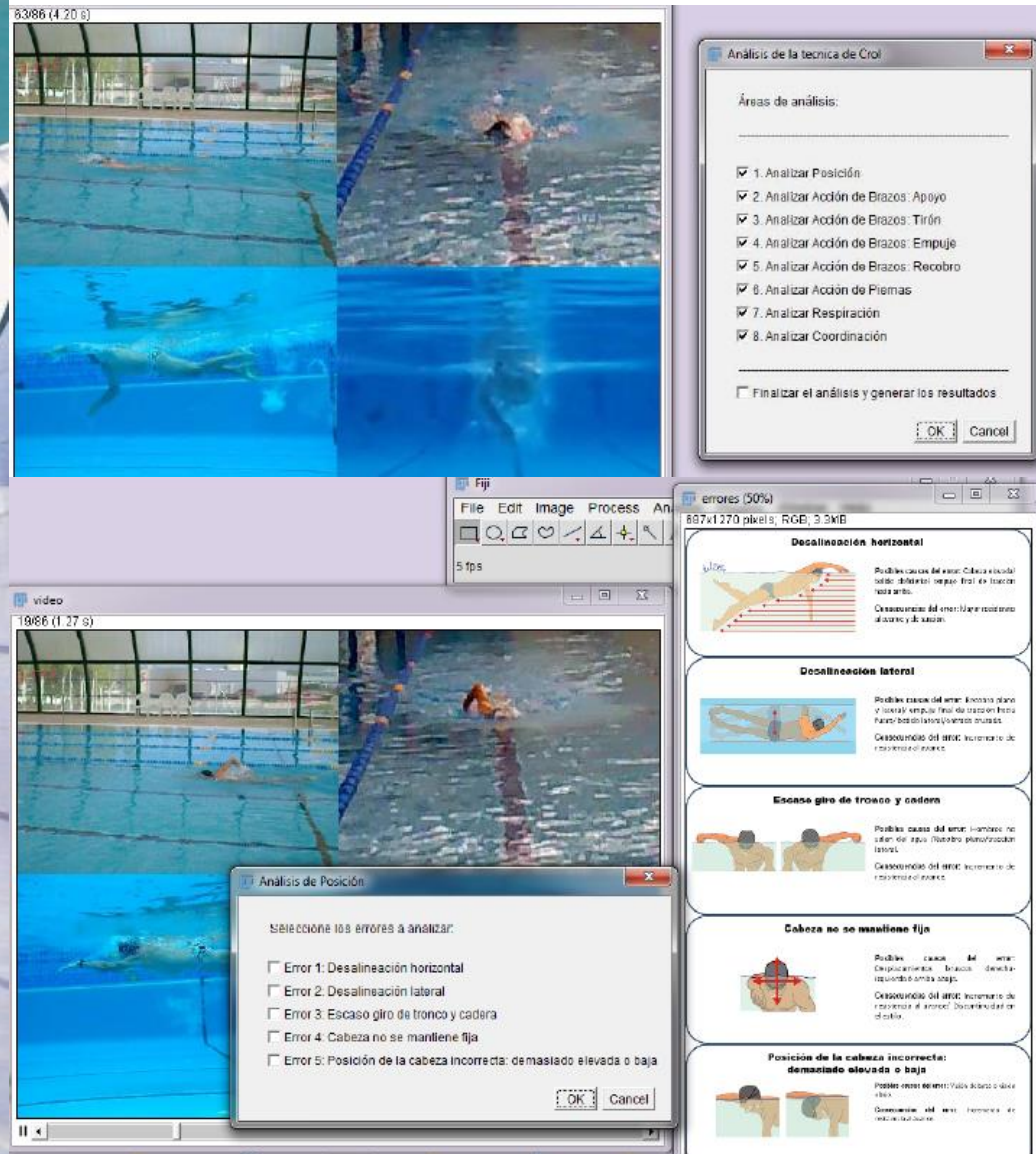




Infantis
(Male 13-14; Female 12-13)

- **Specific** image
- Contrast and exaggeration drills
- Audiovisual aids



Análisis de la técnica de Crol

Áreas de análisis:

- ☒ 1. Analizar Posición
- ☒ 2. Analizar Acción de Brazos: Apoyo
- ☒ 3. Analizar Acción de Brazos: Tirón
- ☒ 4. Analizar Acción de Brazos: Empuje
- ☒ 5. Analizar Acción de Brazos: Recobro
- ☒ 6. Analizar Acción de Piernas
- ☒ 7. Analizar Respiración
- ☒ 8. Analizar Coordinación

☐ Finalizar el análisis y generar los resultados

OK Cancel

errores (50%)
807x1270 pixels, RGB, 3.3MB

Desalineación horizontal

Posibles causas del error: Cabeza elevada o baja; diferentes apoyos; tirón en la zona alta.

Consecuencias del error: Mayor resistencia al avance y al avance.

Desalineación lateral

Posibles causas del error: Brazos planos y lateral; empuje final de tracción hacia fuera; brazos laterales; empuje hacia fuera.

Consecuencias del error: Incremento de resistencia al avance.

Escaso giro de tronco y cadera

Posibles causas del error: Tronco no sale del agua; flotador; planitud de la cadera.

Consecuencias del error: Incremento de resistencia al avance.

Cabeza no se mantiene fija

Posibles causas del error: Cabeza elevada o baja; desplazamiento; brazos; desalineación; empuje hacia fuera.

Consecuencias del error: Incremento de resistencia al avance; disminución de la velocidad.

Posición de la cabeza incorrecta: demasiado elevada o baja

Posibles causas del error: Cabeza elevada o baja; brazos; desalineación; empuje hacia fuera.

Consecuencias del error: Incremento de resistencia al avance; disminución de la velocidad.

Análisis de Posición

Seleccione los errores a analizar:

- ☐ Error 1: Desalineación horizontal
- ☐ Error 2: Desalineación lateral
- ☐ Error 3: Escaso giro de tronco y cadera
- ☐ Error 4: Cabeza no se mantiene fija
- ☐ Error 5: Posición de la cabeza incorrecta: demasiado elevada o baja

OK Cancel

- Creating aerobic bases

	"Aprender a fazer"	"Perceber a fazer"	"Treinar a fazer"	"Fazer para competir"	"Fazer para ganhar"
	Cadetes (Masc <12; Fem <11)	Infantis (Masc 13-14; Fem 12-13)	Juvenis (Masc 15-16; Fem 14-15)	Juniores (Masc 17-18; Fem 16-17)	Seniores (Masc > 19; Fem > 18)
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Semanas/ano	40	42	44	46	46
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m/sessão	2000-2500	3500-4200	4800-5000	5500-6000*	5000-6200*
Km/semana	6-10	18-23	28-35	44-54*	45-62*
Horas/semana	4-6	9-12	11-17	14-23	15-25
Km/ano	240-400	735-970	1300-1500	2000-2500*	2800*

* dependendo da especialização (fundista vs velocista)

- Body weight strenght training



- Flexibility training



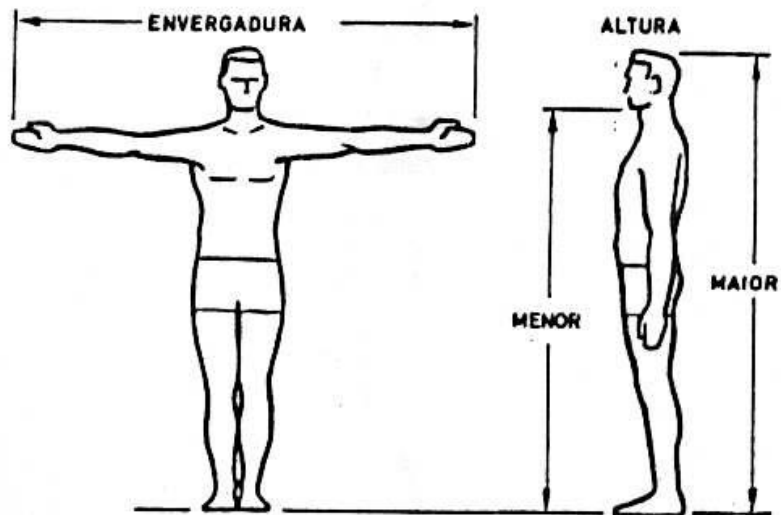
- Task orientation



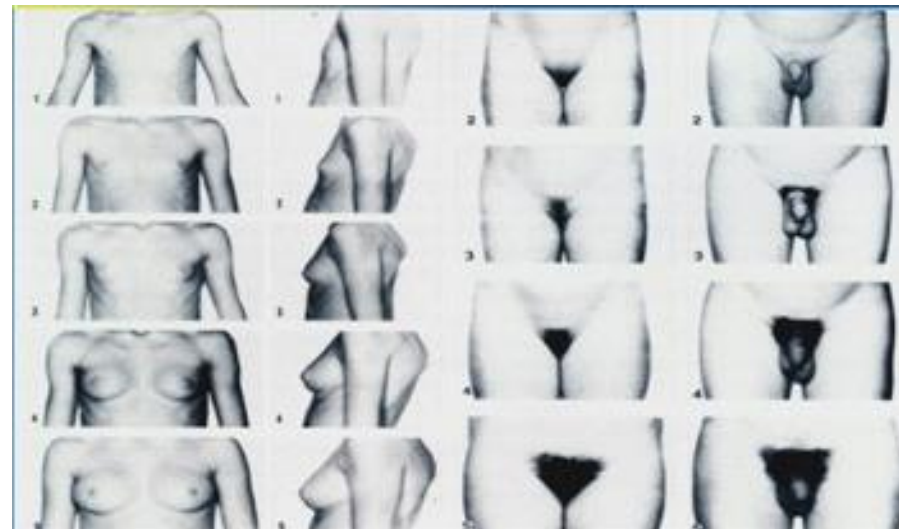
- Pubertal feedback



- Height measurement twice a year



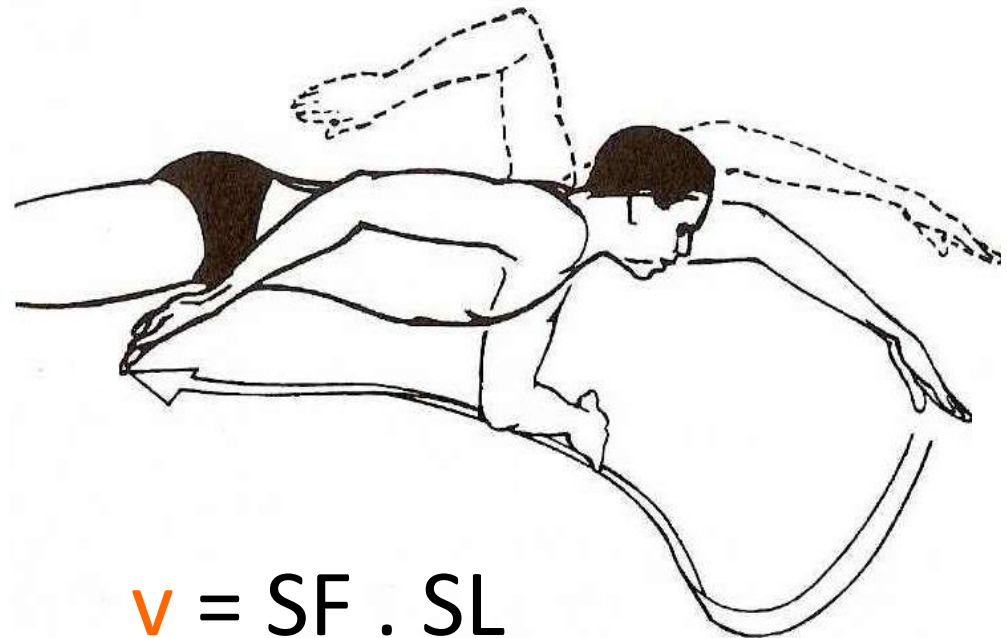
- Self-evaluation
- Parental feedback





Juvenis
(Male 15-16; Female 14-15)

- Specific image
- Development of individualized swimming technique
- Audiovisual aids



- Differentiating energy regimes

	"Aprender a fazer"	"Perceber a fazer"	"Treinar a fazer"	"Fazer para competir"	"Fazer para ganhar"
	Cadetes (Masc <12; Fem <11)	Infantis (Masc 13-14; Fem 12-13)	Juvenis (Masc 15-16; Fem 14-15)	Juniores (Masc 17-18; Fem 16-17)	Seniores (Masc > 19; Fem > 18)
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Km/semana	6-10	18-23	28-35	44-54*	45-62*
Horas/semana	4-6	9-12	11-17	14-23	15-25
Km/ano	240-400	735-970	1300-1500	2000-2500*	2800*

* dependendo da especialização (fundista vs velocista)

Velocidades referência para o Treino pela VC

Nome: Nadadora 1

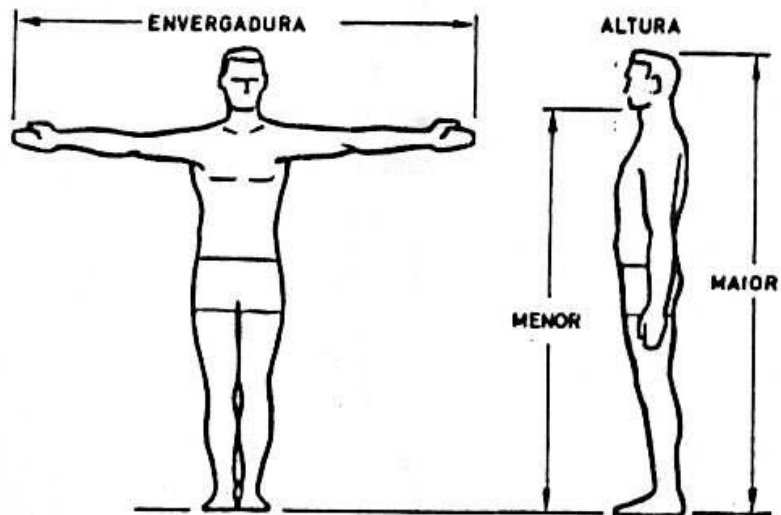
TREINO COMPONENTE AERÓBIA

TEMPO LIMIAR		01:23,0	83		VE. MÉDIA	1,205		
CATEGORIA DE TREINO			AERÓBIO I			AERÓBIO II		
OBJECTIVO DE TREINO		AQ/TO E REC.	RES. AERÓBIA		LIMIAR ANAERÓBIO		MÁX. VO2	
Distância	Intervalo	Rec.	aer1	aer2	aer3	L.Ana	Aer(5-6)	Aer (6-8)
Jcampaniço		Rec.	A1		A2	B1	B2	C1
50	10	00:44,0	00:41,9	00:40,7	00:39,4	00:38,6	00:37,8	00:37,1
	30	00:42,7	00:40,7	00:39,4	00:38,2	00:37,3	00:36,5	00:35,9
100	10	01:28,4	01:25,1	01:23,8	01:21,8	01:20,5	01:19,3	01:18,4
	30	01:27,6	01:24,2	01:23,0	01:20,9	01:19,7	01:18,4	01:17,6
200	10	02:57,6	02:52,6	02:49,3	02:46,0	02:42,7	02:40,2	02:38,5
	30	02:56,0	02:51,0	02:47,7	02:44,3	02:41,0	02:38,5	02:36,9
400	10	05:58,6	05:51,9	05:45,3	05:38,6	05:32,0	05:27,0	05:23,7
	30	05:55,2	05:48,6	05:42,0	05:35,3	05:28,7	05:23,7	05:20,4
>400		06:15,2	05:58,6	05:48,6	05:38,6	05:32,0	05:25,4	05:20,4

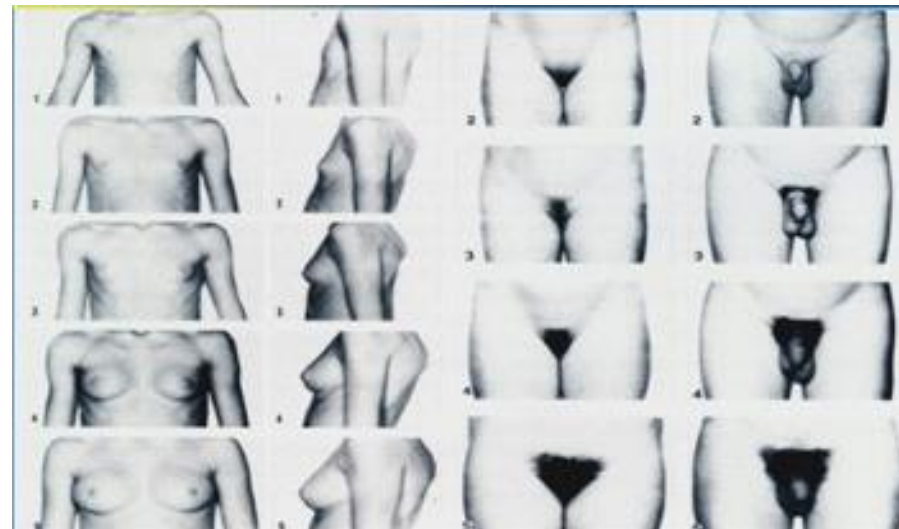
- Training with body weight, free weights and elastic resistance



- Height measurement twice a year



- Self-evaluation
- Parental feedback



Recommended sleeping hours

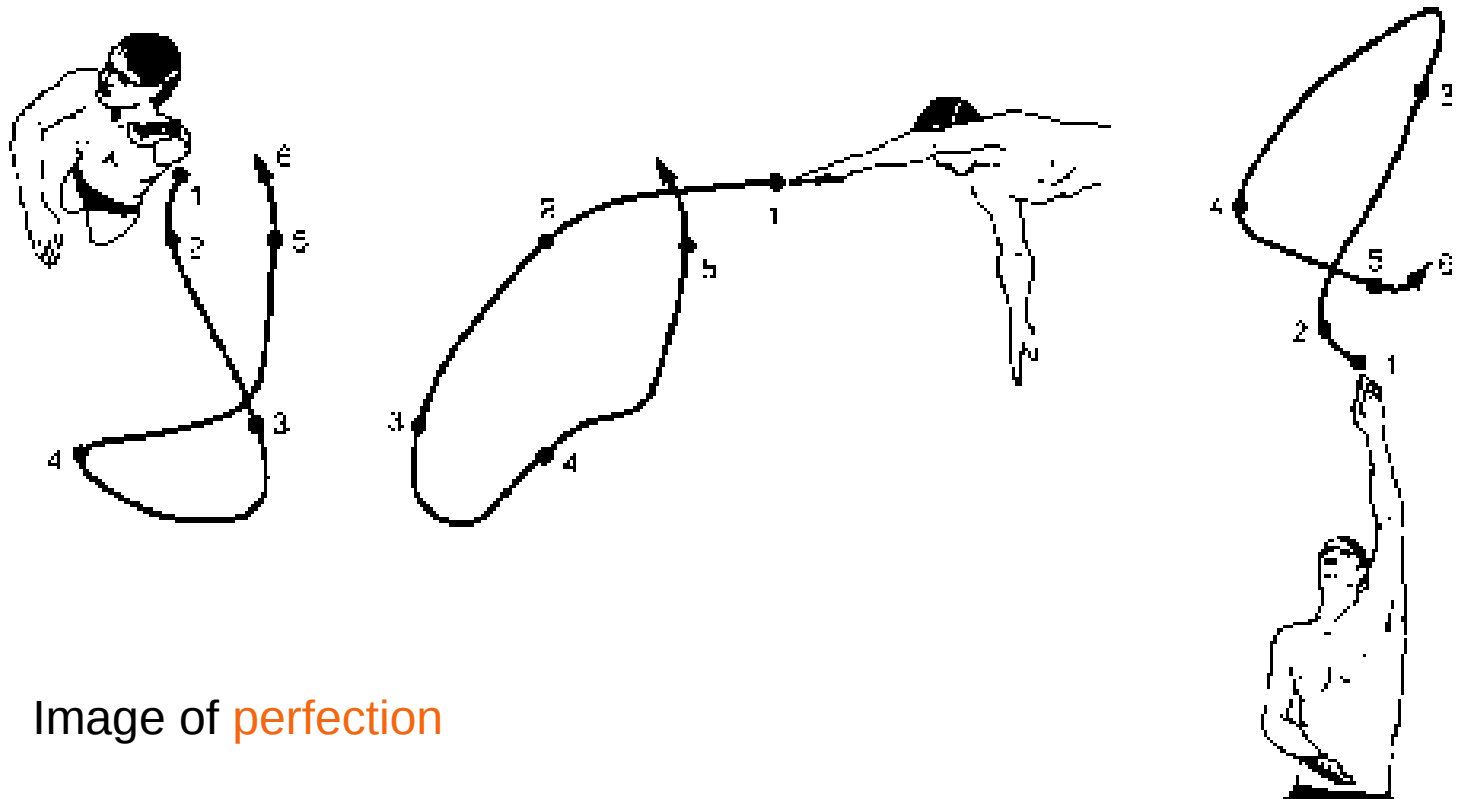
0 a 3 meses	De 14 a 17 horas
4 a 11 meses	De 12 a 15 horas
1 a 2 anos	De 11 a 14 horas
3 a 5 anos	De 10 a 13 horas
6 a 13 anos	De 9 a 11 horas
14 a 17 anos	De 8 a 10 horas
18 a 25 anos	De 7 a 9 horas
26 a 64 anos	De 7 a 9 horas
Mais de 65 anos	De 7 a 8 horas

Fonte: National Sleep Foundation (2014)

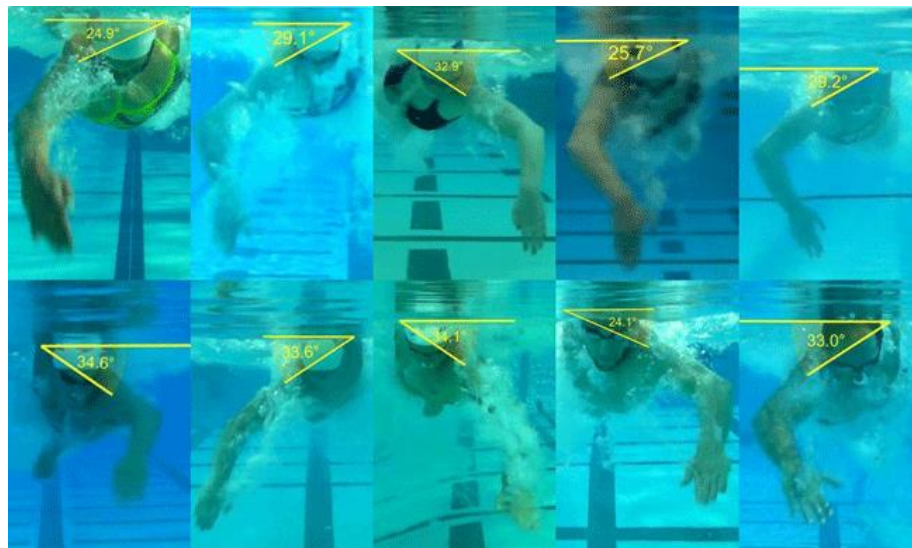
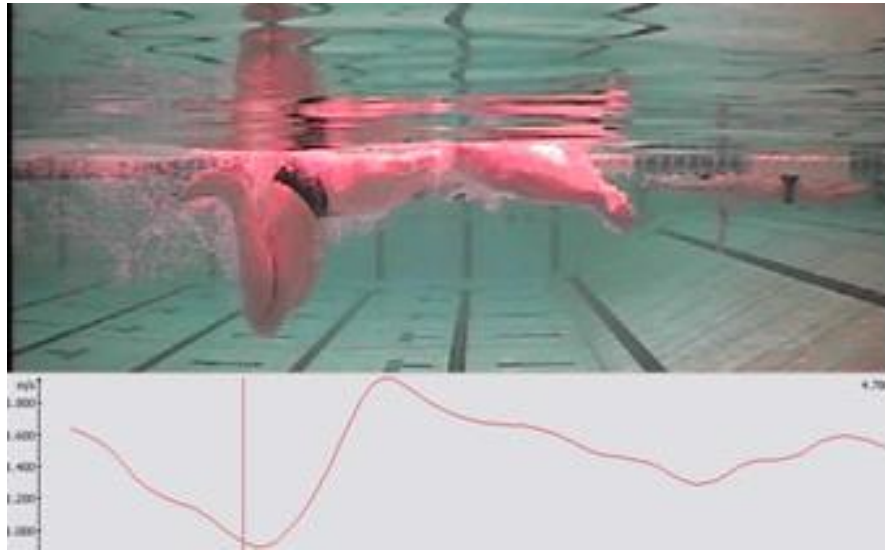


Juniores

(Male 17-18; Female 16-17)



- Image of **perfection**
- Technique **adjusted** to the **specialty**
- Scientific support



- Focusing on volumes e intensities by specialization (distance vs sprint)

	"Aprender a fazer"	"Perceber a fazer"	"Treinar a fazer"	"Fazer para competir"	"Fazer para ganhar"
	Cadetes (Masc <12; Fem <11)	Infantis (Masc 13-14; Fem 12-13)	Juvenis (Masc 15-16; Fem 14-15)	Juniores (Masc 17-18; Fem 16-17)	Seniores (Masc > 19; Fem > 18)
Sessões/semana	3-4	5-6	6-7	8-9	9-10
Semanas/ano	40	42	44	46	46
Duração/sessão	60-90min	90-120min	90-150min	90-150min	90-150min
m/sessão	2000-2500	3500-4200	4800-5000	5500-6000*	5000-6200*
Km/semana	6-10	18-23	28-35	44-54*	45-62*
Horas/semana	4-6	9-12	11-17	14-23	15-25
Km/ano	240-400	735-970	1300-1500	2000-2500*	2800*

* dependendo da especialização (fundista vs velocista)

- Training with body weight, free/fixed weights and elastic resistance



- Predicting the outcome
- Career commitment

TAMILA HOLUB COM MÍNIMOS PARA MUNDIAIS DE JUNIORES



Tamila Holub (Sporting de Braga) garantiu hoje, nos 400 livres, os mínimos para o Campeonato do Mundo de Juniores (1 a 7 de setembro em Singapura), durante o primeiro de competição do VI Meeting Internacional da Póvoa de Varzim, ao registar a marca de 4.21,25.

“Vim a esta prova para dar o meu máximo e aproximar-me dos meus tempos, por isso era expectável conseguir os mínimos para os Mundiais nos 400 livres. Espero também conseguir nos 800 livres”, afirmou, no final da prova, a nadadora bracarense.

CENTRO DE ESTÁGIOS E FORMAÇÃO DESPORTIVA DE RIO MAIOR

CENTRO DE ALTO RENDIMENTO DE RIO MAIOR - NATAÇÃO



INÍCIO

EMPRESA

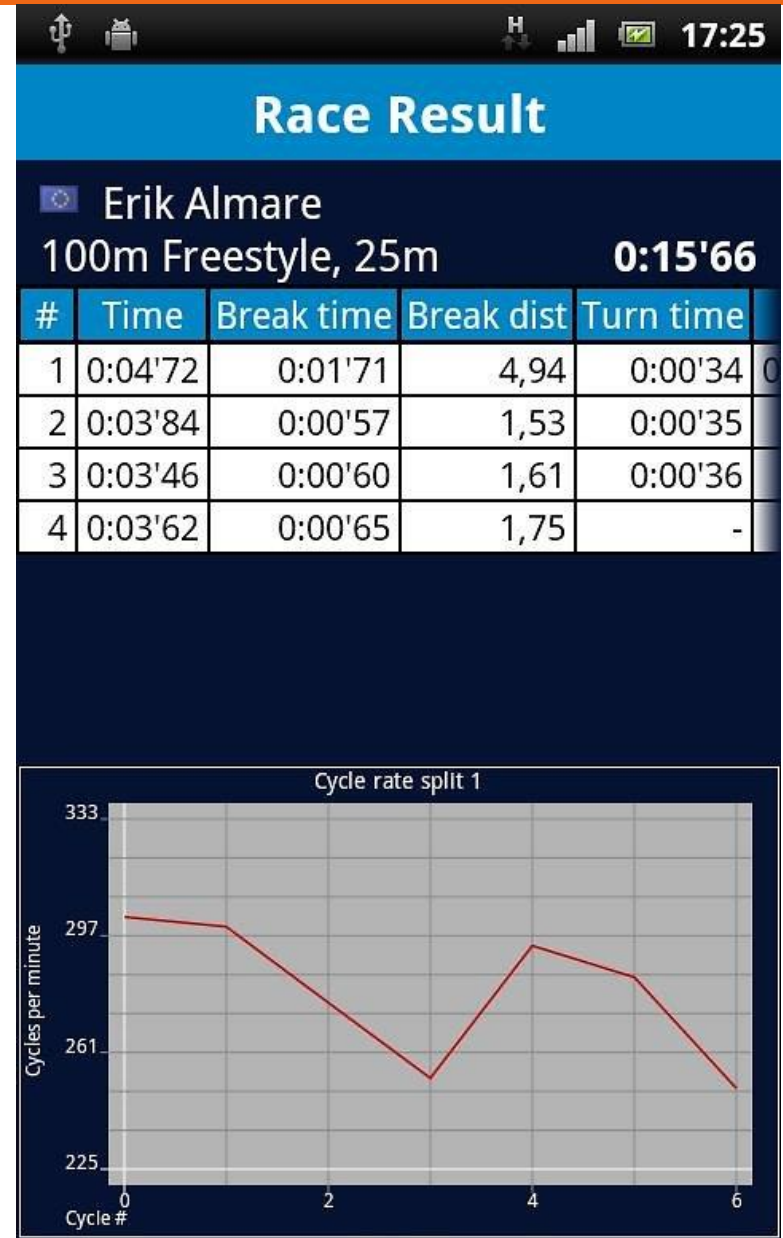
INSTALAÇÕES

CENTRO DE ESTÁGIOS

SERVIÇOS

NOTÍCIAS

- Taking into account individual characteristics



Horas de sono recomendadas de acordo com a idade

0 a 3 meses	De 14 a 17 horas
4 a 11 meses	De 12 a 15 horas
1 a 2 anos	De 11 a 14 horas
3 a 5 anos	De 10 a 13 horas
6 a 13 anos	De 9 a 11 horas
14 a 17 anos	De 8 a 10 horas
18 a 25 anos	De 7 a 9 horas
26 a 64 anos	De 7 a 9 horas
Mais de 65 anos	De 7 a 8 horas

Fonte: National Sleep Foundation (2014)

Gold-medal diet

This is what Michael Phelps scarfs down on a typical day:

Breakfast

- Three fried-egg sandwiches with cheese, lettuce, tomatoes, fried onions and mayo
- A five-egg omelet
- Bowl of grits
- Three slices of French toast with powdered sugar
- Three chocolate-chip pancakes
- Two cups of coffee

4000 Calories

Lunch

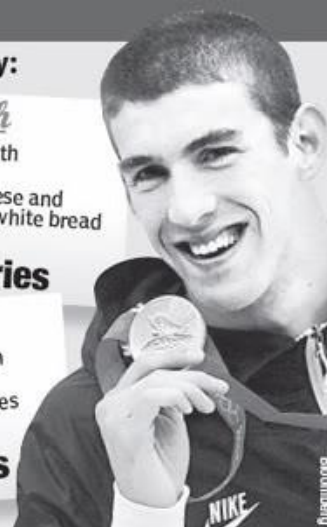
- A pound of pasta with tomato sauce
- Two large ham, cheese and mayo sandwiches on white bread
- Energy drinks

4000 Calories

Dinner

- A pound of pasta with tomato sauce
- Six to eight pizza slices
- Energy drinks

4000 Calories

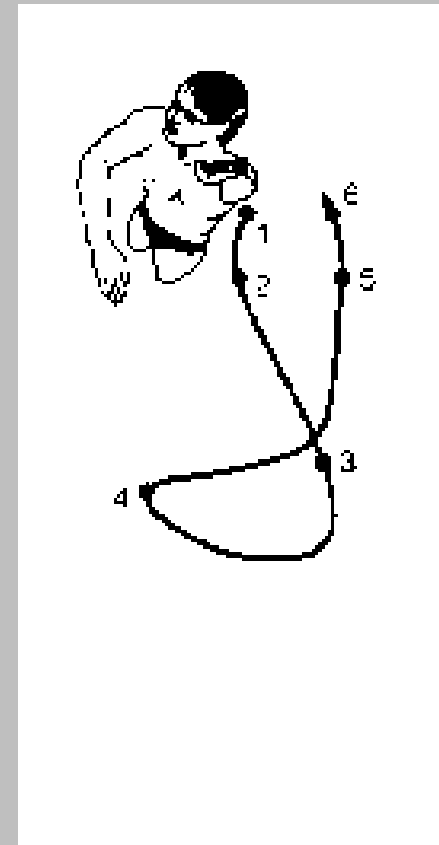
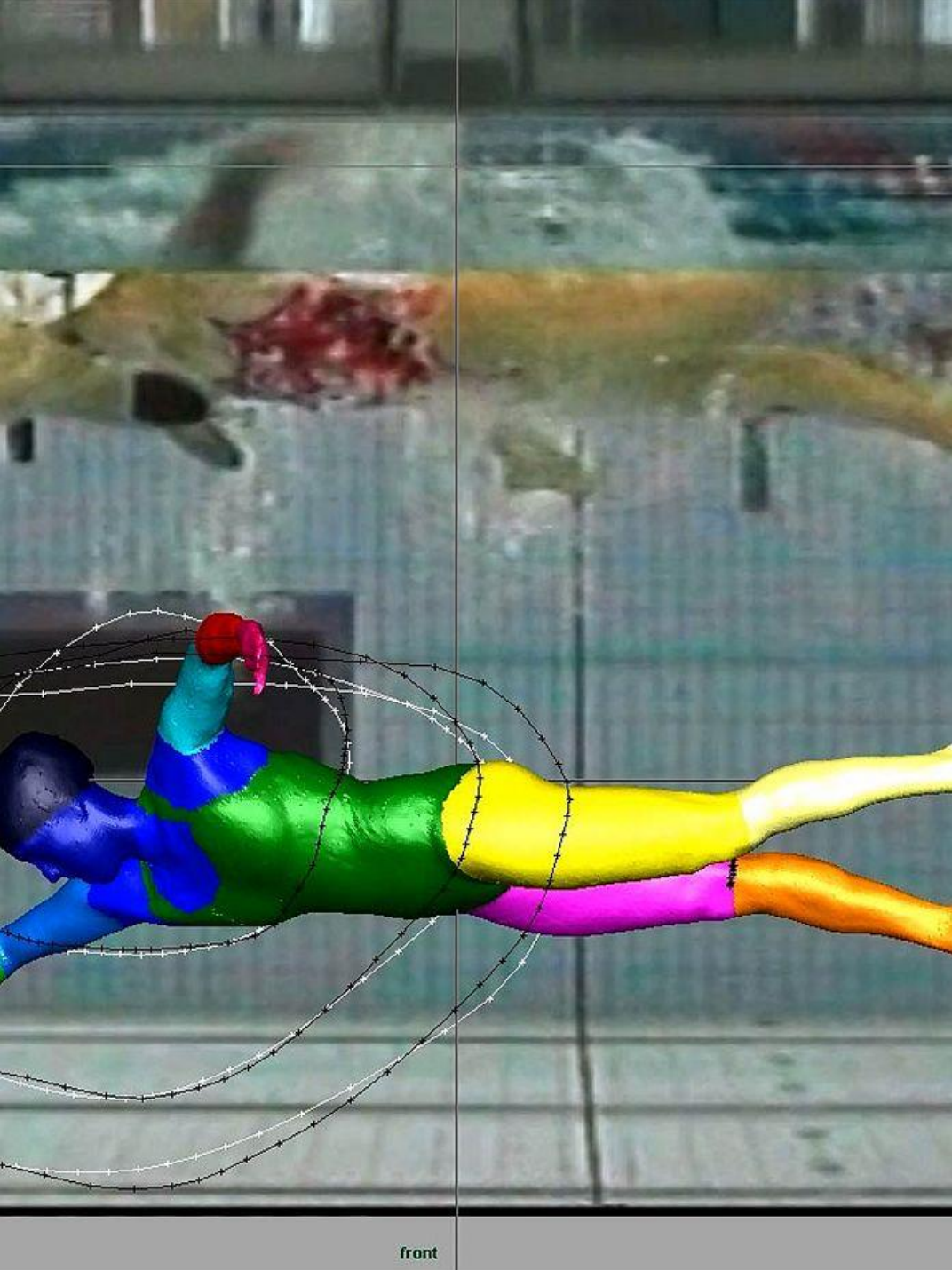





Seniores

(Male > 19; Female > 18)

Technical Training

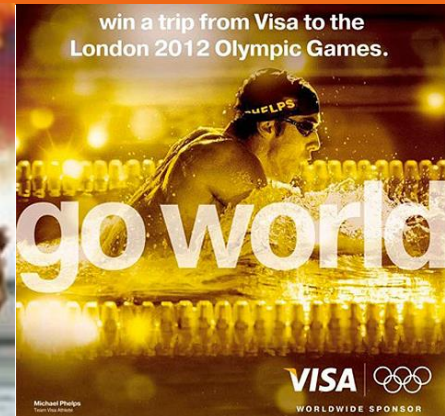


- Focusing on volumes and intensities by specialization (distance vs sprint)

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* dependendo da especialização (fundista vs velocista)

- Predicting the outcome
- Career commitment and way of life



CENTRO DE ESTÁGIOS E FORMAÇÃO DESPORTIVA DE RIO MAIOR

CENTRO DE ALTO RENDIMENTO DE RIO MAIOR - NATAÇÃO


DESMOR
WWW.DESMOR.PT

INÍCIO

EMPRESA

INSTALAÇÕES

CENTRO DE ESTÁGIOS

SERVIÇOS

NOTÍCIAS

- Depending on individual characteristics and the opponent



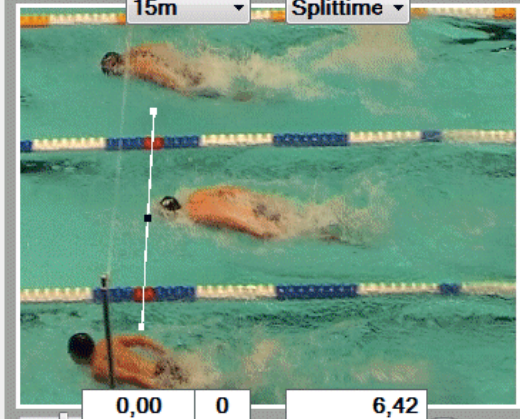
SwimWatch

Info Select Lists Capture Analyse Edit Check Distribute Publish Options Help

Step 1 2 3

Offset value: 5.00 Total duration: 1:00.00

15m Splittime



0.00 0 6.42

Time Basis Vergelijk +/-

Block	0.78	0.78	=
Landing	0.99	0.99	=
Break			
First			
15m	6.42	6.46	-0.04

Speed Basis Vergelijk +/-

15m	2.34	2.32	+0.02
20m		1.72	
Middle		1.66	

Cancel Save

Free space: 23 GB 0,0 GB 0,0 GB Queue: 0 0 0

Race Analyzer

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Lunch

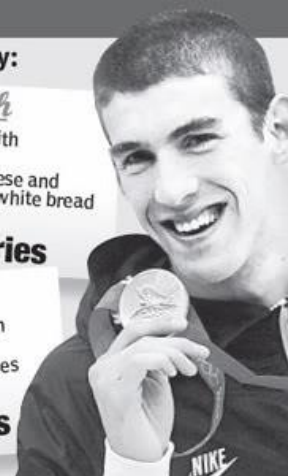
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- Energy drinks

4000 Calories

Dinner

- A pound of pasta with tomato sauce
- Six to eight pizza slices
- Energy drinks

4000 Calories








Long term development: the project of the Portuguese Swimming Federation

Thank you for your attention.

ANTÓNIO J. SILVA