#Opentowork
Head of Performance-Sports Science Manager

My Philosophy: Planning & Periodisation, Science and Practice

Renaat Philippaerts, PhD

2024

Renaat Philippaerts

Master in Sports Sciences (KULeuven, 1992)

PhD in Sports Sciences (KULeuven, 1998)

UEFA A License (RBFA)

Physical Coach Level 2 (RBFA)

Ghent University for 15 years (2000-2015)

Physical Coach for 15 years (2008-2023)

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my professional timeline

1988-1998 MSc PhD

1998-2000

2000-2015

2004 UEFA A

2008-2011

2010

2011-2014

2012 2014

2014-2018

2015 2016 2018

2018-2023

....


STEENSTRAAT
NO SWEAT NO GLORY
OPEN TOURS
KAMPIOEN
DAIKIN
proximus

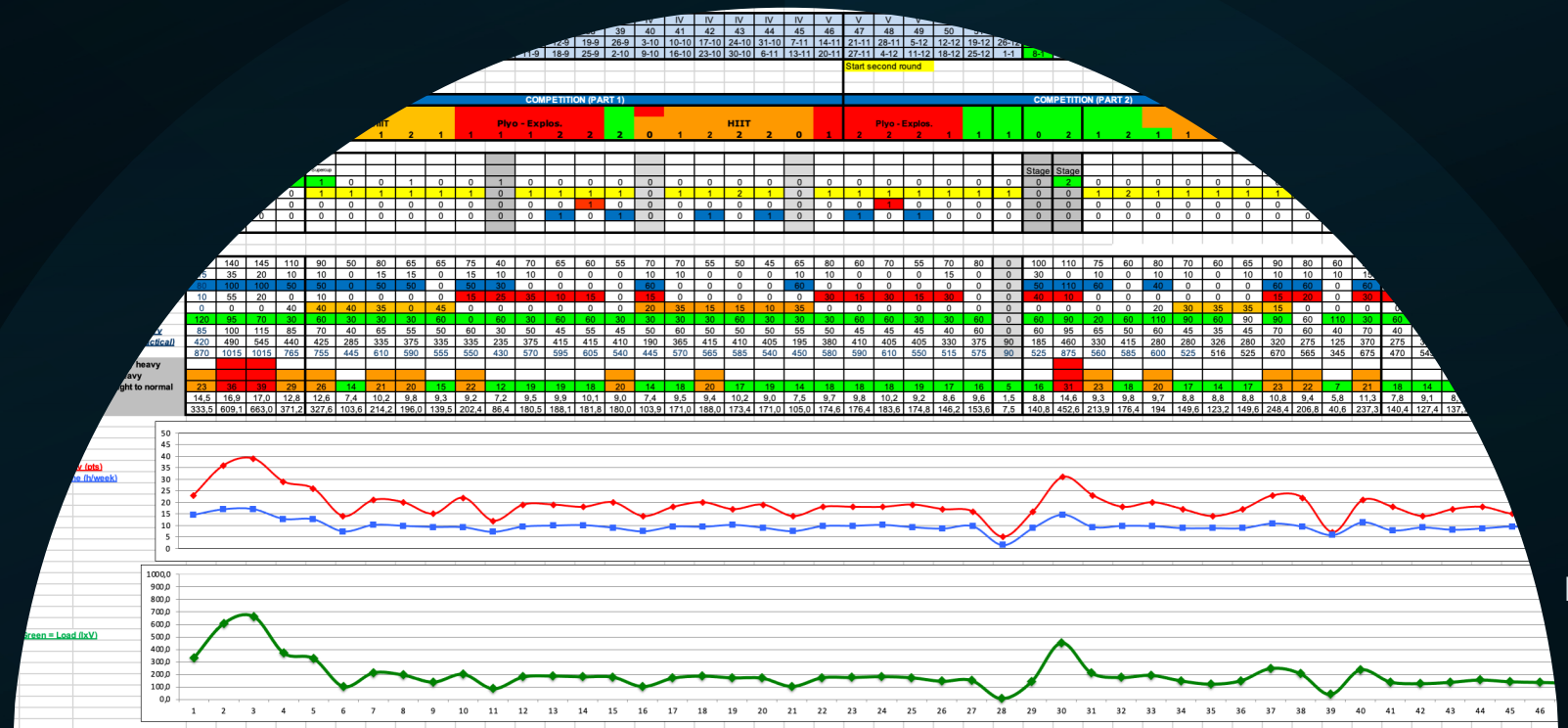
Before I start:
some general quotes and ideas

- We have to train harder than match demands.
- I prefer injuries during the training sessions rather than during the games.
- Do I prefer fresh players over fit players?
- Strength/explosive training can go together with endurance/interval training.
- Do we repeat every week the same rhythm-microcycle?
- Do we prefer physical variation over monotony?
- Long-term planning in professional football is absolutely needed.

My Philosophy:
Planning & Periodisation
Macrocycles
Mesocycles
Microcycles

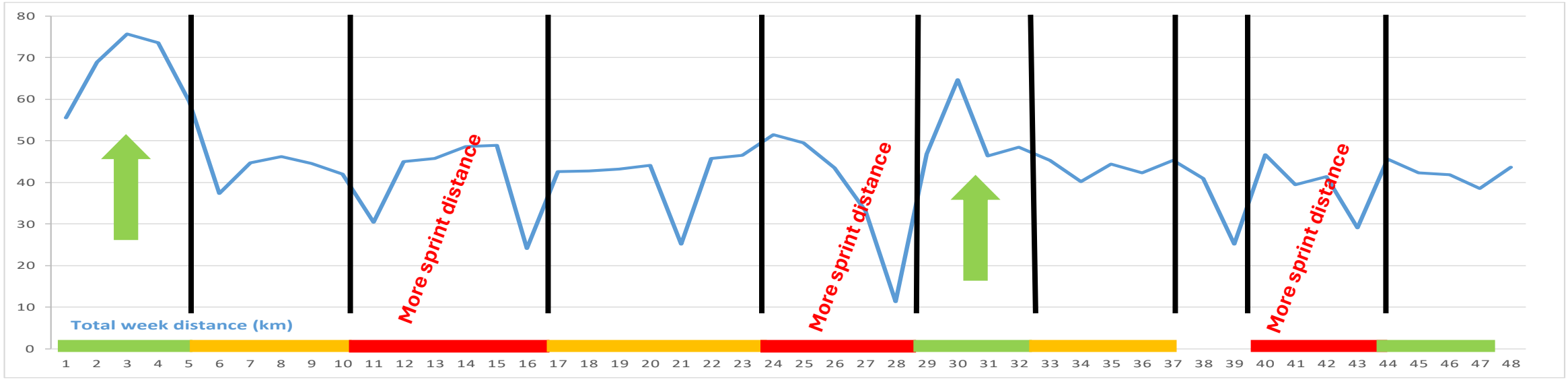
A global overview

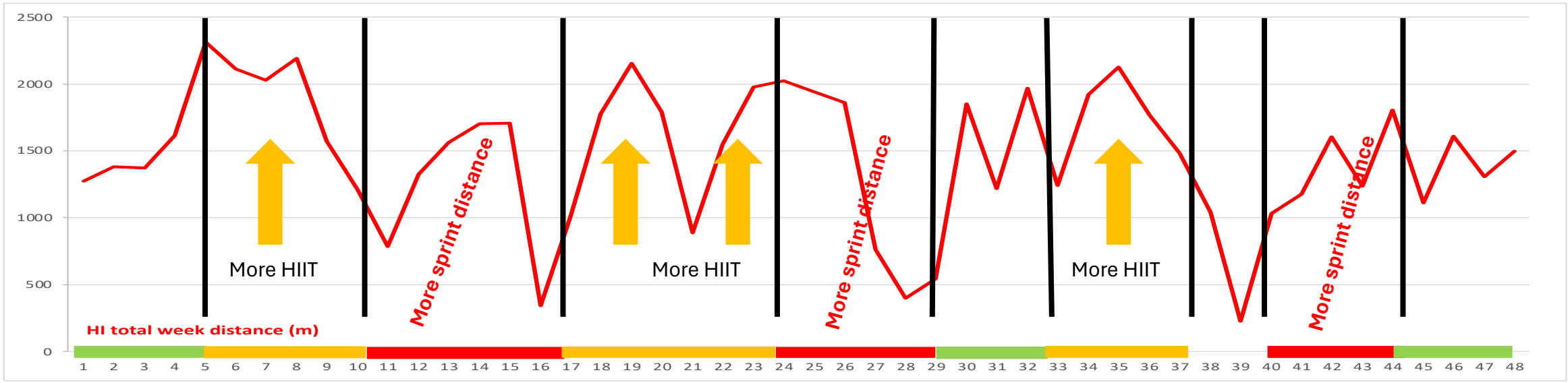
Two Macro Cycles of 6 months and 5 months: collective planning



Individual work not included!

Sequence of the meso cycles: blocks of 4, 5 or 6 weeks in the collective planning





Practice: Planning & Periodisation (some general guidelines)

	Week 1 Prep.	Week 2 Prep.	Week 3 Prep.	Week 4 Prep.	Week 5 Prep.	Week 6 (Start competition)	Week 7	Week 8	Week 9
# games	1 friendly	1 friendly	2 friendly	2 friendly	1 friendly	1	1	1 + 1 friendly	1
Overload	Ext. Endurance Coordination Basic Strength		Int. Endurance Ext. Interval (long) Basic & Max. Strength		Ext. Interval Basic & Max. Str	Intensive Interval Max. Strength			xplosivity peed . Str/P
Underload	.....				.....				.....
Football specific?	.....				.....		.....		
How non-specific?	.....		.....			.....			.....
Planned volume, games incl. (h/week)	14-15	17-20	17-20	15-17	12-15	7-10	10-12	10-12 Individual work not included!	10-12

Football specific: only general guidelines, SSGs are important but can vary according to the philosophy of the coach (tactical periodisation or not?). Therefore, physical work without ball is important.

For more information, do not hesitate to contact me

	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18
# games	1	1 friendly	1	2	2	2	0	1	2
Overload	Explosivity Speed Explosive Power			Extensive - Intensive interval Maximal Strength				(Max) Speed Explosive Power	
Underload	.....			.....				.....	
Football specific?	.....			.....				.....	
How non-specific?	...			.....				.....	
Planned volume, games incl. (h/week)	9-10	7-9	9-10	9-10	9-11	9-11	7-8	9-10 Individual work	9-10 not included!

Football specific: only general guidelines, SSGs are important but can vary according to the philosophy of the coach (tactical periodisation or not?). Therefore, physical work without ball is important.

For more information, do not hesitate to contact me

Example: some numbers from an individual player

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total distance (km)	57,8	78,1	72,1	53,0	55,7	37,4	44,7	55,0	46,1	44,6	32,2	46,9	50,3	51,9
0-15 km/h (km) (%)	54,8 (95%)	68,6 (88%)	61,9 (86%)	44,4 (83%)	47,7 (85%)	30,0 (80%)	38,0 (85%)	46,2 (84%)	38,8 (84%)	37,2 (83%)	27,6 (86%)	40,2 (86%)	41,1 (82%)	42,5 (82%)
15-20 km/h (km) (%)	2,6 (5%)	7,2 (9%)	7,7 (11%)	6,7 (13%)	5,6 (10%)	5,3 (14%)	5,1 (11%)	6,1 (11%)	5,8 (13%)	5,1 (11%)	3,0 (9%)	4,3 (9%)	6,0 (12%)	6,2 (12%)
20-25 km/h (km) (%)	0,3 (1%)	1,2 (2%)	1,4 (2%)	1,0 (2%)	1,4 (3%)	1,4 (4%)	0,8 (2%)	1,3 (2%)	0,9 (2%)	0,7 (2%)	0,4 (1%)	0,7 (2%)	1,2 (2%)	1,1 (2%)
25-... km/h (km) (%)	0,1 (0%)	0,9 (1%)	0,9 (1%)	0,6 (1%)	0,8 (1%)	0,6 (2%)	0,7 (1%)	1,3 (2%)	0,4 (1%)	1,5 (3%)	1,1 (3%)	1,5 (3%)	1,9 (4%)	1,9 (3%)


Al-Shabab FC

Why mesocycles of 4, 5, or 6 weeks?

REVIEW ARTICLE

Sports Med 2004; 34 (3): 165-180
0112-1642/04/0003-0165/$31.00/0

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Endurance and Strength Training for Soccer Players

Physiological Considerations

Jan Hoff and *Jan Helgerud*

Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, Norway

Contents

Hoff & Helgerud, 2004

- VO_2max is probably the single most important factor determining success in an aerobic endurance sport…but less sensitive to training-induced adaptations than AT and ANT (LT)
- Intermittent exercise at 90-95% of HRmax for 3-8 minutes involves a major load on the oxygen-transporting organs
- VO_2max and related parameters: improvement 10-30% within **8-10 weeks** of training
- Strength training in football players: 70-85% of 1RM, basic-maximal strength and hypertrophy, 3 times/week, **8 weeks**:
  - Strength gains: 25-50%
  - Rate of force development: +52%
  - 10m sprint: -0,08sec
  - 40m sprint: -0,13sec

Nader, 2006, Medicine and Science in Sports and Exercise 38 (11): 1965-1970.

Concurrent Strength and Endurance Training: From Molecules to Man

GUSTAVO A. NADER

Research Center for Genetic Medicine, Children's National Medical Center, Washington, DC

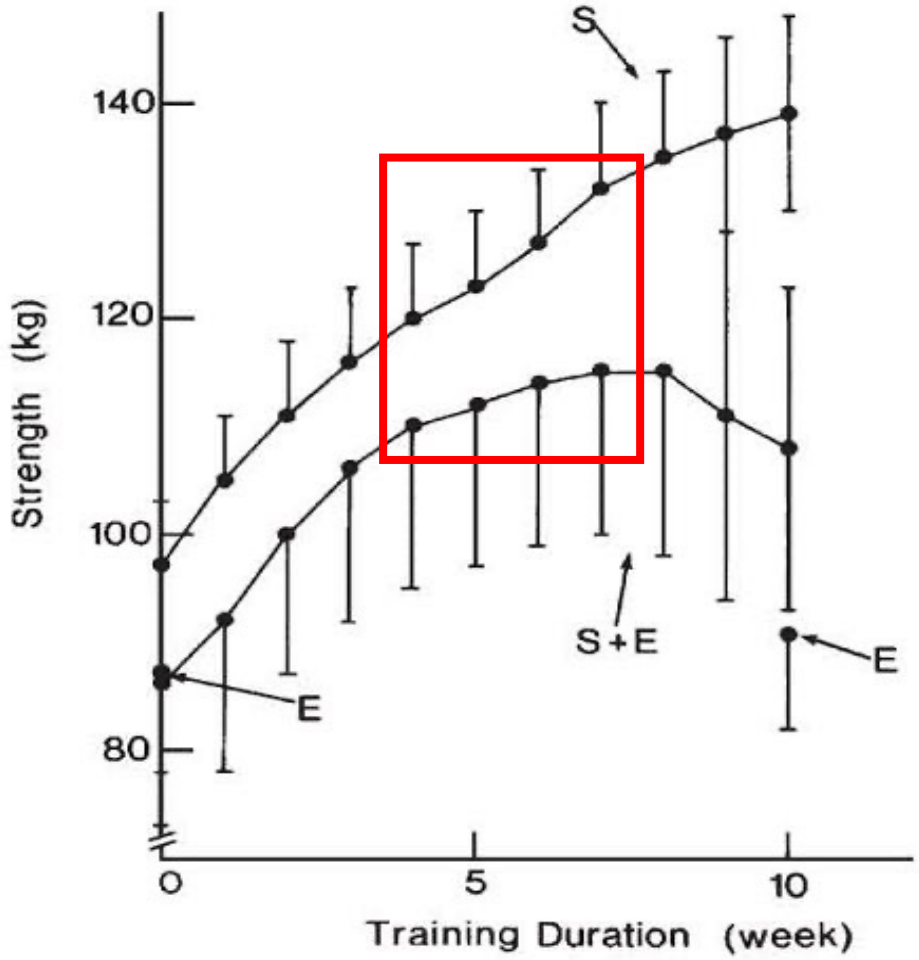
ABSTRACT

NADER, G. A. Concurrent Strength and Endurance Training: From Molecules to Man. *Med. Sci. Sports Exerc.*, Vol. 38, No. 11, pp. 1965–1970, 2006. Strength and endurance training produce widely diversified adaptations, with little overlap between them. Strength training typically results in increases in muscle mass and muscle strength. In contrast, endurance training induces increases in maximal oxygen uptake and metabolic adaptations that lead to an increased exercise capacity. In many sports, a combination of strength and endurance training is required to improve performance, but in some situations when strength and endurance training are performed simultaneously, a potential interference in strength development takes place, making such a combination seemingly incompatible. The phenomenon of concurrent training, or simultaneously training for strength and endurance, was first described in the scientific literature in 1980 by Robert C. Hickson, and although work that followed provided evidence for and against it, the interference effect seems to hold true in specific situations. At the molecular level, there seems to be an explanation for the interference of strength development during concurrent training; it is now clear that different forms of exercise induce antagonistic intracellular signaling mechanisms that, in turn, could have a negative impact on the muscle's adaptive response to this particular form of training. That is, activation of AMPK by endurance exercise may inhibit signaling to the protein-synthesis machinery by inhibiting the activity of mTOR and its downstream targets. The purpose of this review is to briefly describe the problem of concurrent strength and endurance training and to examine new data highlighting potential molecular mechanisms that may help explain the inhibition of strength development when strength and endurance training are performed simultaneously. **Key Words:** EXERCISE, SKELETAL MUSCLE, ADAPTATION, SIGNAL TRANSDUCTION

Nader GA, 2006, Medicine and Science in Sports and Exercise 38 (11): 1965-1970.

Seipp D, et al, 2022, International Journal of Sport Science & Coaching 18 (4)

- Concurrent Training can be effective in improving multiple physiological qualities – both endurance and strength - in team sports athletes, including football players. After 6-7 weeks, a plateau in strength outcomes.
- However, important to note that the effects of Concurrent Training may vary depending on factors such as training status and age. Older and more experienced players may have more pronounced interference effects from Concurrent Training.
- So, consider factors as extended recovery time, sequence order, and endurance modalities.
- Finally, preferably strength training before endurance training to improve both endurance and strength simultaneously.



Robert C. Hickson (1980), in Nader (2006)

Ronnestad BR; Kvamme NH; Sunde A; Raastad T, 2008, Journal of Strength and Conditioning Research 22(3): 773-780

Short-Term Effects of Strength and Plyometric Training on Sprint and Jump Performance in Professional Soccer Players

Bent R. Ronnestad,[1] Nils H. Kvamme,[2] Arnstein Sunde,[3] and Truls Raastad[2]

[1]Faculty of Social Science, Lillehammer University College, Lillehammer, Norway; [2]Norwegian College of Sport Sciences, Oslo, Norway; [3]Department of Sport and Outdoor Life Studies, Telemark University College, Bø, Norway

- a 7-week programme was sufficient to significantly increase strenght and power-related outcomes
- 3 groups: control group, strength training group, strength training group with supplementary plyometrics
- during preparation period

Address correspondence to Bent R. Ronnestad, bent.ronnestad@hil.no.

22(3)/773–780

Journal of Strength and Conditioning Research

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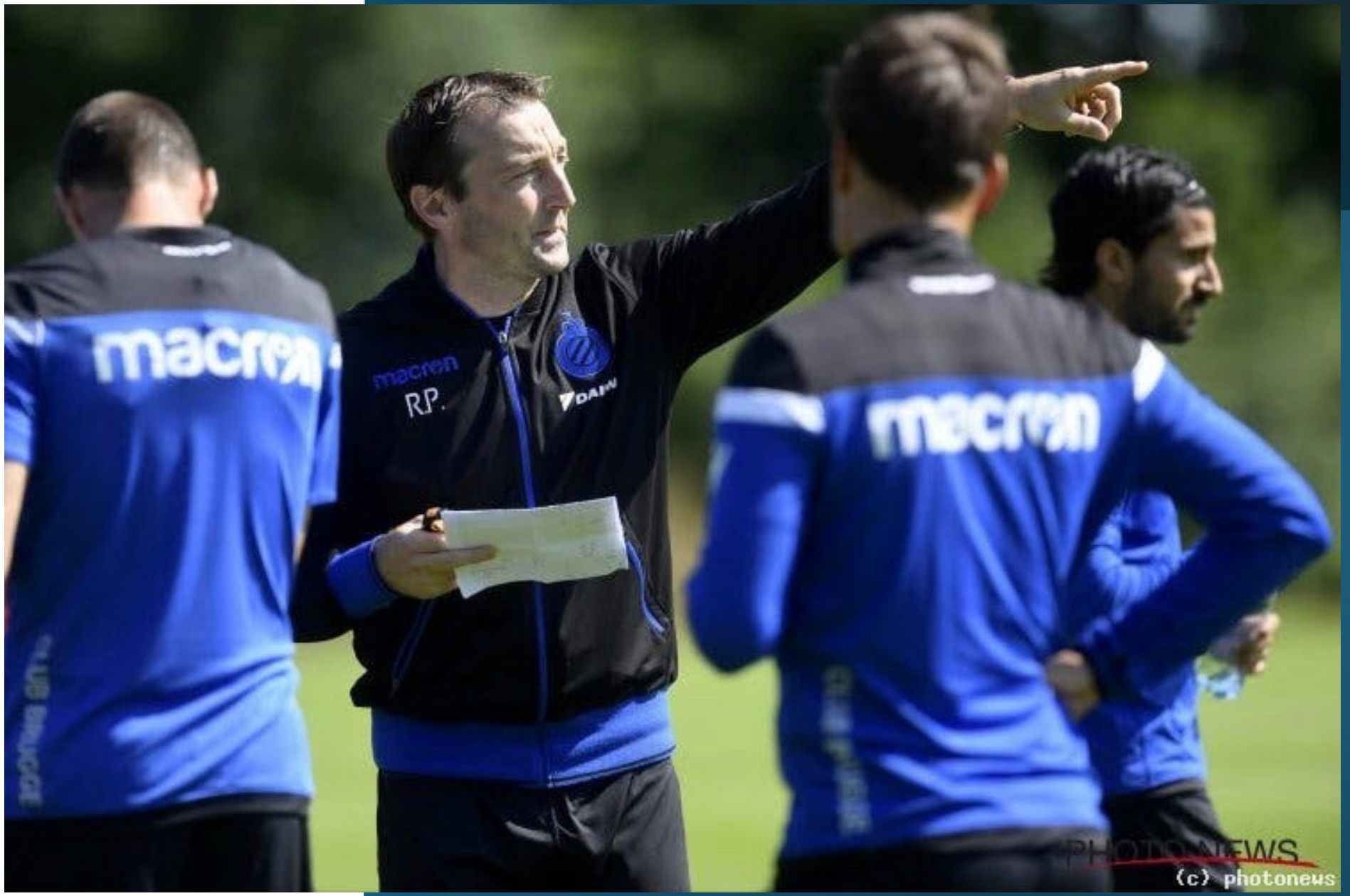
So: Why mesocycles of 4, 5, or 6 weeks?

- The literature confirms that significant improvements are already visible and demonstrable after 5 to 6 weeks, and this for (most of) all the football performance-related characteristics
- A mesocycle of 4 weeks is the minimum and this is only chosen based on the playing schedule, as well as on the fitness level of the players (better fitness, shorter mesocycles)
- Longer mesocycles with one particular dominant (overload) character are very difficult to implement in professional football (playing schedule is too busy, and almost impossible with 2 games per week)
- Too long mesocycles seem annoying to most football players, it tends too much towards monotony and can be detrimental to the group dynamics (own experiences)
- Communicating clearly to the players what is expected during the mesocycles is a must (what and why?)


macron
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(c) photonews

Microcycles

✓Tactical periodisation or not?

- "Tactics is not a physical dimension, it is not technical, it is not psychological, but it needs all three to manifest itself" (Frade, 1996).
- Tactical periodization respects the principle of the inseparable integrity of the game, incorporating in each exercise the four dimensions that make up football performance: tactical, technical, psychological, and physical.
- This training methodology focuses heavily on getting players to train in a way that mirrors the intensity and pressure of an in-game situation, in full pitch or smaller areas of the pitch.
- But in a day-to-day changing schedule of physical characteristics (MD, MD+1, MD+2, MD+3, MD-3, MD-2, MD-1, MD)

Microcycles

✓Tactical periodisation or not?

- Unfortunately, a number of coaches think they work according to the principles of tactical periodization, but in fact they do not.
- In my opinion, there is a danger that the players are undertrained, i.e. not trained hard enough (during some important periods).

- Therefore, tactical periodisation is of course possible (according to the philosophy of the head coach)
- With respect of the collective planning and periodisation (planned mesocycles)
- So, always having the possibility to include collective or individual physical sessions within a training session (in the session or at the end of a session)

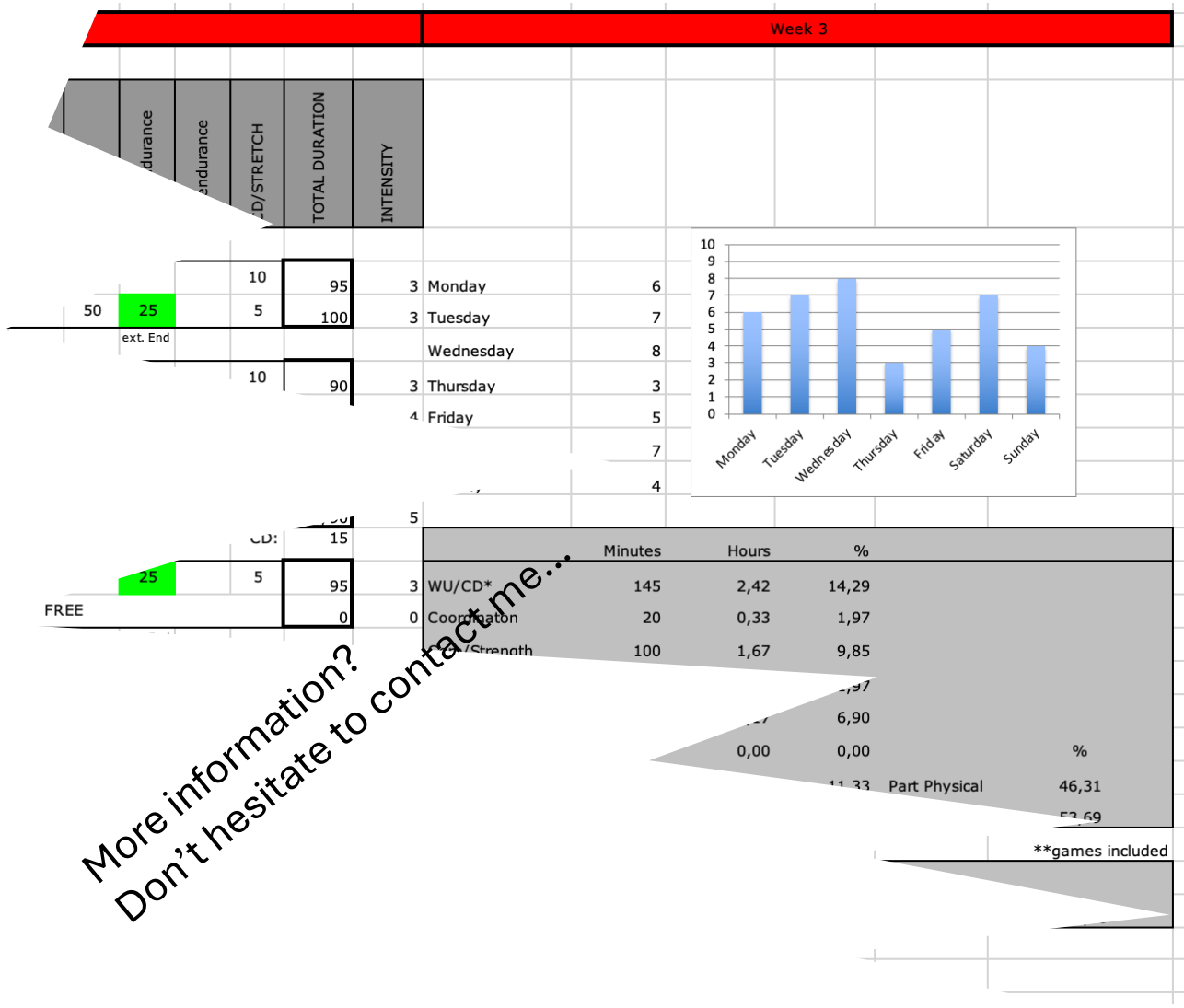
- Tactical periodisation not necessarily in preparation periods
- I prefer an active recovery session and a compensation session on MD+1

Microcycles

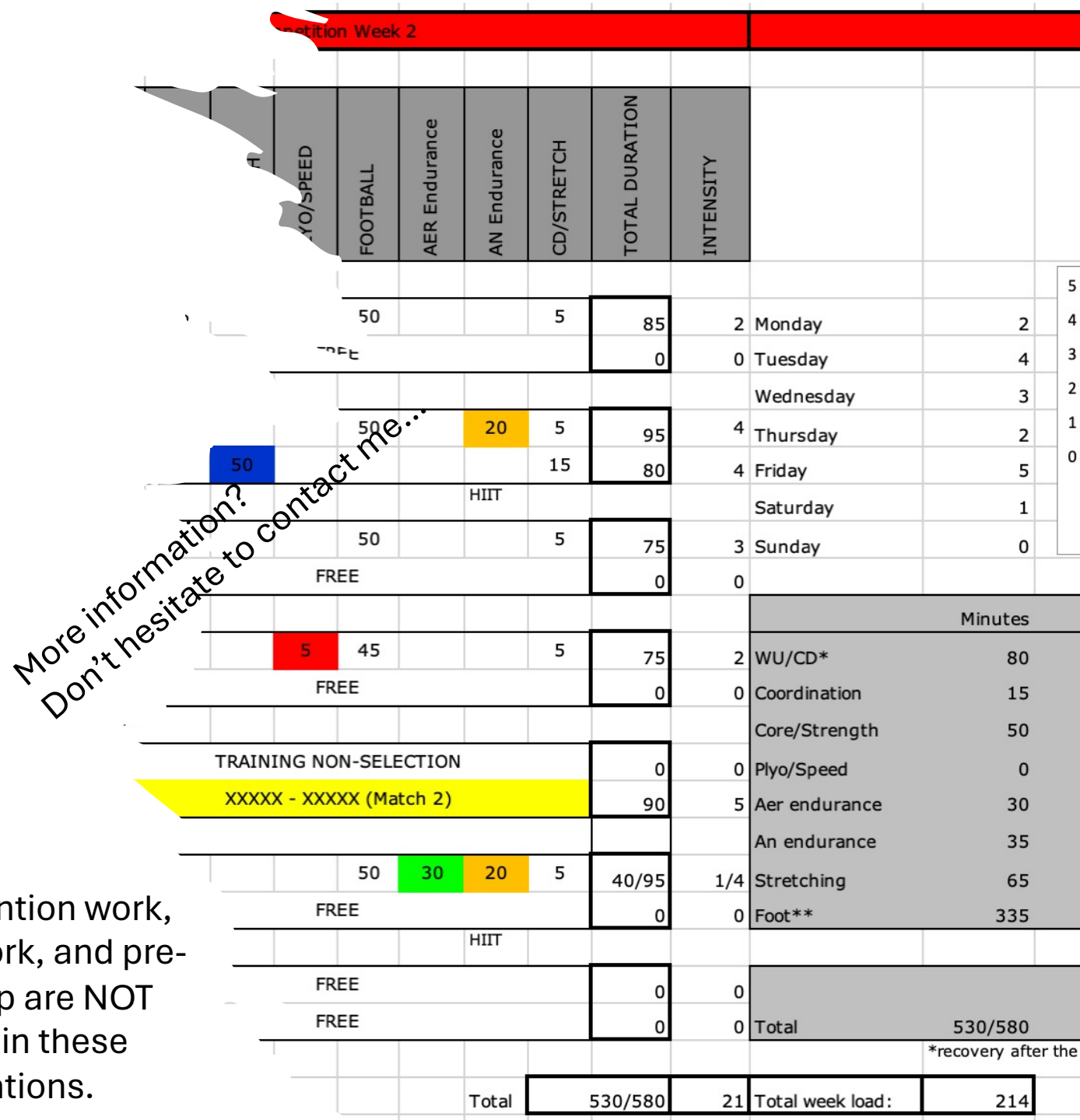
✓Adapted model of tactical periodisation

	Classic model	Adapted model
MD	Game	Game
MD+1	Free, passive recovery	Active recovery & Compensation
MD+2	Active recovery, muscle tension	Free, passive recovery
MD+3	Strength, muscular resistance	Volume / Endurance
MD+4 / MD-3	Endurance / longer duration in muscular resistance	HIIT / Strength / Speed Explosivity (according to mesocycles)
MD-2	Speed	Active recovery Tactics
MD-1	Active recovery	Short with some intensity Tactics
MD	Game	Game

Microcycle Week 3 Preparation: extensive to intensive endurance



Microcycle Week 2 Competition Int Interval (HIIT)



petition Week 2

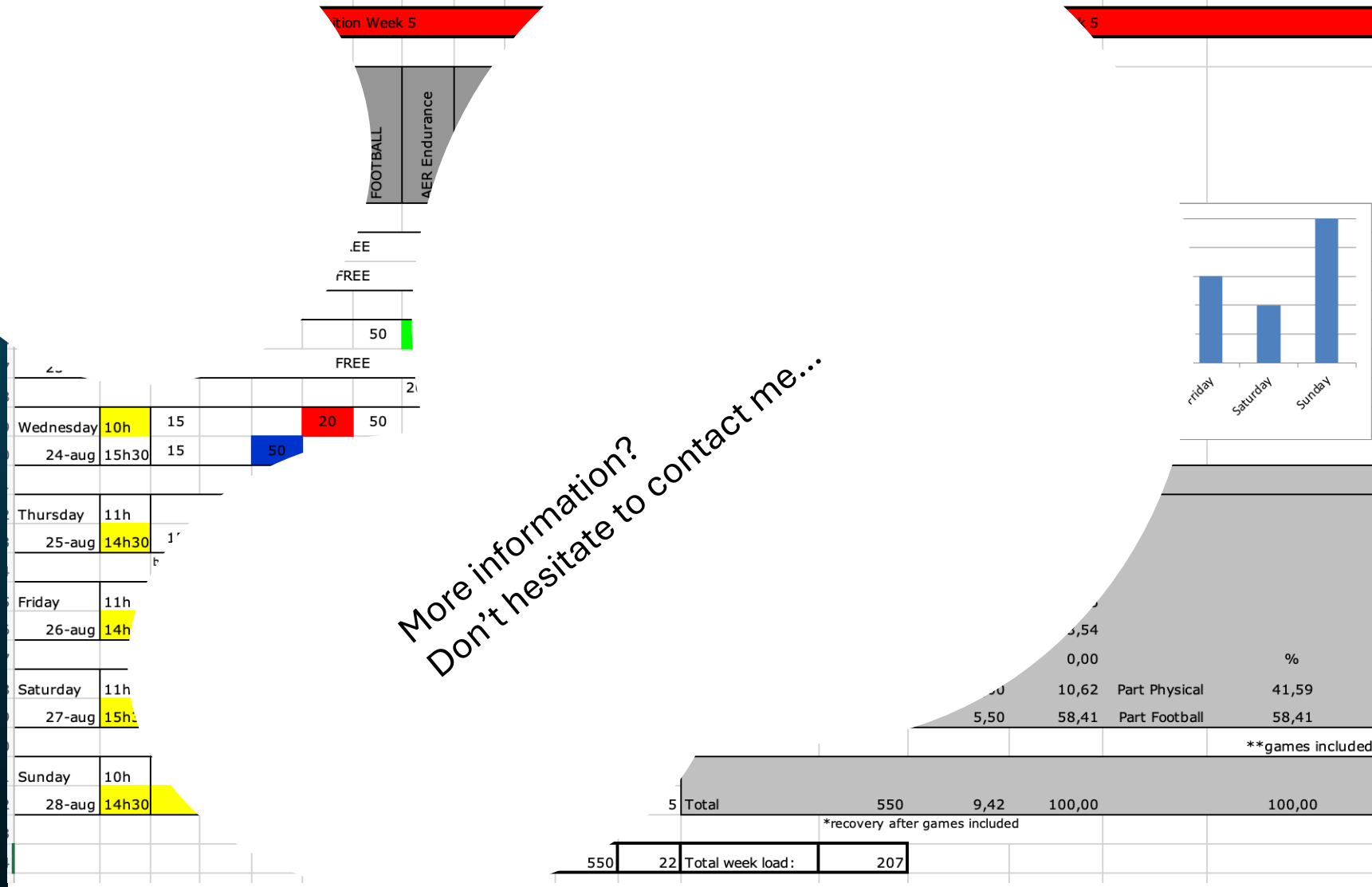
YO/SPEED	FOOTBALL	AER Endurance	AN Endurance	CD/STRETCH	TOTAL DURATION	INTENSITY		
	50			5	85	2	Monday	2
	FREE				0	0	Tuesday	4
							Wednesday	3
	50		20	5	95	4	Thursday	2
50				15	80	4	Friday	5
			HIIT				Saturday	1
	50			5	75	3	Sunday	0
	FREE				0	0		
								Minutes
5	45			5	75	2	WU/CD*	80
	FREE				0	0	Coordination	15
							Core/Strength	50
	TRAINING NON-SELECTION				0	0	Plyo/Speed	0
	XXXXX - XXXXX (Match 2)				90	5	Aer endurance	30
							An endurance	35
	50	30	20	5	40/95	1/4	Stretching	65
	FREE				0	0	Foot**	335
			HIIT					
	FREE				0	0		
	FREE				0	0	Total	530/580
								*recovery after the
			Total		530/580	21	Total week load:	214

5
4
3
2
1
0

More information?
Don't hesitate to contact me...

Injury prevention work, individual work, and pre-warming up are NOT included in these calculations.

Microcycle Week 6 Competition Explosivity Speed



Injury prevention work, individual work, and pre-warming up is NOT included in these calculations. This is the "collective part".


أبو متعب
شعبك يحبك


ALSHABAB FC
1947

Some general quotes and ideas …my answers

- We have to train harder than match demands.

Yes, some moments in each mesocycle.

- I prefer injuries during the training sessions rather than during the games.

Yes

- Do I prefer fresh players over fit players?

No, first of all, I prefer fit players. Towards the end of the season, I prefer fresh players.

- Strength/explosive training can go together with endurance/interval training.

Yes

Some general quotes and ideas …my answers

- Do we repeat every week the same rhythm-microcycle?

No, microcycle according to the mesocycle. But microcycles always in function of the games (MD-2, MD-1, MD).

- Do we prefer physical variation over rather monotony?

Yes, physical variation.

- Long-term planning in professional football is absolutely needed.

Yes

Furthermore,
as Sports Science Manager, as Head of Performance, as Performance Director, …

- Partner with the General Manager, Sport Technical Director, Head of Medical, Academy Director, Head Coaches, and Technical Staff to support and maximize the athletic potential of players in line with the club's Strategic Plan
- Create the overall high-performance strategy, policies, and procedures of the club
- Manage the full-time/part-time specialists/experts (physical coaches) of the club
- Lead organization-wide programming (nutrition, sleep, recovery, strength and conditioning, mental conditioning, altitude training, jet lag strategy, …) and collaborate with experts in their field to oversee the implementation of this programming
- Responsible for analyzing and reporting on all performance data (training and testing, physical data, GPS tracking, match data, …)
- Provide support to meet the diverse needs of both senior teams and youth teams (boys and girls)
- Lead all aspects of the team's athletic performance assessment and monitoring processes, also a regular follow-up of the players on loan (report of physical and medical status)
- Oversee regular physiological and biomechanical assessments, according to the planning and periodization
- Assist in, analyze, and interpret complex information (e.g., player performance and proficiency, …) to share with Technical Staff, Head Coaches, and players
- Collaborate with the Head of Medical, develop fundamental sport science processes and collaborate in sport medicine decisions, including monitoring and management of player workloads and recovery, and return-to-play
- Manage upkeep of performance training, sport science, and sport equipment and technology, and participate in innovation


Fred Moisse - www.standard.be

“Van een goede trainer wordt verwacht dat hij een redelijk(e) ***kunstenaar*** is.”

“On attend d'un bon entraîneur qu'il soit un ***artiste*** raisonnable.”

Buekers M, 1994

“A good trainer is expected to be a reasonable ***artist***.”

“Un buon allenatore deve essere un ***artista*** ragionevole.”

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#Opentowork
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If you would like more information about my way of working or would like to collaborate, please do not hesitate to contact me.

For more information, check my website renaatphilippaerts.com