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Montaña**

2nd International Congress  
Hiking and Mountain Sports

3rd International Congress  
Women and Mountain

# PERFORMANCE AND COMPETITION AREA

**Reverse Periodization in Ultratrail:  
The Road to the 2023 World Mountain and  
Trail Running Championships of an elite  
female ultrarunner**

**Prof. Arcadi Margarit**







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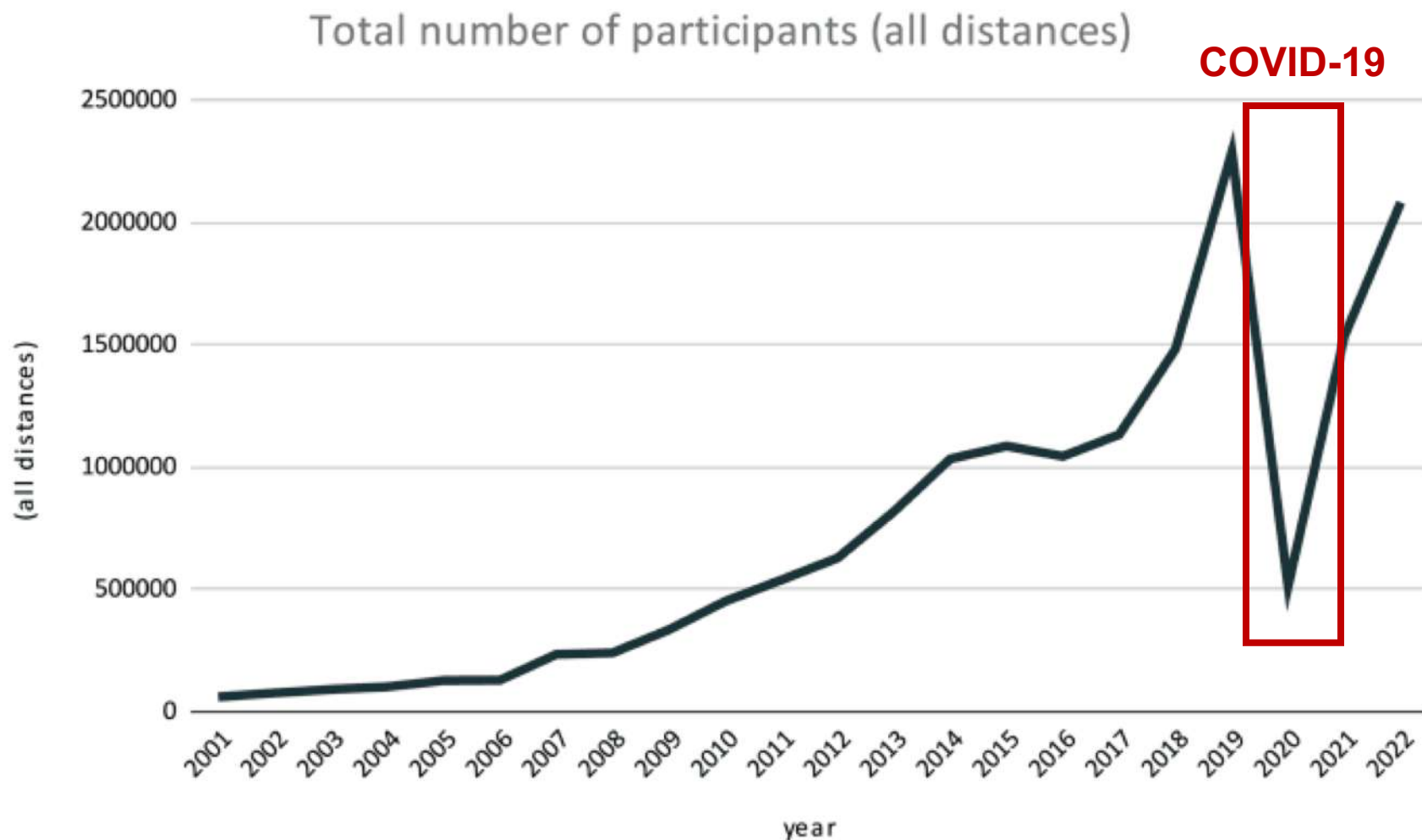
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# Trail Running

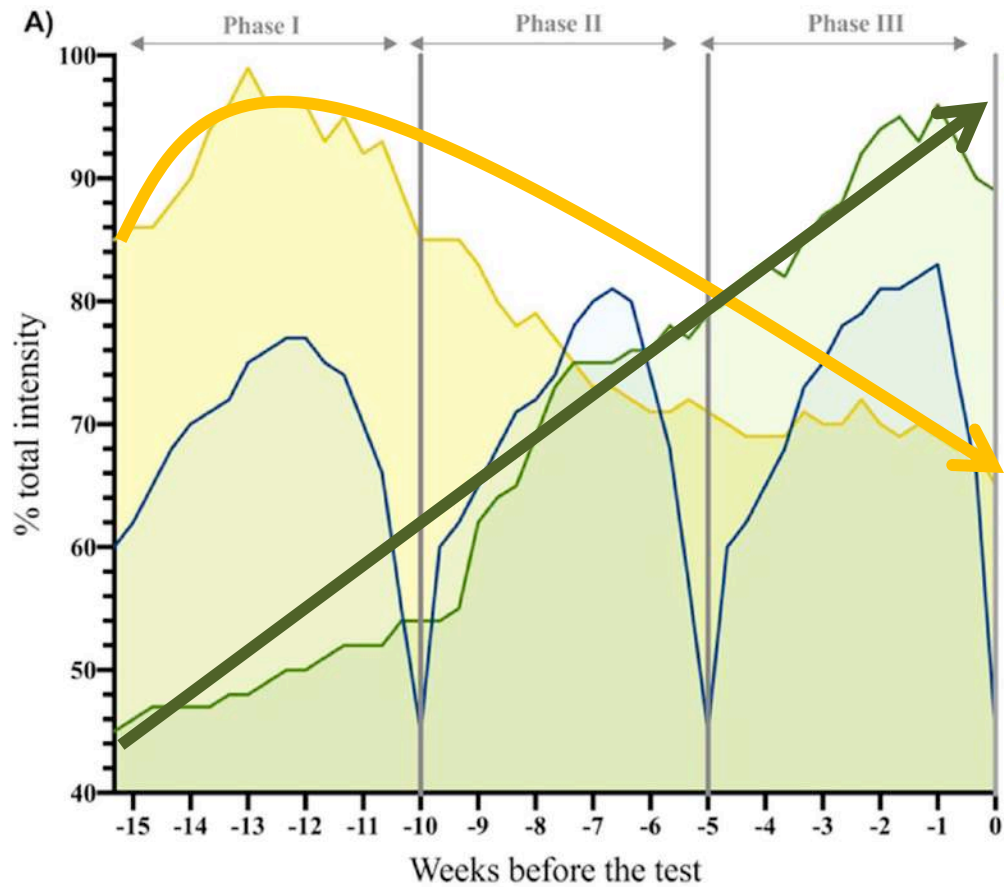


Andersen, J. (2022). The State of Trail Running 2022. Retrieved from <https://runrepeat.com/the-state-of-trail-running-2022#trail-running-participation-trends>

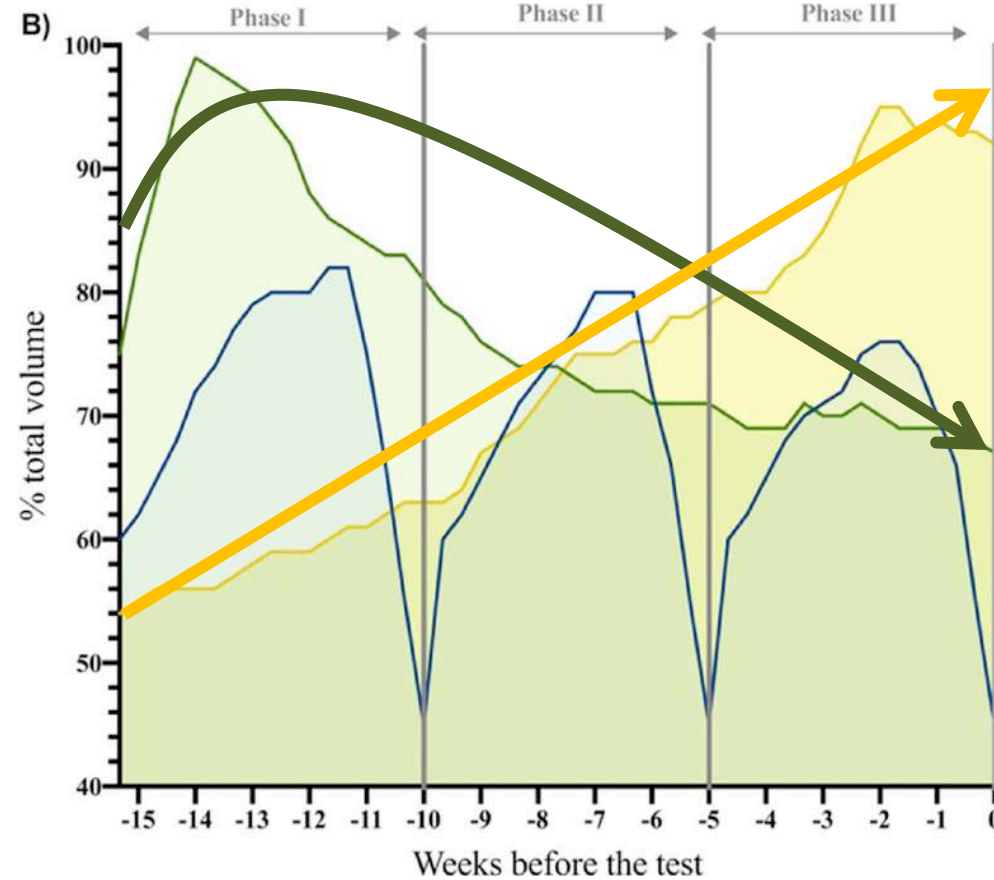


# Traditional vs Reverse Periodization

Mesocycle **INTENSITY** distribution



Mesocycle **VOLUME** distribution



Reverse Block Traditional

González-Ravé et al. (2022)





# What does Science say about Reverse Periodization?

**Volume** phase might be insufficient to apply and replicate **real situations** in runners -especially at a good level

Arroyo-Toledo et al. (2013); Clemente-Suárez et al. (2019); Gómez-Martín et al. (2020); Bradbury et al. (2020); González-Ravé et al. (2022)

**Reverse Periodization** can be an effective type of periodization within the appropriate context specially versus non periodization, **both male and FEMALE athletes**

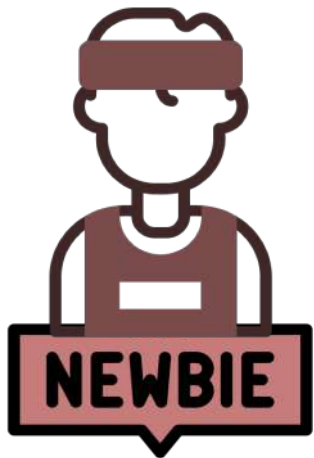
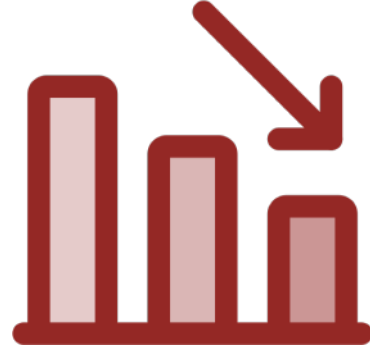
Arroyo-Toledo et al. (2013); Clemente-Suárez et al. (2019); Gómez-Martín et al. (2020); Bradbury et al. (2020); González-Ravé et al. (2022)

**No studies on Reverse Periodization (RP) + Trail Running  
(+ elite athlete + female athlete)**

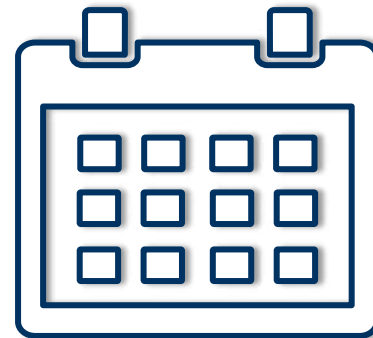


# Pros vs Cons of RP

## DISADVANTAGES



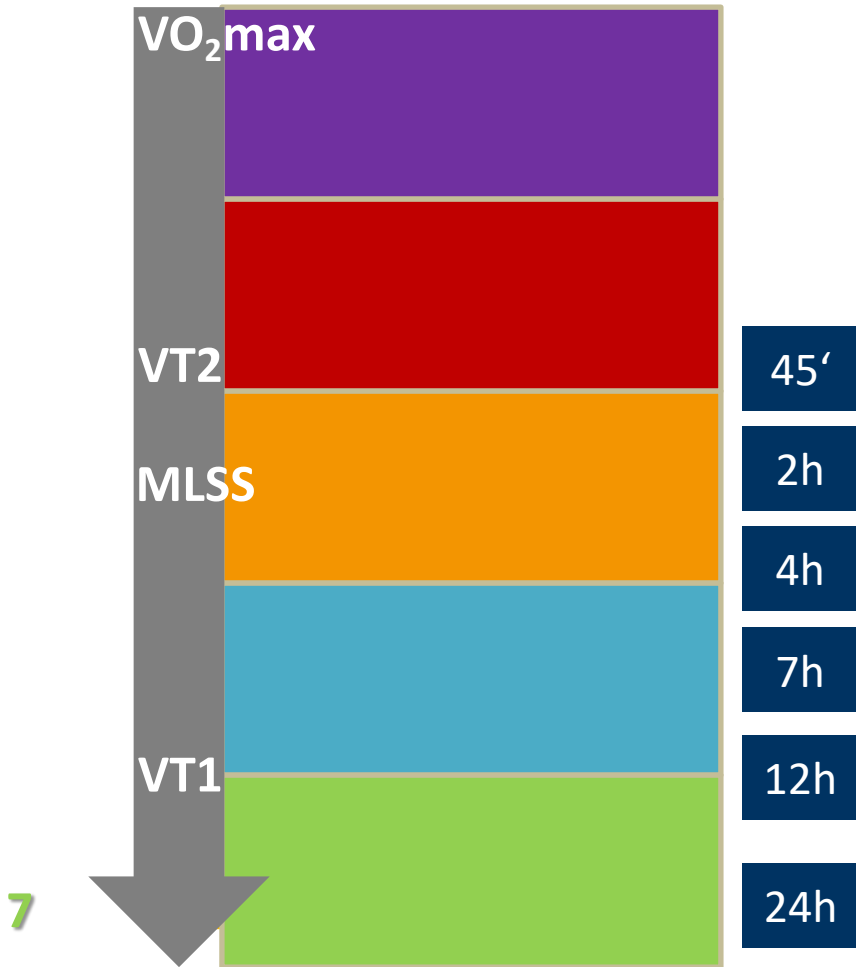
## ADVANTAGES





# Why and when Reverse Periodization?

## Average intensity in trail running competitions





# Why and when Reverse Periodization?



INTENSITY

VOLUME

Time-course  
adaptations

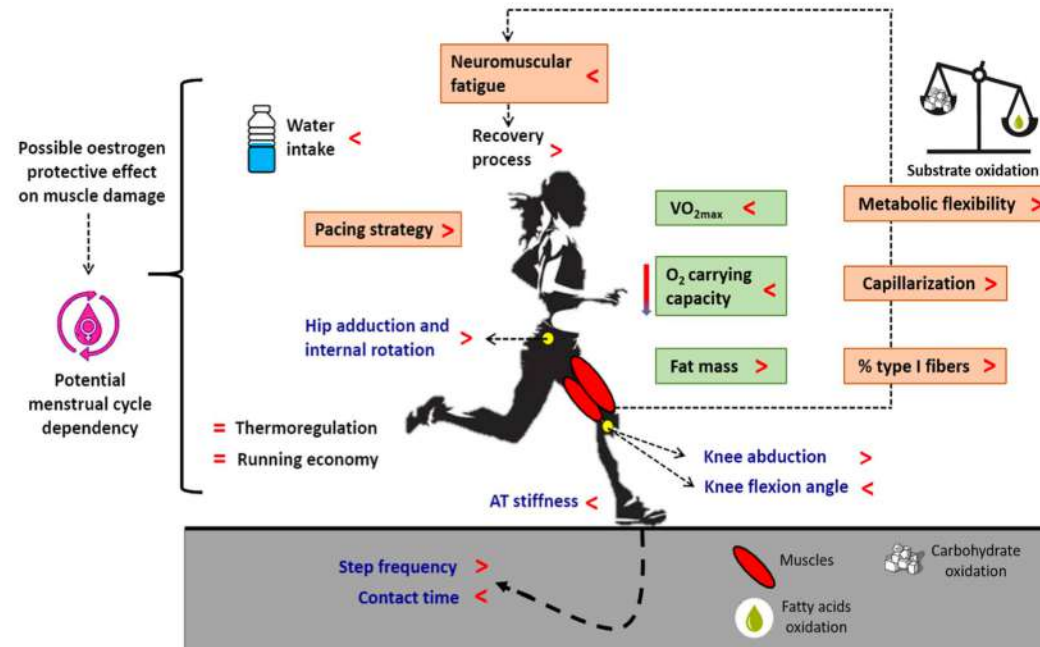
Specificity (not  
only in fitness)

Individual  
**WEAKNESSES**  
aligned (or not) with  
base preparation

Individual  
**STRENGTHS** aligned  
with specific  
preparation

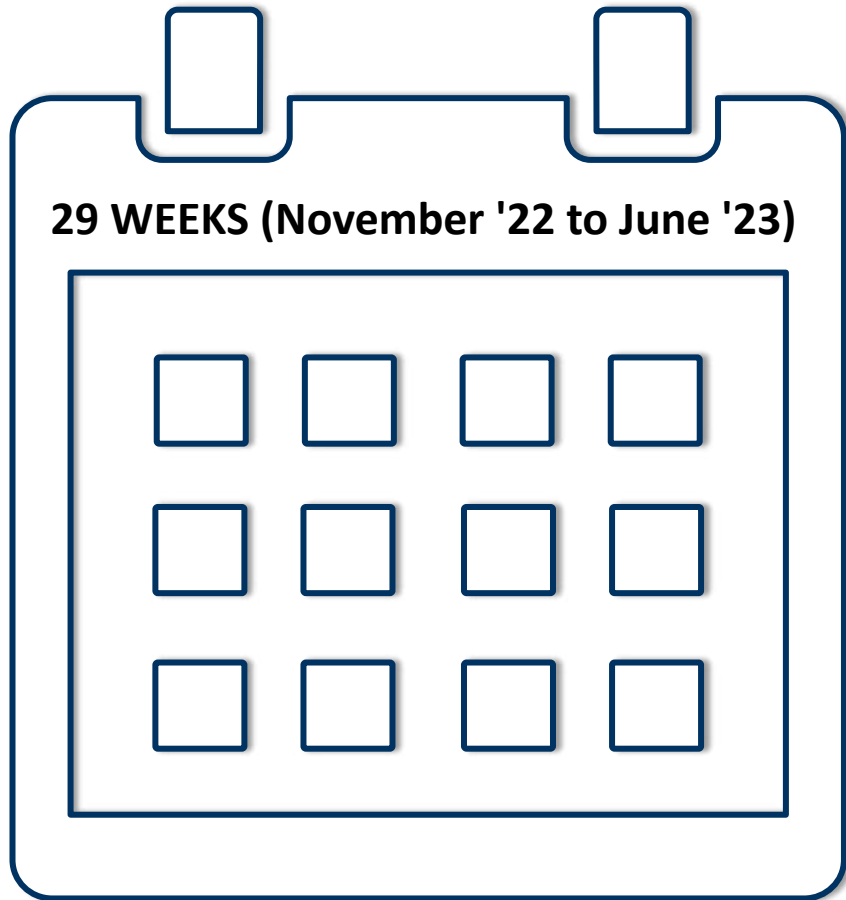
Focus on  
**SHORTER OR  
LONGER** races

Progressing from  
**SHORTER TO  
LONGER** races



Sex Differences in Endurance Running. Besson et al. (2022)

# Reverse Periodization in Ultratrail



- ➡ Regional Championship 25k (05.02.23)
- ➡ National Marathon Championship (25.02.23)
- ➡ National Ultratrail Championship (28.04.23)
- ➡ World Ultratrail Championship (09.06.23)

TRAINING





## TRAINING PERIODS

BLOCKS
Preparatory (November - December)
Base (January - Marathon)
Specific I (March- National Ultratrail)
Specific II (April – World Championship)



# Reverse Periodization in Ultratrail

## DATA TRAINING ANALYSIS

TRAINING FORM				
Endurance		Strength	Complementary sessions	
INTENSITY				
Low	Moderate		High	
ENDURANCE MODE				
Cycling		Elliptical	Road running	Trail running
SPECIFIC LOCOMOTION MODE GOAL SESSION				
Running uphill	Running flat	Running Downhill	Hiking	Mixed





# Reverse Periodization in Ultratrail

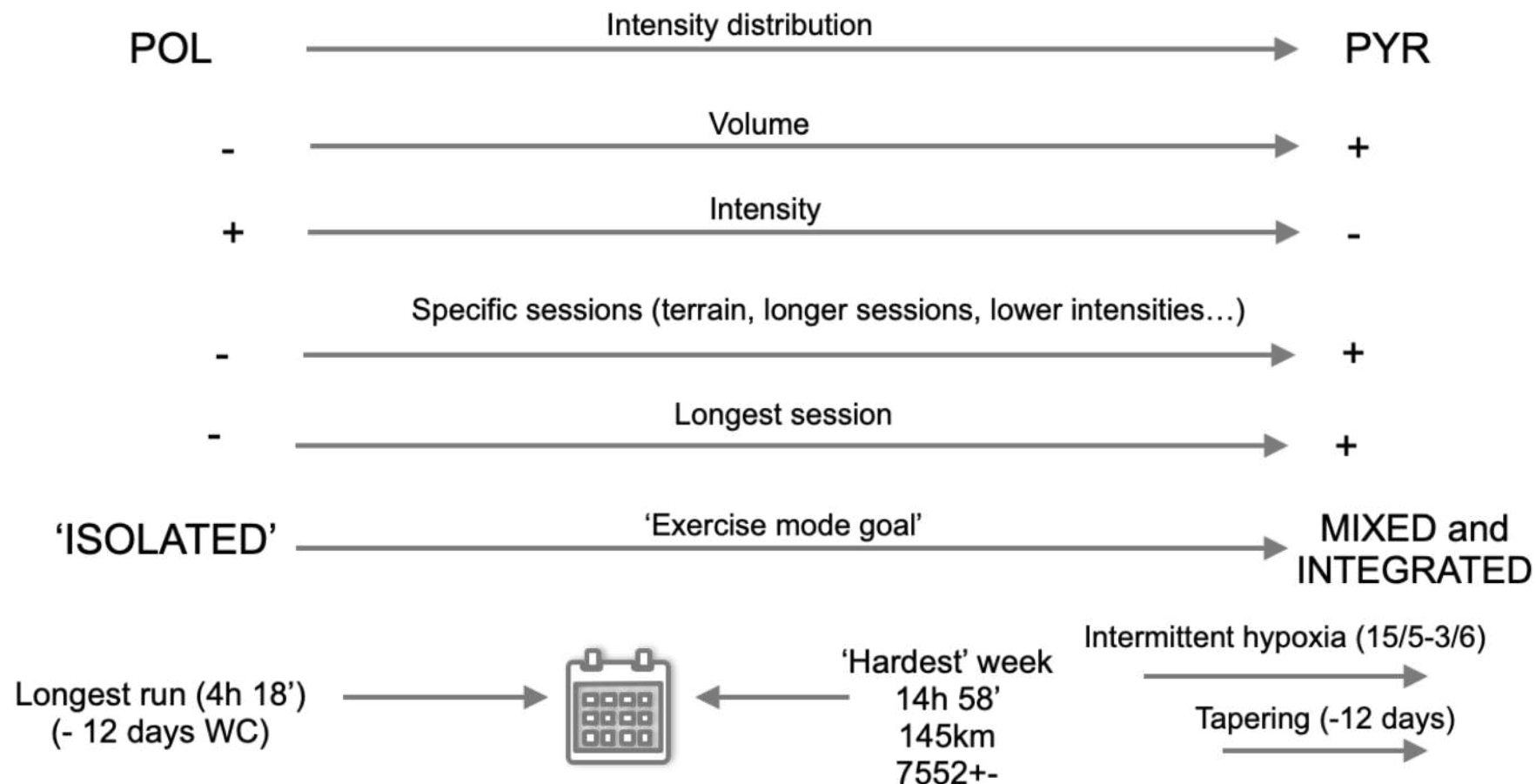
## DATA TRAINING ANALYSIS

ENDURANCE	+++	+++	+++	+++
STRENGTH	++	++	+	+
COMPLEMENTARY	+	+	+	+
LOW INTENSITY	++++	+++	++++	++++
MODERATE INTENSITY		+	+	+
HIGH INTENSITY	+	+		
CYCLING	++	+	+	++
ELLIPTICAL	+			
ROAD RUNNING	++	++	++	+
TRAIL RUNNING	++	++++	++++	++++
UPHILL RUNNING	+++	++	+	+
FLAT RUNNING	++	++	+	+
DOWNHILL		+		
HIKING			+	++
MIX	+++	+++	++++	++++
	Preparatory	Base	Specific I	Specific II



# Reverse Periodization in Ultratrail

## TRAINING ANALYSIS





# Reverse Periodization in Ultratrail

JANUARY 2023

S	M	T	W	T	F	S
1	2	3	4	5	6	7
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Regional Comp. (25k): 2nd Position

Spanish Comp. (44k): 4th Position

FEBRUARY 2023

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

MARCH 2023

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

APRIL 2023

S	M	T	W	T	F	S
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Spanish Ultra Comp.: 3rd Position

MAY 2023

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9				
14	15	16				
21	22	23	24	25	26	27
28	29	30	31			

Ultra World Championship: 11th Position

JUNE 2023

S	M	T	W	T	F	S
				1	2	3
18	19	20	21	22	23	24
25						



2023 WORLD MOUNTAIN AND  
TRAIL RUNNING CHAMPIONSHIPS

# Take-home Message

1. This case **introduces reverse periodization in trail running**, focusing on ultratrail events and an female elite trail runner.
2. **Reverse Periodization emphasizes specificity** and progressing from shorter to longer races.
3. Key training components include individualization, load monitoring, and **planning around races**.
4. **Reverse periodization** proved **effective** in a **female elite ultratrail** runner.







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# Thank you very much for your attention!



Rosa Lara