

HOW TO WIN AN OLYMPIC MEDAL IN MOUNTAIN BIKE: THE CASE OF CARLOS COLOMA



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WHO WAS CARLOS COLOMA?

28/09/1981

1999 - JUNIOR WORLD VICE-CHAMPION

2001 - U23 4th in the World Champs

2010 - 6th in the World Champs

2012 - 6th in London Olympic Games

2013 - Shoulder injury, 2 surgeries

2014 – Bad results, recovery

2015 - Normally in the top10 in WCs (9th overall)

WHO WAS CARLOS COLOMA?

uci.ch

281 (277)	Alexandr BRAICO	Moldova	26
281 (277)	Aleksa MARIC	Serbia	23
281 (277)	Sasa VIDOVIC	Croatia	32
281 (277)	Georwill PEREZ ROMAN	Puerto Rico	21
281 (277)	Gareth MC KEE	Ireland	26
281 (277)	Mario Alberto ROJAS ROJAS	Colombia	29
281 (277)	Franklin Leonardo LUGO TOVAR	Venezuela	28
281 (277)	Mohd Fauzan AHMAD LUTFI	Malaysia	28
281 (277)	Giorgi NADIRADZE	Georgia	27
281 (277)	Caspar AUSTA	Estonia	32
300 (207)	Javier ALTAMIRANO RODRIGO	Argentina	24
301 (262)	Keegan SWENSON	United States	20
302 (301)	Carlos COLOMA NICOLAS	Spain	33
303 (302)	Gareth MONTGOMERIE	Great Britain	

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Export to Excel

Individual		Nation		
Rank	Name	Nation	Age*	Points
1 (1)	Julien ABSALON	France	35	1998
2 (2)	Nino SCHURTER	Switzerland	29	1975
3 (3)	Florian VOGEL	Switzerland	33	1629
4 (4)	Jaroslav KULHAVY	Czech Republic	30	1527
5 (5)	Manuel FUMIC	Germany	33	1426
6 (6)	Mathias FLÜCKIGER	Switzerland	27	1349
7 (7)	Maxime MAROTTE	France	29	1222
8 (9)	Daniel MCCONNELL	Australia	30	1136
9 (14)	Carlos COLOMA NICOLAS	Spain	34	1059
10 (8)	Fabian GIGER	Switzerland	28	1042
11 (10)	Lukas FLÜCKIGER	Switzerland	31	1038
12	Ondrej CINK	Czech	25	1016

01/04/2014

27/10/2015

WHO WAS CARLOS COLOMA?



WHO WAS CARLOS COLOMA?

28/09/1981 (34 YEARS IN RIO)

Pekín 2008 28th

London 2012 6th

Rio 2016 3rd

172cm, 65Kg

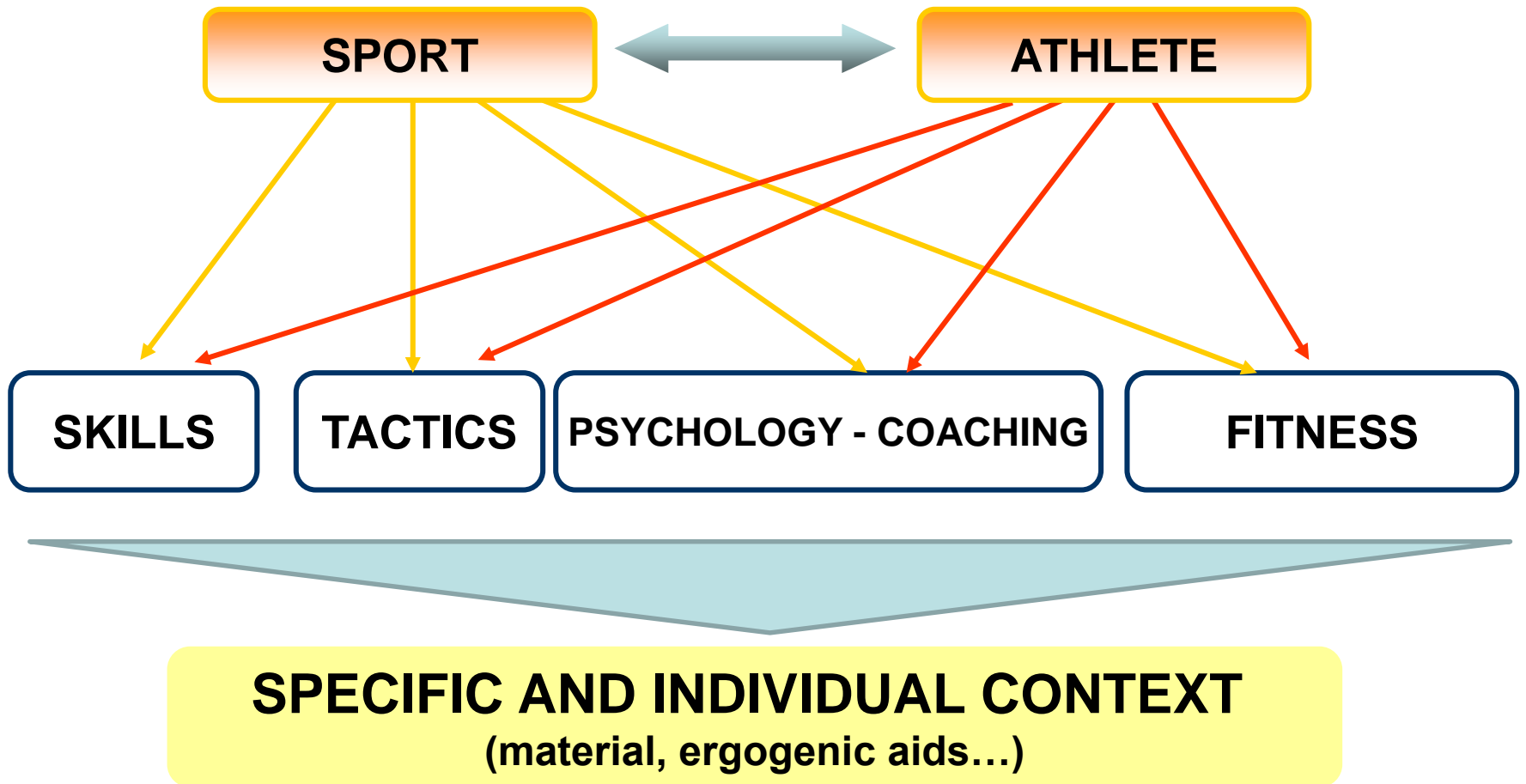
VT1: 155ppm & 310w

VT2: 175ppm & 370w

Vo2max: 80ml/kg/min

Fat % (Faulkner): 9%

WHAT WE NEED TO CONTROL TO GET THE BEST “POPCORN”?



WHICH WERE THE STEPS TO BECOME OLYMPIC MEDALLIST? (I)

1. TO BE CONVINCED HE COULD GET IT

2. TO MAKE A TEAM AROUND HIM (INCLUDING THE FAMILY). NEW “OLD” COACH & PARTNER

3. TO SOLVE SOME PERSONAL ISSUES TO GET EMOTIONAL STABILITY (FAILED BUSINESS)

4. TO MAKE A FILM OF HIS LIFE AND DREAM (INSPIRATION OF MOHAMED ALI)

WHICH WERE THE STEPS TO BECOME OLYMPIC MEDALLIST? (II)

5. TO MAKE A PLAN WITH THE TEAM



WHICH WERE THE STEPS TO BECOME OLYMPIC MEDALLIST? (II)

Copia de Carlos Coloma 2016 [Modo de compatibilidad] - Excel

Mikel Zabala Díaz

Archivo Inicio Insertar Dibujar Diseño de página Fórmulas Datos Revisar Vista ACROBAT ¿Qué desea hacer? Compartir

Calibri 14 Fuente Ajustar texto General Pegar Fuente Alineación Número Estilos Celdas Edición

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT			
7	J	5		S	5		M	5		V	5		S	5		M	5		J	5	EUROPEO SUECIA	D	5		M	5		V	5		L	5		REC-C1	M	5		S	5		L	5		L	5		AC		
8	V	6		D	6		M	6		S	6		D	6	VALENCIA	M	6		V	6	EUROPEO SUECIA	L	6		C1-C2	M	6		S	6		MONTE SAINTE ANNE WC	M	6		V	6		D	6		M	6		M	6			
9	S	7				INTROD	J	7		L	7		L	7		C1	M	7		S	7		EUROPEO SUECIA	M	7		D	7		D	7		MONTE SAINTE ANNE WC	M	7		V	7		J	7		L	7		INTROD	M	7	
10	D	8		M	8		V	8		L	8		C2-C3	M	8		V	8		D	8		EUROPEO SUECIA	M	8		V	8		L	8		C1-C2	J	8		S	8		M	8		J	8		J	8		
11	L	9		M	9		S	9		M	9		M	9		S	9		L	9		REC-CH	J	9		S	9		S	9		LENZERHEIDE WC	M	9		V	9		D	9		M	9		V	9			
12	M	10		J	10		D	10		M	10		J	10		D	10		M	10		MARCHA SOLIDARIA	M	10		V	10		D	10		LENZERHEIDE WC	M	10		S	10		L	10		?	J	10		S	10		
13	M	11		V	11		L	11		AC	J	11		V	11		M	11		M	11		C1	M	11		S	11		L	11		REC-ACT	J	11		D	11		M	11		V	11		D	11		
14	S	12		M	12		V	12		S	12		M	12		L	12		M	12		L	12		M	12		D	12		V	12		L	12		?	M	12		S	12		L	12		AC		
15	V	13		D	13		M	13		S	13		D	13	BANYOLES	M	13		V	13		LPBR	L	13		C2-C3	M	13		S	13			M	13		J	13		D	13		INTROD	M	13				
16	S	14		L	14		J	14		D	14		L	14		C1	M	14		S	14		LPBR	M	14		J	14		D	14			M	14		V	14		L	14		INTROD	M	14				
17	D	15		M	15		V	15		L	15		TAP	M	15		V	15		D	15		LPBR	M	15		V	15		L	15		TAP	J	15		S	15		M	15		J	15					
18	L	16		S	16		M	16		S	16		M	16		S	16		L	16		TAP	M	16		J	16		S	16		M	16		V	16		D	16		M	16		V	16				
19	M	17		J	17		D	17		M	17		J	17		D	17		M	17		ARNEDO	M	17		V	17		D	17		M	17		JOO RIO	S	17		L	17		?	J	17		S	17		
20	M	18		V	18		L	18		C2-TAP	J	18		V	18		L	18		M	18		TAP-VIAJE	M	18		S	18		L	18		C1	J	18		JOO RIO	D	18		M	18		V	18		D	18	
21	J	19		S	19		M	19		V	19		S	19		M	19		J	19			M	19		M	19		D	19		V	19		JOO RIO	L	19		?	M	19		S	19		L	19		AC
22	V	20		D	20		M	20		S	20		D	20	PORTUGAL	M	20		V	20			L	20		C2-C3	M	20		S	20		JOO RIO	M	20		J	20		D	20		M	20					
23	S	21		AC	J	21		AC	M	21		D	21	ABR	L	21		REC/C2	J	21		S	21		ALBSTADT WC	M	21		D	21		D	21		JOO RIO	M	21		V	21		L	21		INTROD	M	21		
24	D	22		M	22		V	22		L	22		ABR	M	22		V	22		D	22		ALBSTADT WC	M	22		V	22		L	22		REC-C1	J	22		S	22		M	22		J	22					
25	L	23		INTROD	M	23		S	23		M	23		ABR	M	23		S	23		CAIRNS AUS WC	L	23		C1	J	23		S	23		M	23		V	23		D	23		M	23		V	23				
26	M	24		J	24		D	24		M	24		ABR	J	24		D	24		M	24		CAIRNS AUS WC	M	24		V	24		D	24		M	24		S	24		L	24		REC?	J	24		S	24		
27	M	25		V	25		L	25		TAP-CH	J	25		ABR	V	25		L	25		REC-C1	M	25		S	25		C2-C3	J	25		D	25		D	25		M	25		V	25		D	25				
28	J	26		S	26		M	26		S	26		ABR	M	26		M	26		J	26			M	26		D	26		L	26		?	X	26		S	26		M	26		L	26		AC			
29	V	27		D	27		X	27		S	27		TAP	D	27		FIN2SES FUERZA	X	27		V	27			L	27		TAP	X	27		S	27		M	27		J	27		D	27		M	27				
30	S	28		L	28		AC	J	28		COSTA BLANCA	D	28		L	28		C1-C2	J	28		S	28		LA BRESSE WC	M	28		D	28		D	28		X	28		V	28		L	28		INTROD	X	28			
31	D	29		M	29		V	29		COSTA BLANCA	L	29		M	29		V	29		D	29		LA BRESSE WC	X	29		WORLD CHAMP NOVE METRO	V	29		L	29		TAP	J	29		S	29		M	29		J	29				

Calendar 2016 TRAINING ZONES TEST ENERO 16 EXPLICAC_A LOS MICROCICLOS POWER P ...

Listo 34%

WHICH WERE THE STEPS TO BECOME OLYMPIC MEDALLIST? (III)

6. TO FOLLOW AND HAVE FAITH IN THE PLAN

7. TO GET THE SELECTION FOR THE OLYMPICS WITH ENOUGH TIME TO TRAIN PROPERLY

8. TO MAINTAIN PHYSICAL AND MENTAL FRESHNESS

9. TO MAKE A PERFECT RACE: START, PACING, TACTICS... PUTTING THE PLAN IN PRACTICE

VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- ENDURO TRAINING IN PRE-SEASON AND TRACK AT HOME



VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- STRENGTH TRAINING (RONNESTAD METHOD)



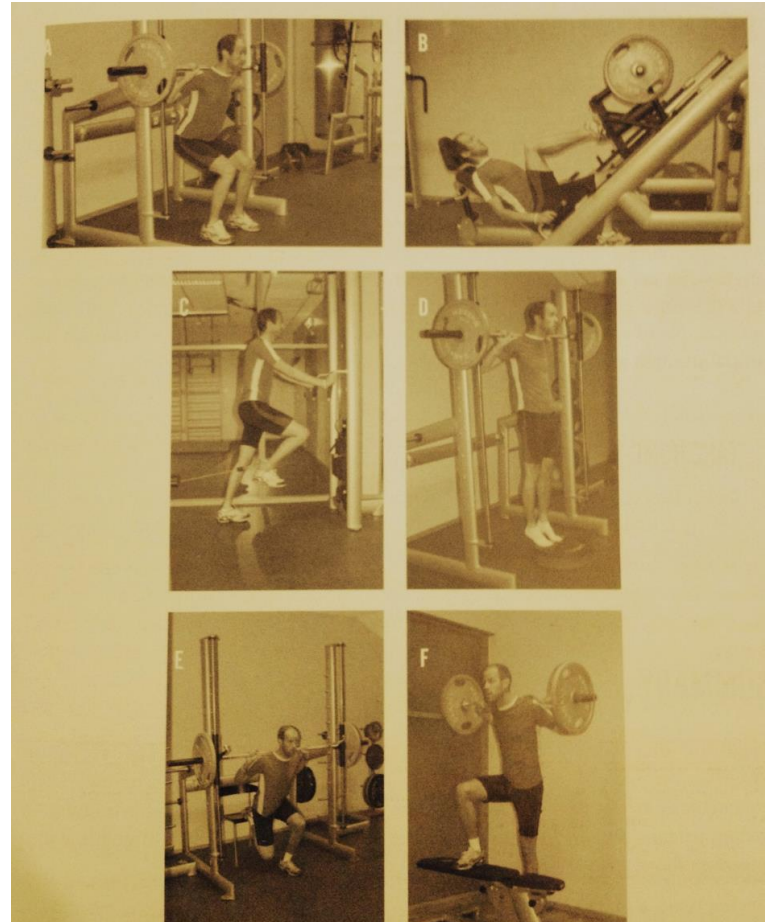


FIG.7.3 Strength training exercises proven to improve cycling performance: half-squat in a Smith-machine (A), leg press with one foot at a time (B), one-legged hip flexion (C), toe raises (D), single-leg half-squat (E) and step-up (F). (Photographs courtesy of Ronnestad, B.R., Hansen, E.A., Raastad, T., 'In season strength maintenance training increases well-trained cyclists' performance', *European Journal of Applied Physiology*, 110 (2010), pp. 1269–1282.)

	Preparatory period						Competition period
	Weeks 1–3		Weeks 4–6		Weeks 7–12		Weeks 13–25
	1st Bout	2nd Bout	1st Bout	2nd Bout	1st Bout	2nd Bout	1st Bout
Half-squat	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	2x5 reps @80–85% of 1RM
One-legged leg press	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	2x5 reps @80–85% of 1RM
One-legged hip flexion	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	1x6RM
Ankle plantar flexion	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	1x6RM

TABLE 7.1 Example of a strength training programme that has been shown to increase muscle strength and cycling performance during the preparatory period and to maintain the initial strength gain into the competition period. (Adapted from Rønnestad, B.R., Hansen, E.A., Raastad, T., 'In-season strength maintenance training increases well-trained cyclists' performance', *European Journal of Applied Physiology*, 110(2010), 1269–1282)

Strenght Training - Excel

Mikel Zabala Díaz

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Pegar Fuente Calibri 11 Ajustar texto General Alineación Número Estilos Celdas Edición

A2

EJERCICIOS DE FUERZA DE TREN INFERIOR (A COMPLEMENTAR EN LAS SESIONES DE CORE)					
HACER 2 SESIONES A LA SEMANA					VOLVER MICROCICLOS
SEMANA 1 Y 2			W	REC	FOTO
MEDIA SENTADILLA			3X10RM	REC 3'	A
PRESS A UNA PIERNA			3X10RM	REC 3'	B
FLEXIÓN CADERA A UNA PIERNA			3X10RM	REC 3'	C
FLEXIÓN TOBILLO			3X10RM	REC 3'	D
SEMANA 3			W	REC	FOTO
MEDIA SENTADILLA			3X6RM	REC 3'	A
PRESS A UNA PIERNA			3X6RM	REC 3'	B
FLEXIÓN CADERA A UNA PIERNA			3X6RM	REC 3'	C
FLEXIÓN TOBILLO			3X6RM	REC 3'	D
SEMANAS 4 Y 5			W	REC	FOTO

	Preparatory period						Competition period	
	Weeks 1-3		Weeks 4-6		Weeks 7-12		Weeks 13-25	
	1st Bout	2nd Bout	1st Bout	2nd Bout	1st Bout	2nd Bout	1st Bout	
Half-squat	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	2x5 reps @80-85% of 1RM	
One-legged leg press	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	2x5 reps @80-85% of 1RM	
One-legged hip flexion	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	1x6RM	
Ankle plantar flexion	3x10RM	3x6RM	3x8RM	3x5RM	3x6RM	3x4RM	1x6RM	

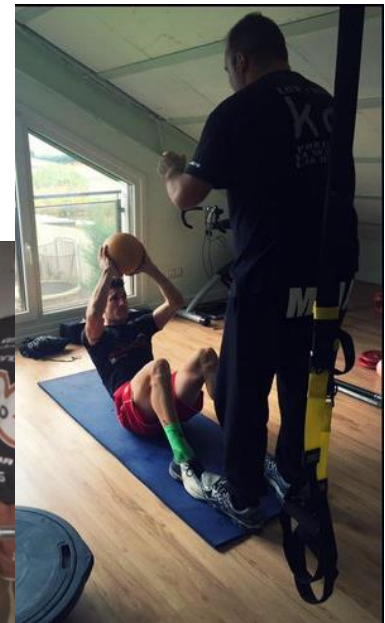
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Hoja1

100 %

VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- GYM TRAINING BASED ON BOXING WITH “BARRU” (PERSONAL TRAINER). MOTIVATION!!!



VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- GYM TRAINING BASED ON BOXING WITH “BARRU” (PERSONAL TRAINER). MOTIVATION!!!

WORLD AND OLYMPIC MOUNTAIN BIKE CHAMPIONS’ ANTHROPOMETRY, BODY COMPOSITION AND SOMATOTYPE

Cristóbal SÁNCHEZ-MUÑOZ, José Joaquín MUROS, Mikel ZABALA

The Journal of Sports Medicine and Physical Fitness 2017 Apr 28

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Article type: Original Article

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VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- POWER BASED TRAINING: PRE-OLYMPIC RACE ANALYSIS WITH VIDEO TO REPRODUCE EFFORTS AND SKILLS***
 - ACIDOTIC WORKOUTS COMBINED & MENTAL STRENGTH (VISUALIZATION OF HOW TO BREAK THE RIVAL AT THE END OF THE RACE, HOW TO ATTACK SEVERAL TIMES)***
-



domingo octubre 11, 2015, 18:59

Tipo de Dispositivo: Garmin Edge 510

Totales	Promedios	Máximos	Métricas	Modelo
Duración: 1:23:16	Peso del Atleta (kg): 75.00	Velocidad (km/h): 44.2	xPower (vatios): 289	W': 14.4 kJ
Tiempo Pedaleando: 1:22:56	Velocidad (km/h): 21.8	Potencia (vatios): 951	Intensidad Relativa: 1.156	192 J/kg
Distancia (km): 30.19	Potencia (vatios): 259	Frec. Cardíaca (ppm): 193	BikeScore™: 185	PC: 338 vatios
Trabajo (kJ): 1290	Frec. Cardíaca (ppm): 178	Cadencia (rpm): 181	Puntos Daniels: 248	4.51 w/kg
Trabajo W' (kJ): 412	Cadencia (rpm): 89	Máx W' Utilizado (%): 202	Potencia Equivalente Daniels (vatios): 289	P-max: 1146 vatios
Desnivel Acumulado (metros): 824	Temperatura (C): 32.0	Temp (C): 37.0	Puntos TRIMP: 278	14.52 w/kg
			Desacopl. Aeróbico (%): 6.5	

Zonas de Potencia

Potencia Crítica (vatios): 250

Zona	Descripción	Inferior (vatios)	Superior (vatios)	Tiempo	%
Z1	Recuperación Activa	0	137	23:30	28
Z2	Resistencia	137	187	04:48	6
Z3	Tempo	187	225	05:01	6
Z4	Umbral	225	262	05:50	7
Z5	VO2Max	262	300	06:59	8
Z6	Anaeróbico	300	375	13:53	17
Z7	Neuromuscular	375	MAX	23:06	28

Zonas de Frecuencia Cardíaca

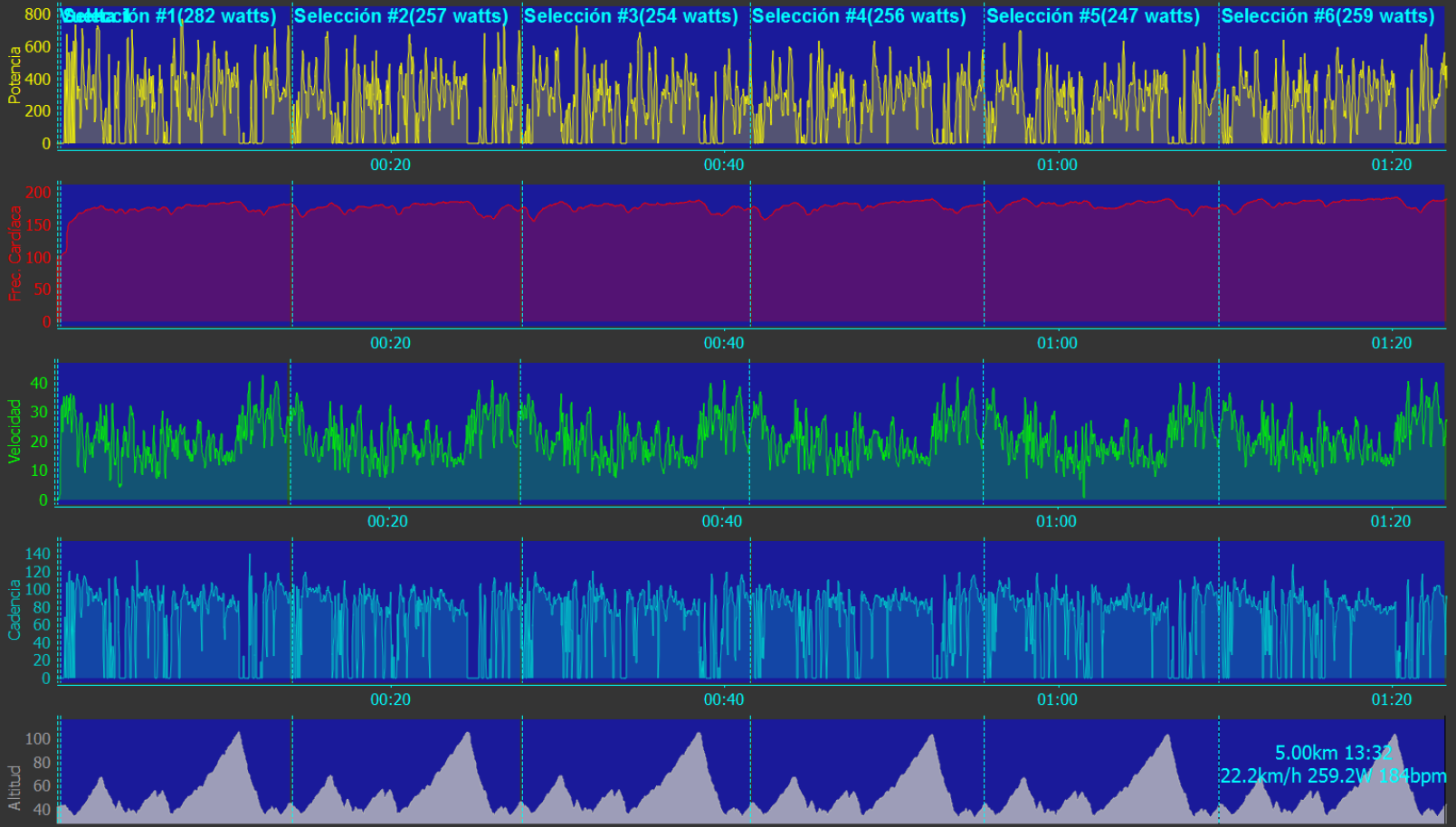
Umbral (ppm): 165

Zona	Descripción	Inferior (ppm)	Superior (ppm)	Tiempo	%
Z1	Recuperación Activa	0	112	00:23	0
Z2	Resistencia	112	136	00:03	0
Z3	Tempo	136	155	00:14	0
Z4	Umbral	155	173	13:44	17
Z5	VO2Max	173	MAX	1:08:43	83

Intervalos

Nombre de Intervalo	Duración	Distancia (km)	Trabajo (kJ)	Potencia Media (vatios)	xPower (vatios)	Potencia Máx (vatios)	Frec. Cardíaca Media (ppm)	95% Frec. Cardíaca (ppm)	Cadencia Media (rpm)	Velocidad Media (km/h)
Vuelta 1	1:23:16	30.19	1290	259	289	951	178	188	89	21.8
Selección #1(282 watts)	13:47	5.09	233	282	312	951	173	184	92	22.3
Selección #2(257 watts)	13:40	4.92	211	257	284	751	176	185	88	21.6
Selección #3(254 watts)	13:47	4.93	210	254	280	730	177	186	89	21.5
Selección #4(256 watts)	14:04	5.08	216	256	279	674	179	188	89	21.7
Selección #5(247 watts)	14:07	5.09	209	247	271	714	181	189	88	21.7
Selección #6(259 watts)	13:33	5.01	211	259	284	694	184	191	87	22.2

Gráfico



VARIABLES THAT INFLUENCED THE PERFORMANCE CHANGE & THE FINAL RESULT

- GOOD CONTROL OF THE PROCESS: BLOOD ANALYSIS, HRV, BODY COMPOSITION, RPE... WITH A LOT OF COMUNICATION!***
 - ERGOGENIC AIDS (INCLUDING PLACEBO), TRAINING MASK***
 - RECOVERY METHODS (ES, PRESSURE BOOTS) AND HYPOXIC TRAINING (MODERATE AT 1800m)***
 - LESS COMPETITIVE RACE THAN A WC OR WORLD CHAMP***
 - OTHER'S "MISTAKES": SAGAN'S PUNCTURES, ABSALON'S "BAD DAY"***
-

INTEGRATED TRAINING

Rubik's Cube, collaborative challenge

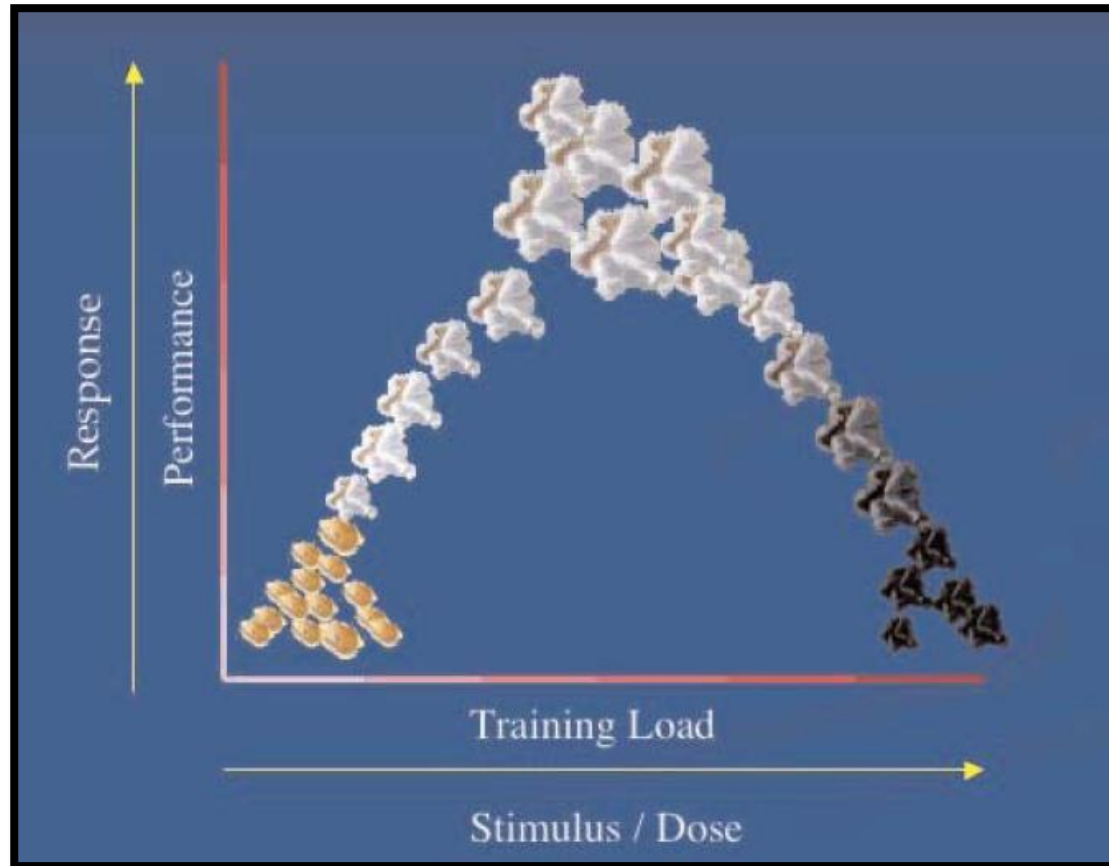


THE "POPCORN" ATHLETE

HORRIBLE-BAD-GOOD

-OPTIMUM

-GOOD-BAD-HORRIBLE

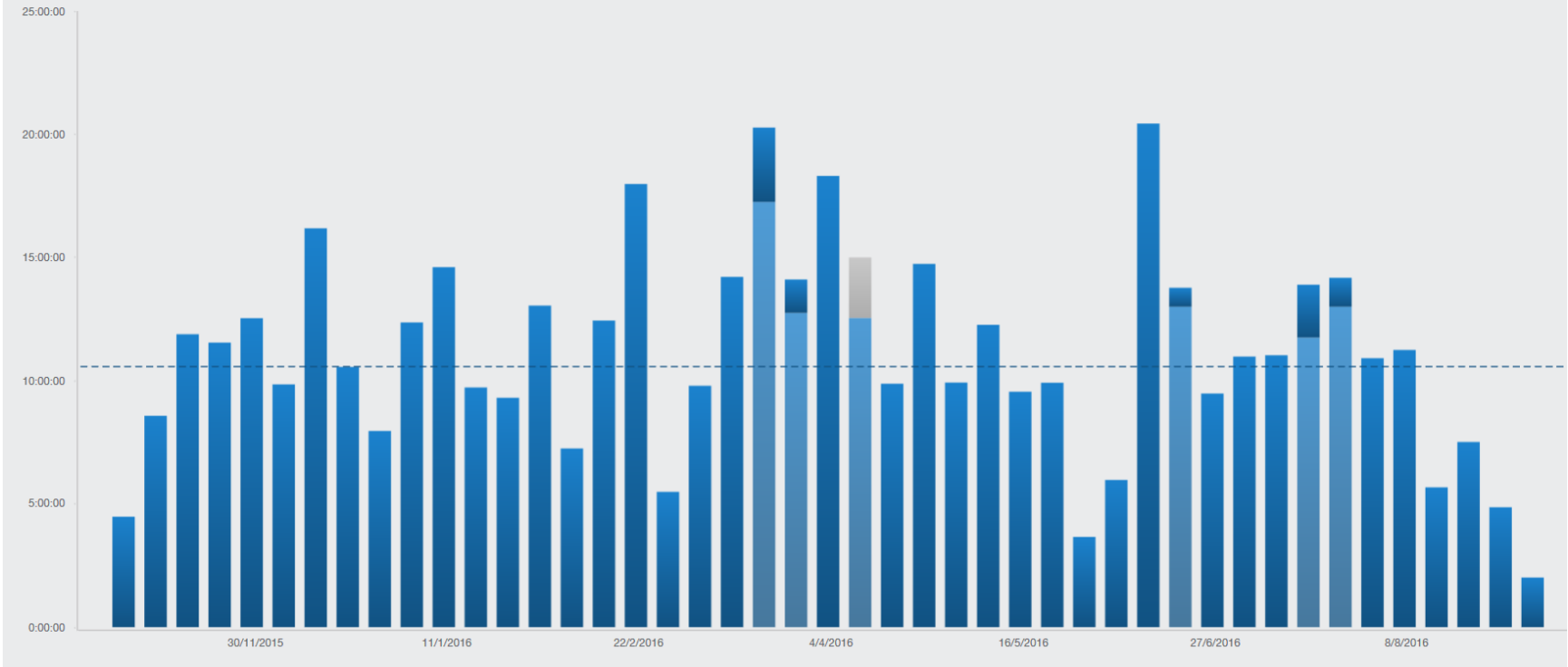


OPTIMUM TRAINING STIMULOUS (LIM, FROM SELYE)

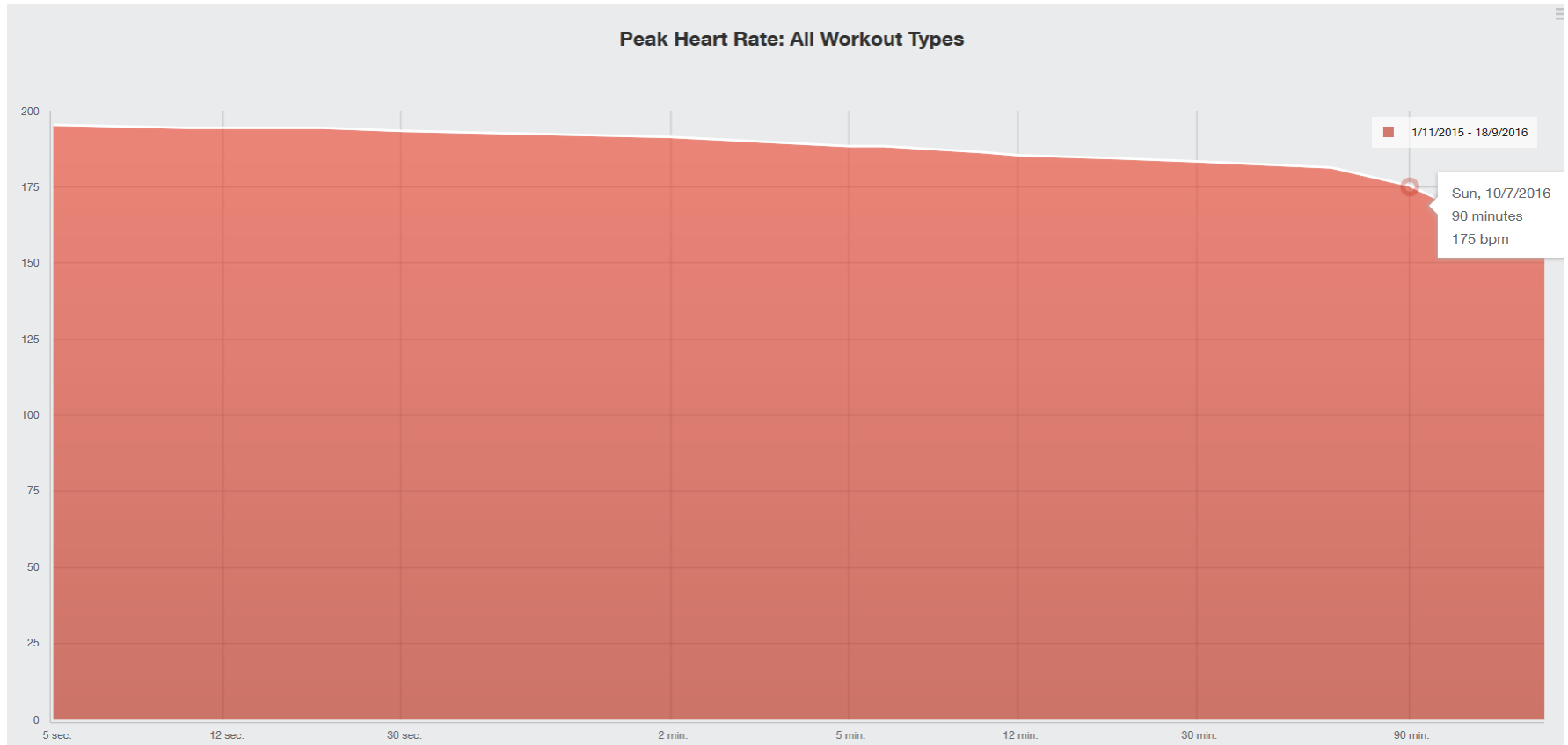
SOME BIKE TRAINING DATA

Duration by Week: All Workout Types

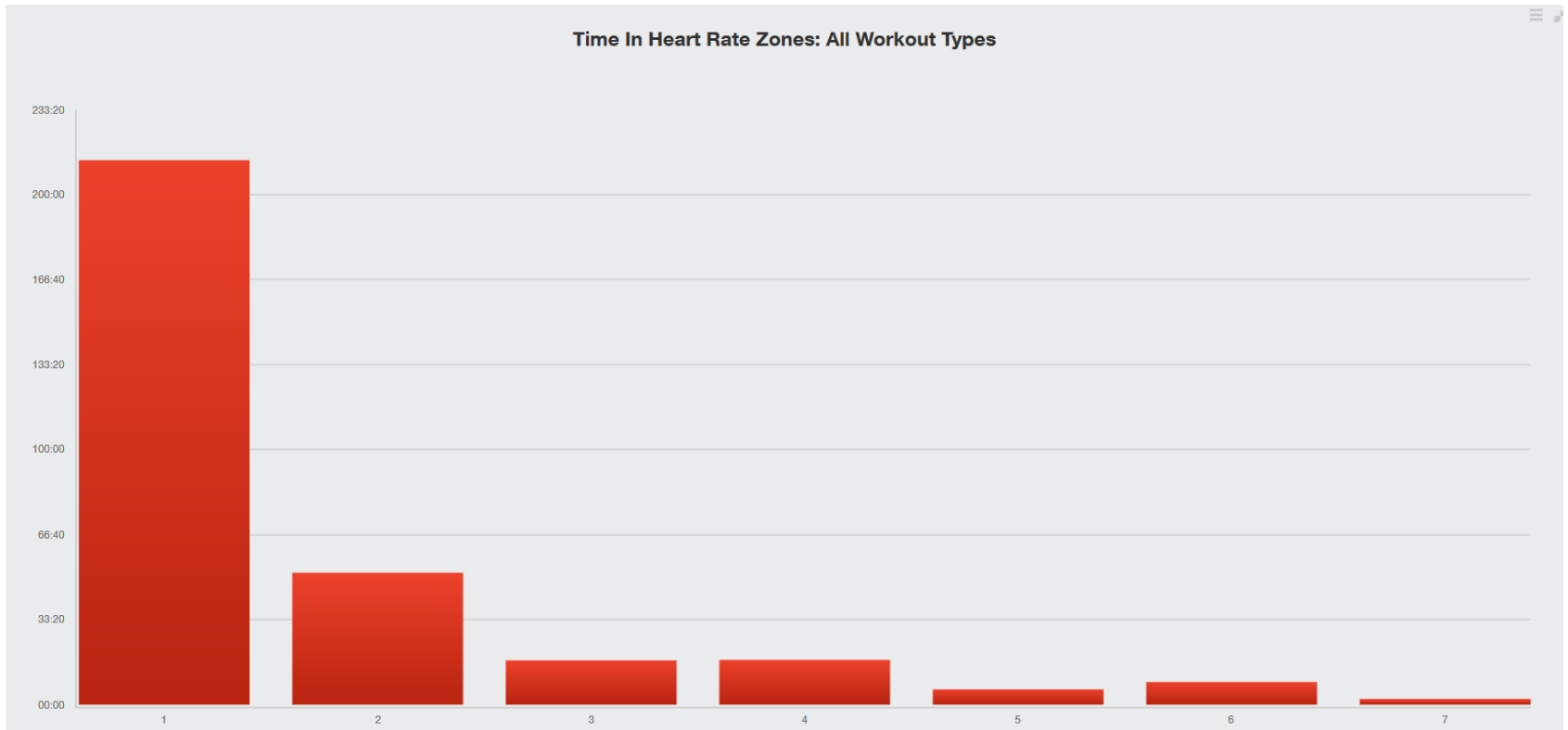
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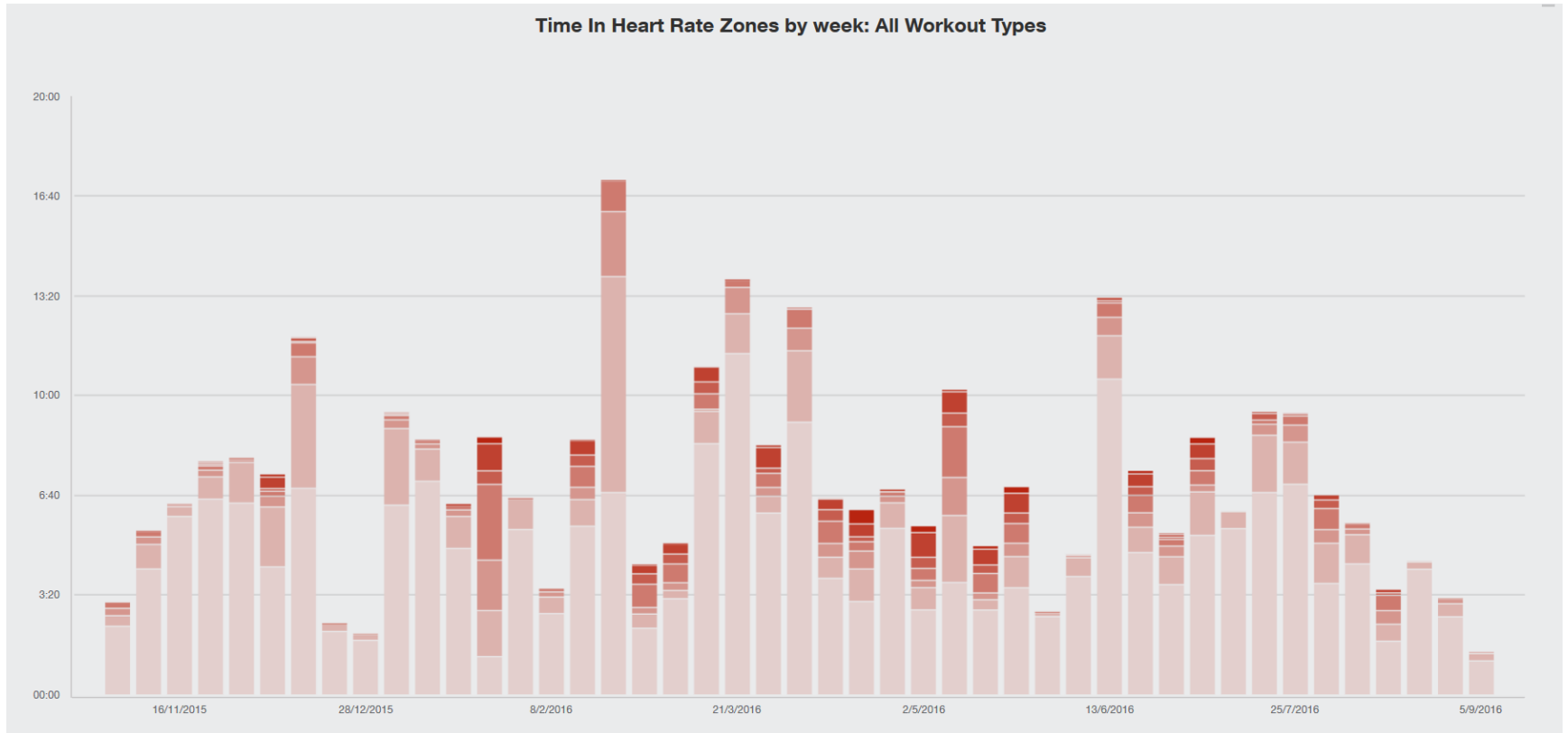
SOME BIKE TRAINING DATA



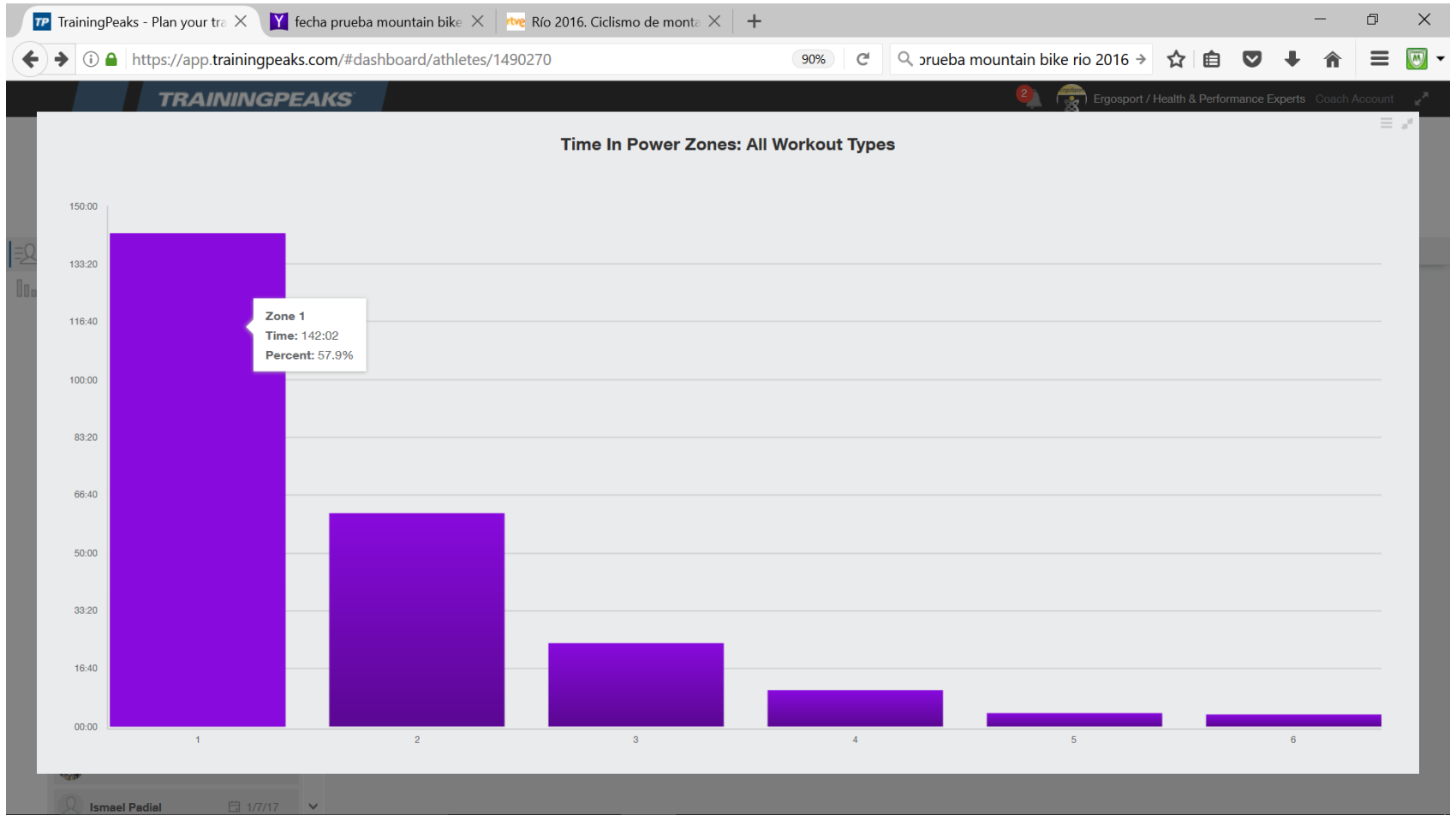
SOME BIKE TRAINING DATA



SOME BIKE TRAINING DATA



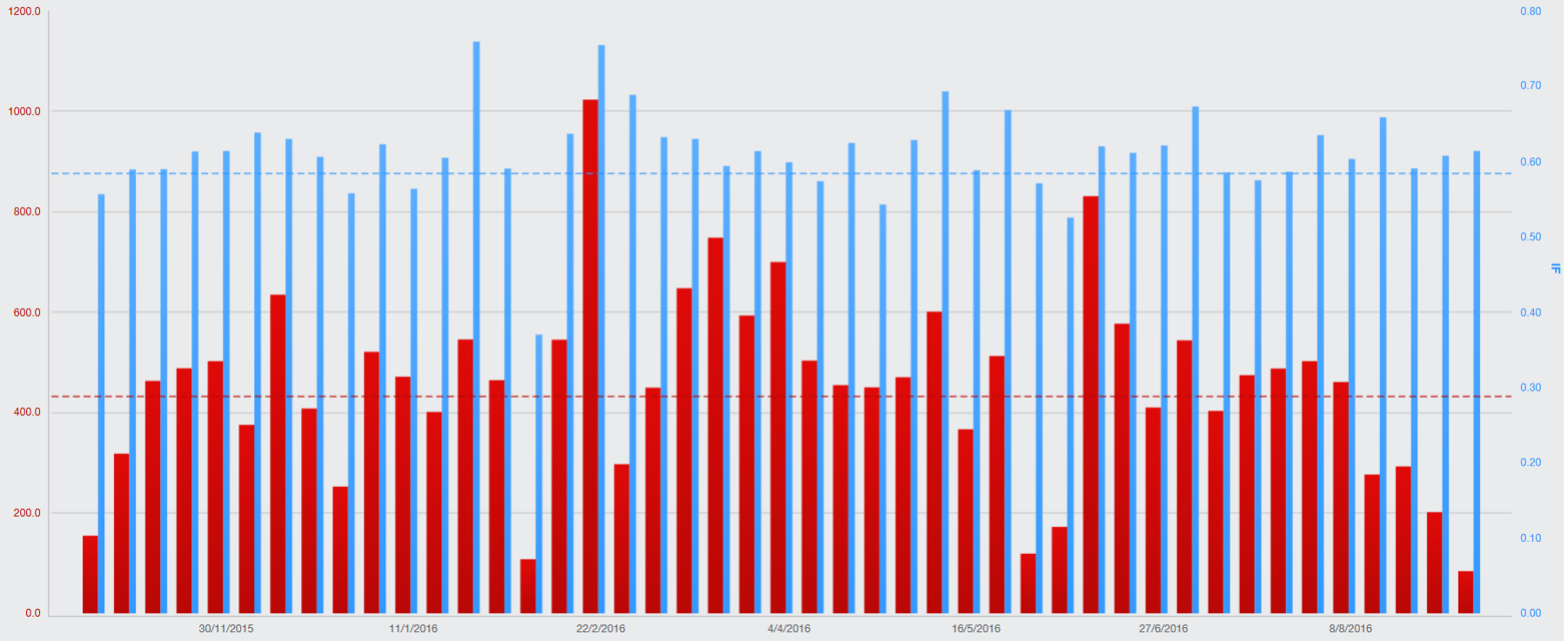
SOME BIKE TRAINING DATA



SOME BIKE TRAINING DATA

TSS by Week: All Workout Types

Average: 431.7 TSS, 0.58 IF



SOME PICS: 1999 JUNIOR WORLD VICE-CHAMPION



SOME PICS: RECOVERY STRATEGIES



SOME PICS: TESTING INDOOR & FIELD



SOME PICS: BAD RESULT WHEN OVERLOADED



SOME PICS: THE FAMILY



SOME PICS: THE BATTLE FOR THE BRONZE



SOME PICS: RIO 2016 START



SOME PICS: FINISH LINE



SOME PICS: HOW YOUR LIFE CHANGES

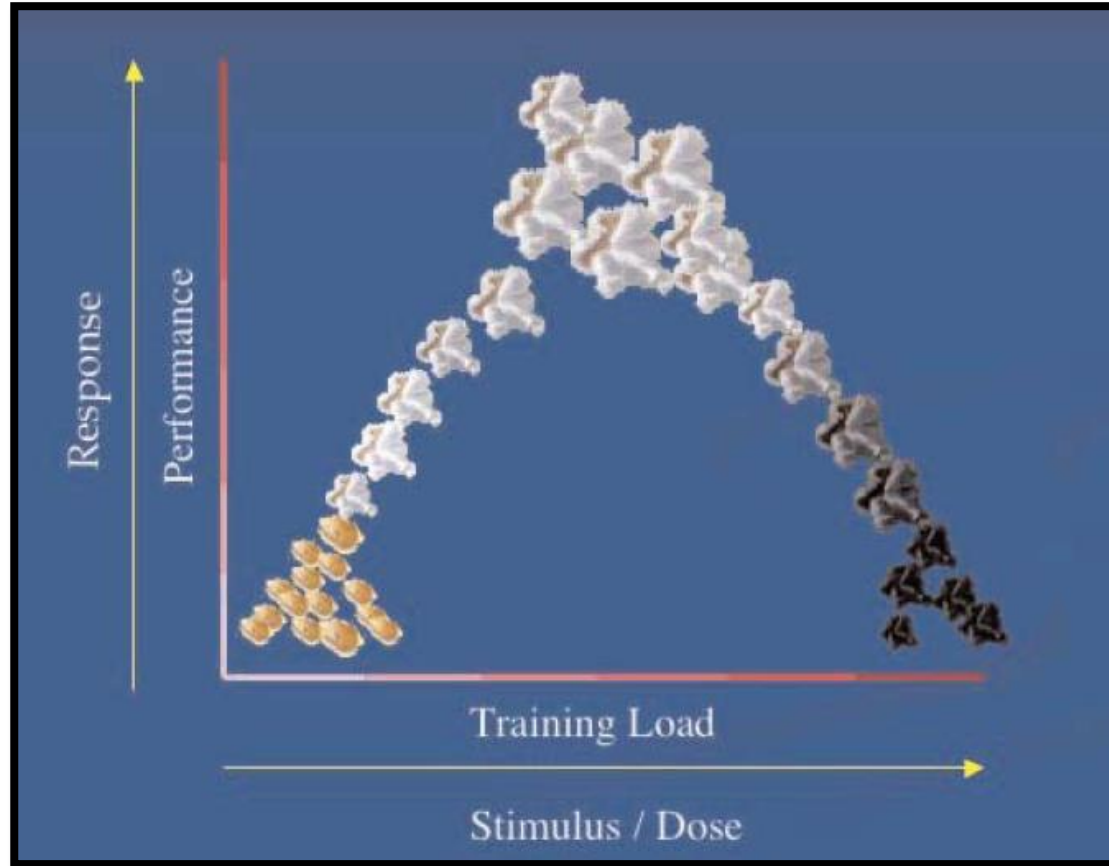


THE “POPCORN” ATHLETE

HORRIBLE-BAD-GOOD

-OPTIMUM

-GOOD-BAD-HORRIBLE



OPTIMUM TRAINING STIMULOUS (LIM, FROM SELYE)

SO, WE GOT IT!!! THANKS VERY MUCH FOR YOUR ATTENTION

