PLACE

PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

ROMA
Centro Congressi
di Confindustria
Auditorium
della Tecnica

9ª Edizione

30 Settembre
1 Ottobre
2022

TEMI CALDI IN CARDIOLOGIA DELLO SPORT I

Solo il COVID ha avuto impatto sugli sportivi o anche il “lockdown”?

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I have no conflict of interest.


1.5m
Not shaking hands
Work from home
Social distancing
Stay at home
Maximal group size:
Sports clubs closed
Schools closed
Bars/restaurants


CORONAVIRUS
SURREY
NATIONAL LOCKDOWN
STAY AT HOME
For more information on national restrictions:
www.gov.uk/coronavirus
KEEP SURREY SAFE
STAY AT HOME • PROTE


National
Lockdown
STAY AT HOME


HM Government
NHS
ENGLAND LOCKDOWN
STAY AT HOME
You must not leave your home unless it is for a legally permitted reason. For example, work or medical appointments.
Find the latest guidance and exemptions at gov.uk/coronavirus
STAY HOME • PROTECT THE NHS • SAVE LIVES


Rotherham
KEEP TWO METRES APART
WASH YOUR HANDS OFTEN
GOT SYMPTOMS? GET TESTED
WEAR A FACE COVERING
DON'T MIX
STAY AT HOME
ROTHERHAM IS AT COVID ALERT LEVEL – NATIONAL LOCKDOWN

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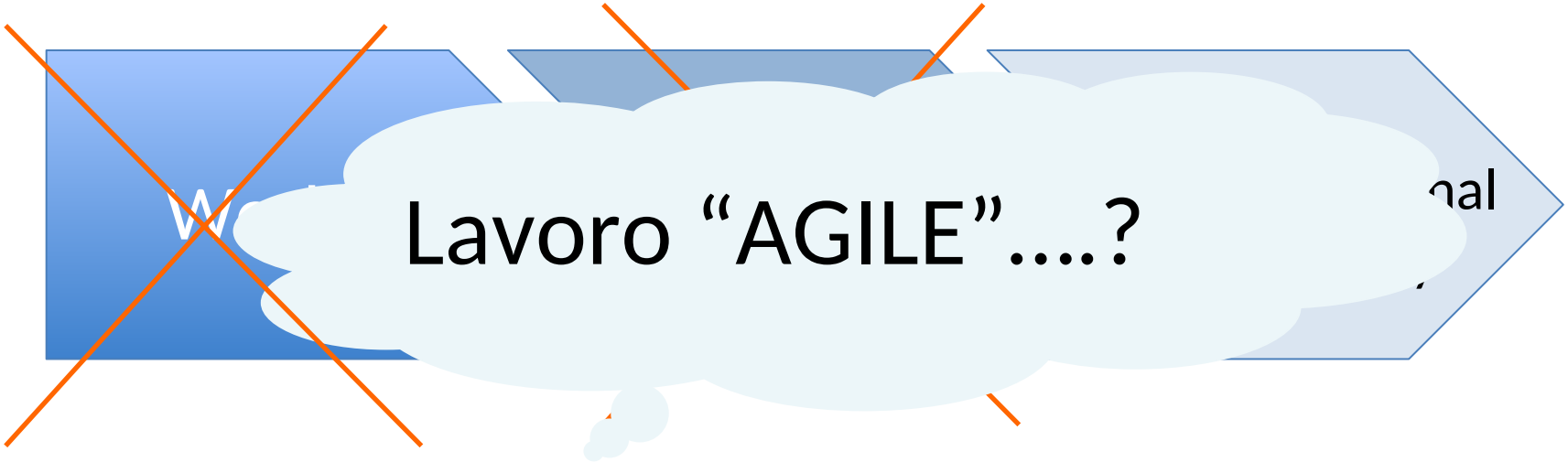
Global Physical Activity Questionnaire (GPAQ) Analysis Guide



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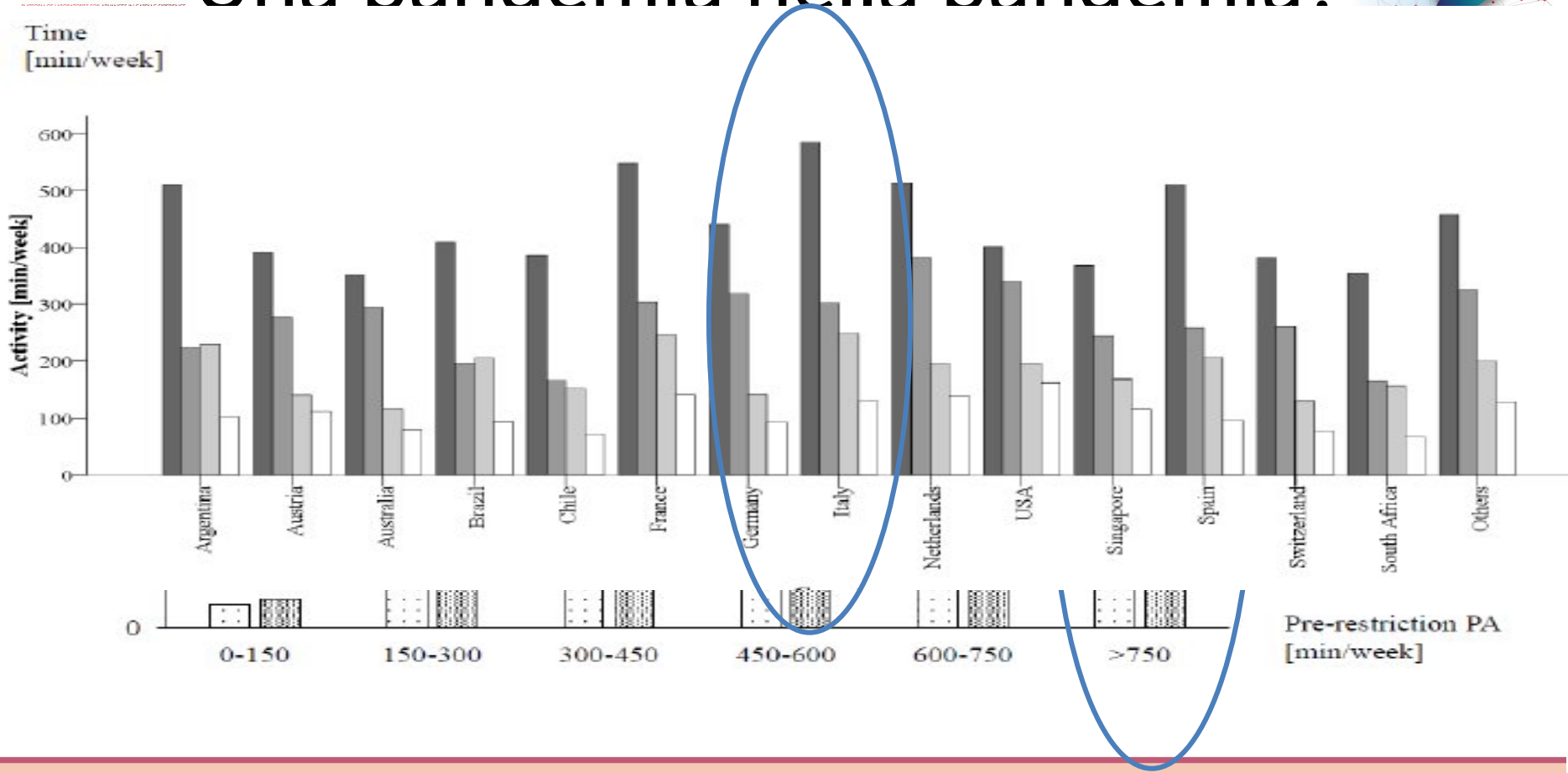
Una pandemia nella pandemia?



Sports Medicine (2022) 5
https://doi.org/10.1007/s

ORIGINAL RESEA

Training Dur and Practice Continents

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Lee Taylor[6,7,8] · D
Omid Ahmadian[14]
Asma Aloui[18,19] ·
Christopher Marty
Daniel Bok[32] · On
Roxana Paola Palac
Germina Cosma[42]

Table 1 Demographic characteristics of participants ($n = 12,526$)

Characteristics	Number (%)
Sex	
Male	8265 (66)
Female	4229 (34)
Other	32 (0)
Age category, years	
18–29	8419 (67)
30–39	2431 (19)
40–49	1078 (9)
50–59	468 (4)
≥60	121 (1)
Missing	9 (–)
Continent	
Asia	4777 (38)
Europe	4305 (34)
Africa	1375 (11)
South America	973 (8)
North America	907 (7)
Oceania	189 (2)
Athlete's status	
Amateur	6453 (51)
Semiprofessional	2765 (22)
Professional	3222 (26)
Other	86 (1)
Main sports	
Soccer	2696 (22)
Athletics	1306 (10)
Cycling	679 (5)
Volleyball	602 (5)
Basketball	522 (4)
Triathlon	503 (4)
Handball	403 (3)
Rugby	365 (3)
Swimming	348 (3)
Judo	313 (3)
Taekwondo	254 (2)

Table 1 (continued)

Characteristics	Number (%)
Missing	159 (–)
Athlete classification	
World class	1674 (13)
International	2565 (21)
National	4482 (36)
State	3038 (24)
Recreational	763 (6)
Missing	4 (–)
Are you currently in lockdown?	
Yes	7955 (64)
No	4568 (36)
Missing	3 (–)
Lockdown experience, weeks	
≤4	1809 (15)
5–8	4256 (35)
9–12	5839 (48)
≥12	278 (2)
Missing	344 (–)
Number of household members	
1 (live alone)	815 (7)
2	2012 (16)
3	2468 (20)
4	3376 (27)
≥5	3767 (30)
Missing	88 (–)

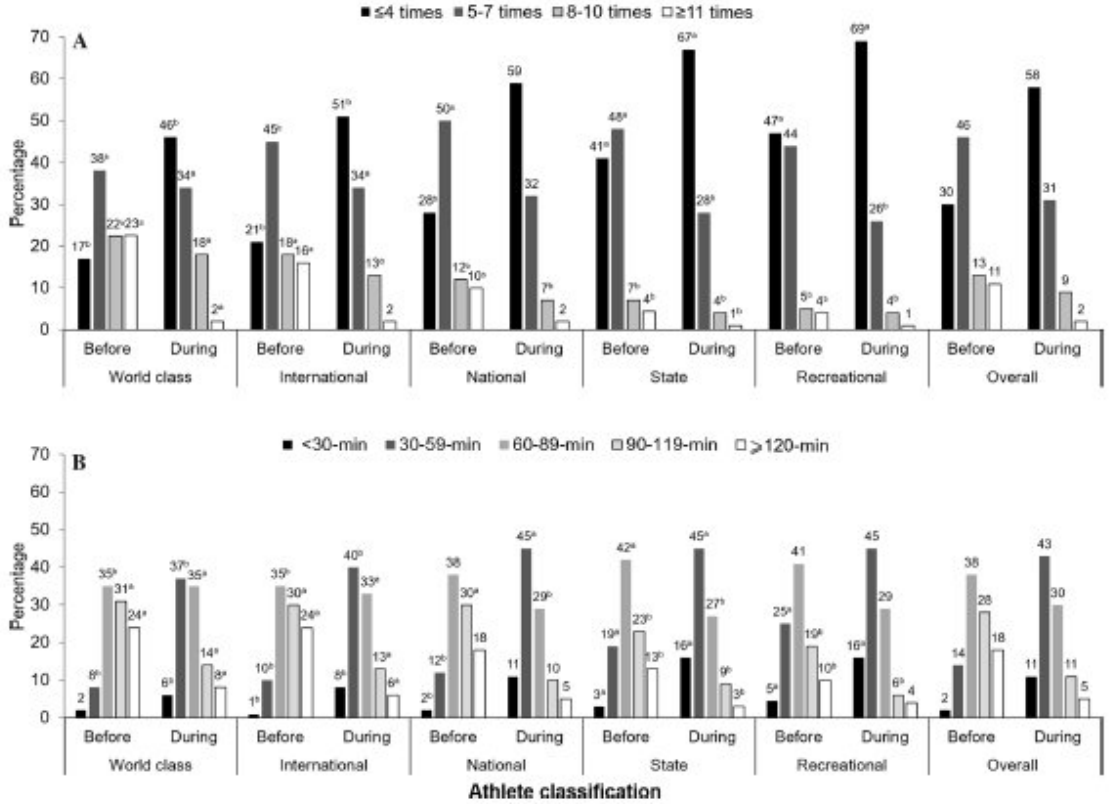
Washif Sports Med 2022

What the governing authority allowed during lockdown	Number (%)
Exercising at home only	8330 (67)
Using available spaces for exercise around my housing area/compound	5256 (42)
Outdoor cycling	3354 (27)
Running in a recreational park or stadium	3317 (27)
Outdoor hiking or trekking in non-public facilities	2577 (21)
Receive/borrow equipment from sports bodies or institutes and train at home	2105 (17)
Access to gymnasium (muscle strengthening/resistance training)	579 (5)
Access to sports academy or institute's school or university's facilities	510 (4)
Other	100 (1)

As athletes could select multiple answers for all questions, the numbers do not total 12,526 or 100%

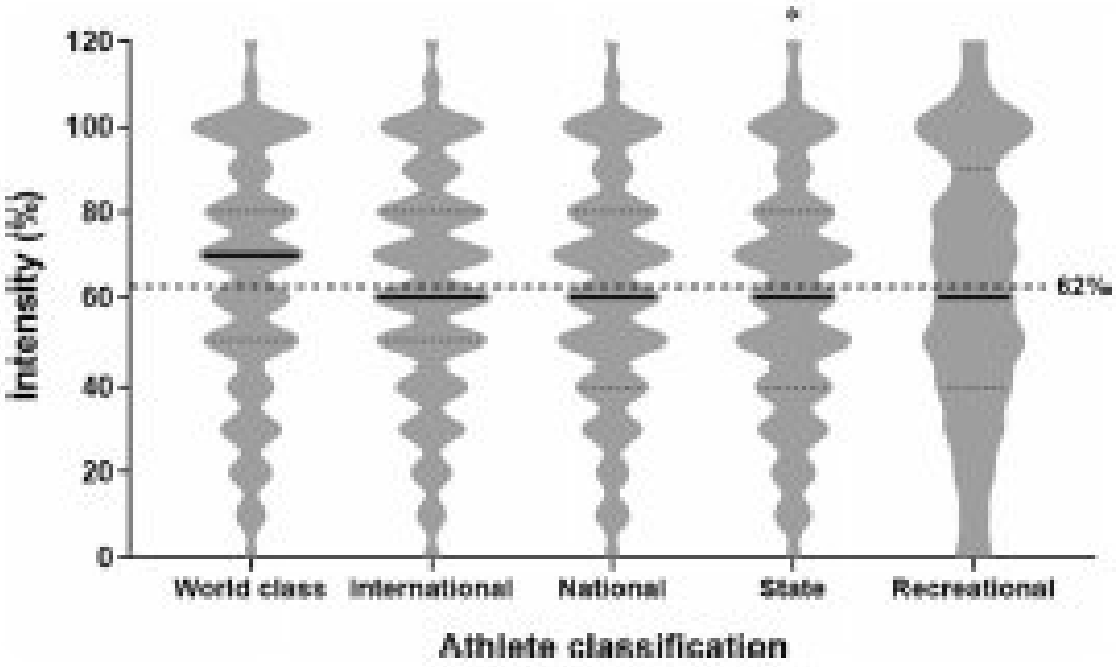
Washif Sports Med 2022

Training frequency and duration



Washif Sports Med 2022

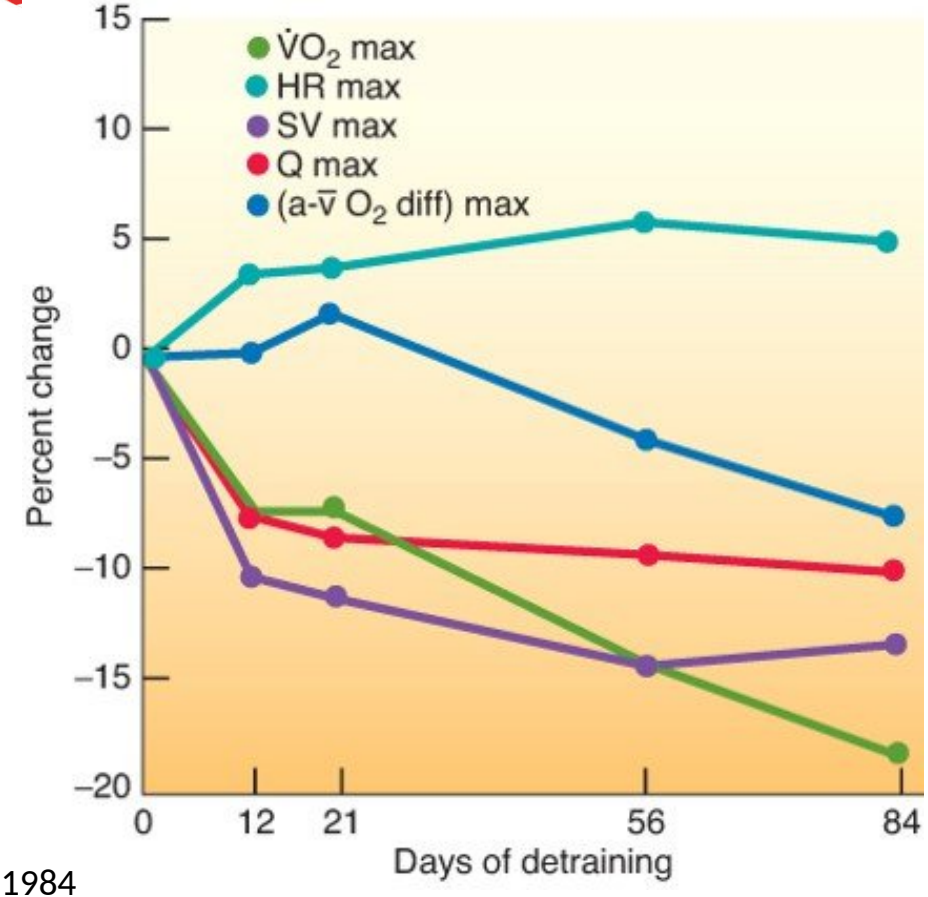
Intensity of Training



Washif Sports Med 2022

	MVPA (min/week)		SB (min/day)	
	Pre	Post	Pre	Post
Gender				
Male	112 (60-210)	45 (26-105)	300 (240-480)	360 (240-480)
Female	90 (45-210)	45 (15-90)	300 (180-420)	360 (240-480)
Age				
18-25	105 (45-182)	45 (20-77)	360 (300-480)	480 (360-600)
26-35	120 (60-255)	45 (30-90)	300 (180-480)	420 (300-480)
36-45	90 (45-195)	60 (30-120)	300 (180-420)	360 (240-480)
46-55	90 (45-221)	45 (15-102)	240 (180-360)	300 (180-420)
56-65	135 (45-240)	45 (15-90)	240 (180-300)	300 (150-360)
>65	60 (45-105)	45 (30-90)	300 (180-360)	360 (240-360)
Sport level				
Sedentary	45 (15-120)	45 (15-75) [a]	360 (240-480)	420 (300-540)
Recreational	105 (60-210)	45 (29-90) [a]	300 (180-420)	360 (240-480)
Competitive	142 (105-240)	90 (45-135) [a]	300 (240-420)	390 (285-480)
Professional	360 (165-645)	90 (75-150) [a]	240 (150-300)	360 (150-480)

Cavarretta, unpublished data



Coyle 1984

After 21 days (3 weeks) of no training:

- Stroke volume is reduced.
- Blood plasma volume is reduced.
- Total peripheral resistance is increased.
- Left ventricle heart volume and wall thickness decreases.
- Citrate Synthase (CS) activity decreases 20% (1-2.5% per day). This enzyme plays a key role in aerobic energy production in mitochondria.

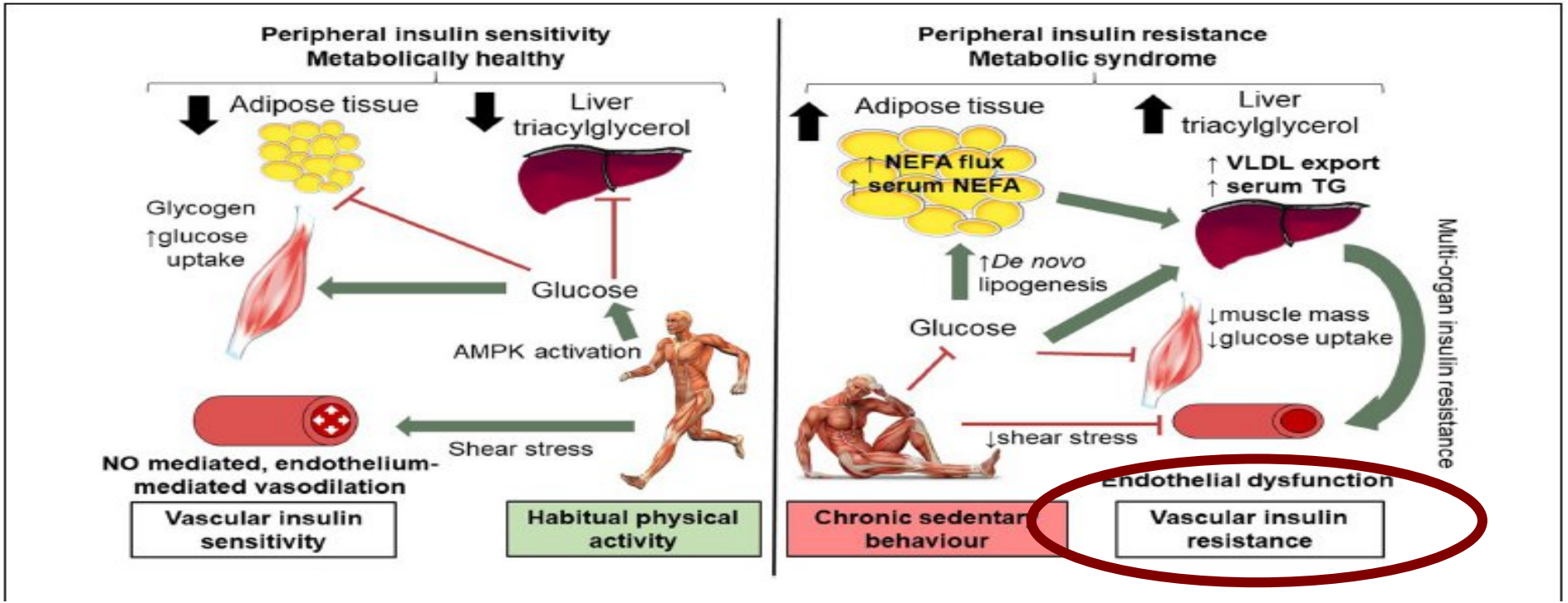
Cambiamenti cardiometabolici dovuti all'inattività

Table. Changes in Metabolic and Physical Characteristics With Reduced Daily Steps

Characteristic	Mean (95% CI)				
		Reduced Steps			
	Preintervention	1 wk	2 wk	3 wk	*P* Value
		Study 1			
Steps per day, No.	6203 (5135-7271)	1394 (1261-1528)			<.001[a]
OGTT					
Plasma insulin AUC, pmol/L/3h	757 (488-1026)[b]	1157 (812-1501)	1218 (818-1618)	1352 (1025-1678)	<.02[b]
		Study 2			
Steps per day, No.	10 501 (8755-12 247)		1344 (1272-1416)		<.001[a]
OGTT					
Plasma insulin AUC, pmol/L/3h	599 (489-709)		942 (443-1440)		.04[c]
Plasma C-peptide AUC, pmol/L/3h	4310 (3676-4944)		5795 (3911-7678)		.03[c]
OFTT					
Plasma insulin AUC, pmol/L/8h	216 (186-245)		323 (255-392)		.001[a]
Plasma C-peptide AUC, pmol/L/8h	2380 (2001-2759)		3040 (2550-3529)		
Plasma triglycerides AUC, μmol/L/8h	9566 (7828-11 303)		11 580 (9308-13 852)		.02[a]
Fat mass					
Total fat mass, kg	12.0 (9.3-14.7)		11.9 (9.4-14.5)		.69[a]
Intra-abdominal fat mass, mL	693 (485-902)		740 (552-929)		
Total fat-free mass, kg	55.7 (52.6-58.7)		54.5 (52.0-57.3)		<.001[a]
BMI	22.1 (20.7-23.6)		21.8 (20.4-23.2)		.001[a]

Olsen JAMA 2008

Effetti cardiometabolici a breve termine (14gg) dovuti all'inattività



…induzione del danno endoteliale !

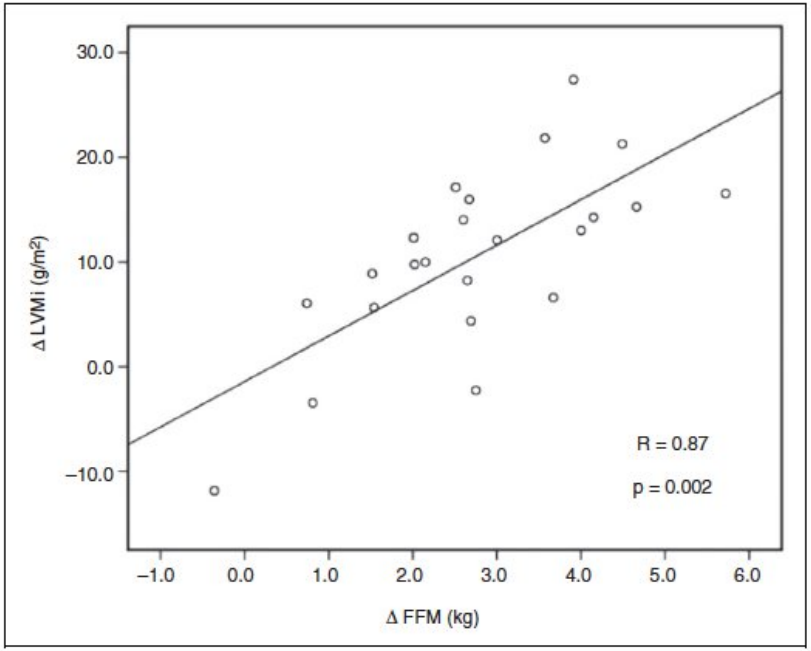
Bowden Front Physiol 2021

Table 2. Variations of body composition and of left ventricular mass observed in professional soccer players during the regular season ($n = 23$)

Variable	Pre season	1 month	Mid season	End season
FFM (kg)	64.3 ± 6.0	65.5 ± 6.4	66.4 ± 6.4*	66.3 ± 5.0*
Body fat (%)	14.6 ± 4.0	11.9 ± 2.9*	11.0 ± 2.6*	11.0 ± 3.0*
LVM (g)	195.0 ± 25.8	201.8 ± 32.1	212.5 ± 32.6*†	213.5 ± 22.9*†
LVMi (g/m^2)	98.3 ± 13.6	101.7 ± 15.3	107.2 ± 13.5*†	106.2 ± 13.8*
LVM/height (g/m)	108.2 ± 14.7	111.8 ± 17.9	117.8 ± 16.4*†	119.0 ± 13.7*†
LVM/height$^{2.7}$ ($g/m^{2.7}$)	39.8 ± 6.6	41.1 ± 7.5	43.4 ± 7.5*†	44.2 ± 6.8*†
LVM/FFM (g/kg)	3.1 ± 0.4	3.1 ± 0.5	3.2 ± 0.4*	3.2 ± 0.4*

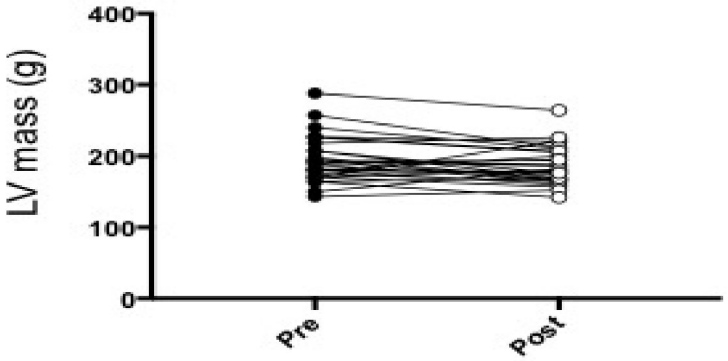
Values are mean ± SD; *$p < 0.05$ vs. baseline measurements; †$p < 0.05$ vs. 1-month measurements; FFM, fat-free mass; LVM, left ventricular mass; LVMi, left ventricular mass index.

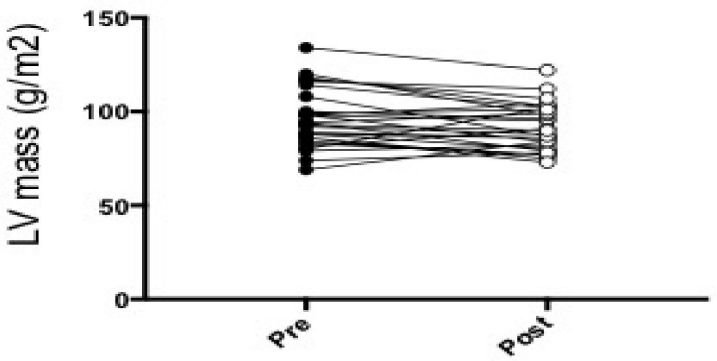
Figure 1. Correlation between Δ left ventricular mass index and Δ fat-free mass (end season – pre season) obtained by echocardiography and by dual-energy X-ray absorptiometry in professional soccer players during the regular season.
FFM, fat-free mass; LVMi, left ventricular mass index.

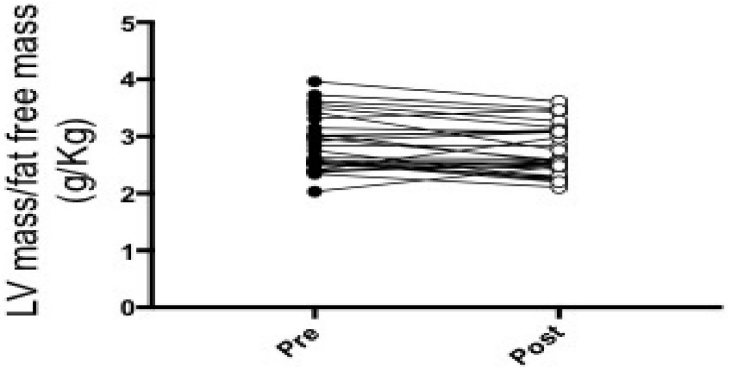


D'Ascenzi EJPC 2015

Table 2. Echocardiographic data and pulmonary function of Football athletes af COVID-19 lockdown.







E/E' ratio	4.4 (3.9; 5.1)	4.3 (3.5; 5.2)	0.639
EF (%)	65 (60; 66)	61.6 (60; 64)	0.059
RV basal diameter, mm	34 (32; 38)	38 (36; 39)	0.134
Tricuspid TDI s-wave, cm/s	0.13 (0.12; 0.15)	0.14 (0.12; 0.15)	0.141

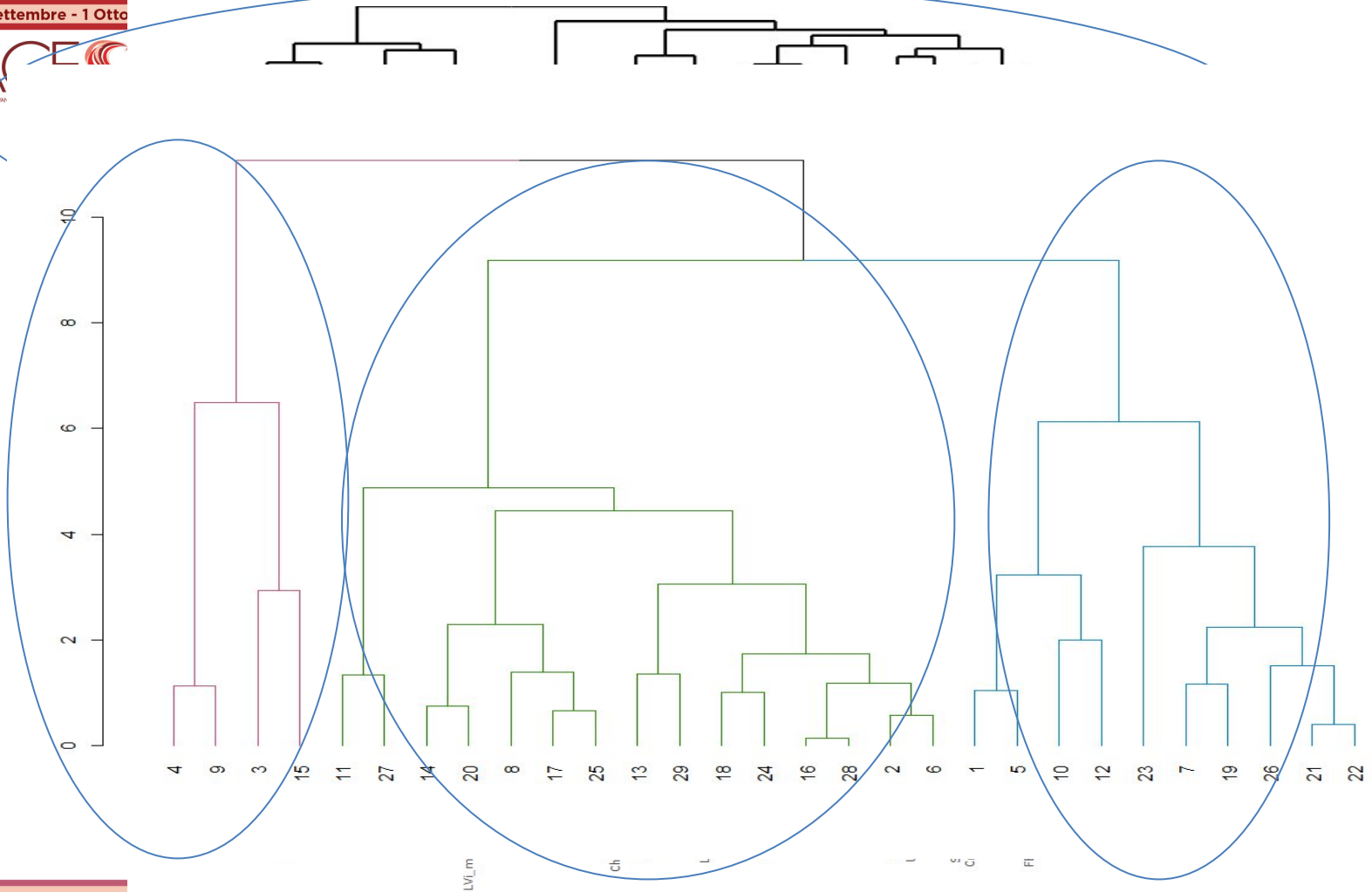

0
2
4
6
8
10
4 9 3 15 11 27 14 20 8 17 25 13 29 18 24 16 28 2 6 1 5 10 12 23 7 19 26 21 22
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Table 4. Characteristics of Soccer players based on cluster analysis.

	Cluster 1 (N=10)	Cluster 2 (N=15)	Cluster 3 (N=4)	Significance
Age, y	31.5 (27; 33)	24 (22; 27)	29 (23; 36)	0.032
Play role				0.021
Goalkeeper, n (%)	0 (0%)	2 (7%)	2 (7%)	
Defender, n (%)	5 (17%)	5 (17%)	2 (7%)	
Midfielder, n (%)	2 (7%)	8 (28%)	0 (0%)	
Forward, n (%)	3 (10%)	0 (0%)	0 (0%)	
Weight, Kg	- 0.25 (-2; 1)	1.0 (0.0; 4.0)	-1.0 (-6.7; 1.0)	0.011
BMI,	-0.08 (-0.5; 0.3)	0.3 (0.0; 1.1)	- 0.005 (-0.07; 0.02)	0.008

Progress in Nutrition 2020; Vol. 22, Supplement 2: e2020029 DOI: 10.23751/pn.v22i2-S.10605

ORIGINAL ARTICLE

Impact of detraining process experienced during the COVID-19 pandemic on the selected physical and motor features of football players

Table 3. Percentage Distributions between the Pretest-Posttest Results of Selected Physical Properties

Parameters	Mean % Difference
Body Weight	0.11
Body Muscle Mass	-3.19
Body Fat Mass	21.75
Body Fat Percentage	21.24
BMI	0.18
Waist-Hip Ratio	4.36

Table 4. Percentage Distributions between the Pretest-Posttest Results of Selected Motoric Properties

Parameters	Mean % Difference
30 m Speed	-0.26
Flexibility	-6.65
Peak Power	-5.54
Average Power	-5.98
Minimum Power	-9.244
Fatigue Index	-3.764

International Journal of
Environmental Research and Public Health

MDPI

Article

Ef **n**
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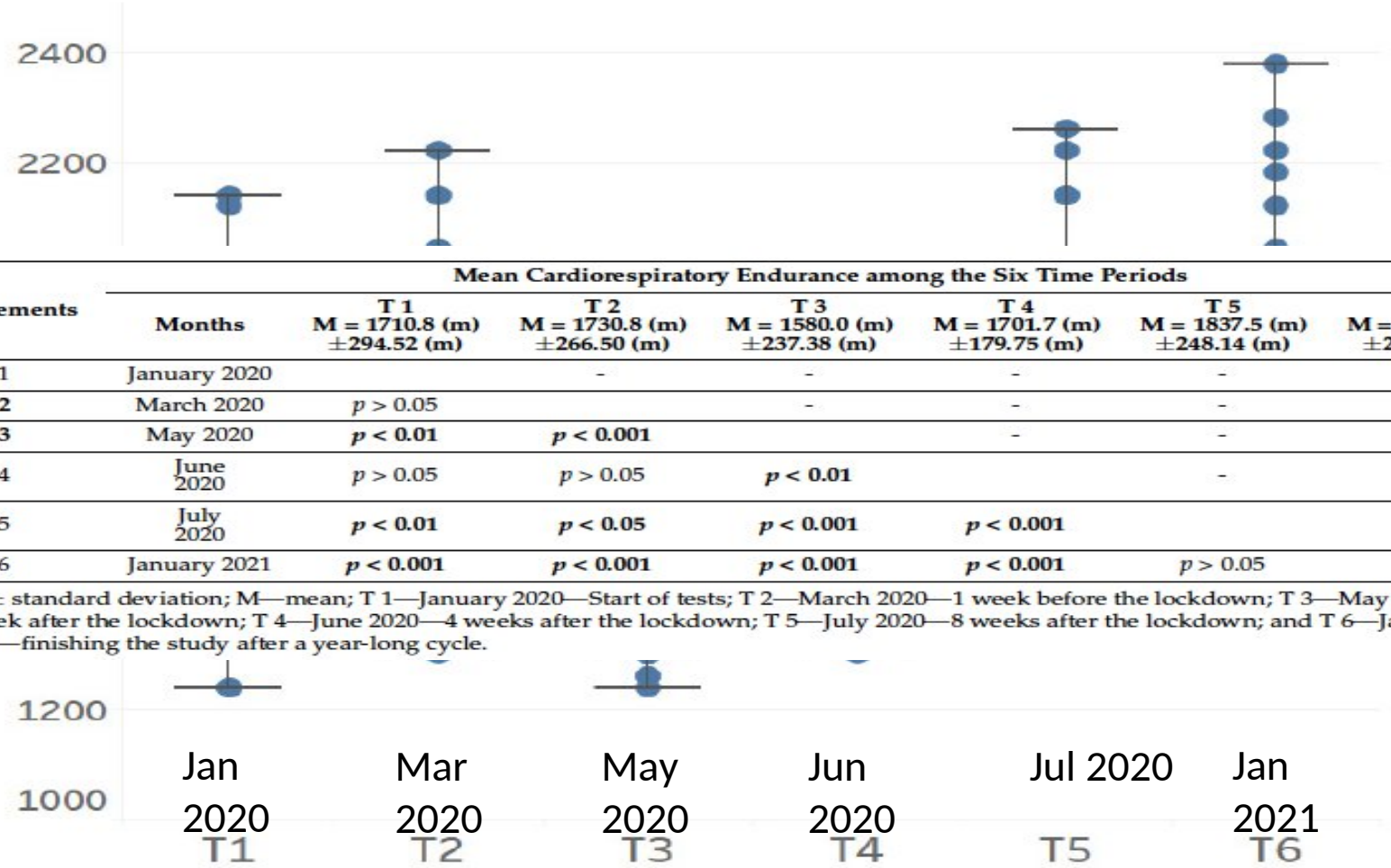
Table 1. Training intervention of the studied players during the lockdown in Poland (11 March 2020 –6 May 2020).

Week	Number of Training Sessions per Week	Duration of a Training Session	Aim	Training Measures	Methods of Control
1–3	4/week	60 min	Stability/ROM Low intensity	Individual training	Video analysis, RPE
4	5/week	60 min	Stability/ROM Low intensity	Individual training	Video analysis, RPE
5–6	6/week	60–75 min	Stability/aerobic endurance High intensity	Running/individual training	Distance, time, map, RPE
7–8	6/week	60–75 min	Stability/aerobic endurance High intensity	Running/individual training	Distance, time, map, RPE

RPE— Borg scale.



Measurements	Mean Cardiorespiratory Endurance among the Six Time Periods						
	Months	T 1 M = 1710.8 (m) ±294.52 (m)	T 2 M = 1730.8 (m) ±266.50 (m)	T 3 M = 1580.0 (m) ±237.38 (m)	T 4 M = 1701.7 (m) ±179.75 (m)	T 5 M = 1837.5 (m) ±248.14 (m)	T 6 M = 1890.0 (m) ±262.16 (m)
T 1	January 2020		-	-	-	-	-
T 2	March 2020	$p > 0.05$		-	-	-	-
T 3	May 2020	$\mathbf{p < 0.01}$	$\mathbf{p < 0.001}$		-	-	
T 4	June 2020	$p > 0.05$	$p > 0.05$	$\mathbf{p < 0.01}$		-	-
T 5	July 2020	$\mathbf{p < 0.01}$	$\mathbf{p < 0.05}$	$\mathbf{p < 0.001}$	$\mathbf{p < 0.001}$		-
T 6	January 2021	$\mathbf{p < 0.001}$	$\mathbf{p < 0.001}$	$\mathbf{p < 0.001}$	$\mathbf{p < 0.001}$	$p > 0.05$	

SD ± standard deviation; M—mean; T 1—January 2020—Start of tests; T 2—March 2020—1 week before the lockdown; T 3—May 2020—1 week after the lockdown; T 4—June 2020—4 weeks after the lockdown; T 5—July 2020—8 weeks after the lockdown; and T 6—January 2021—finishing the study after a year-long cycle.

In conclusion

- The lockdown-induced detraining was present in athletes at all level of performance
- The prevention and control measures during lockdown gave rise to challenging factors that aggravated further problems and resulted in public health complications.
- The pandemic had physical, nutritional, and psychological consequences that affected the health status of athletes.
- Sports practice must be safe and healthy, in order to reduce the risk of infection

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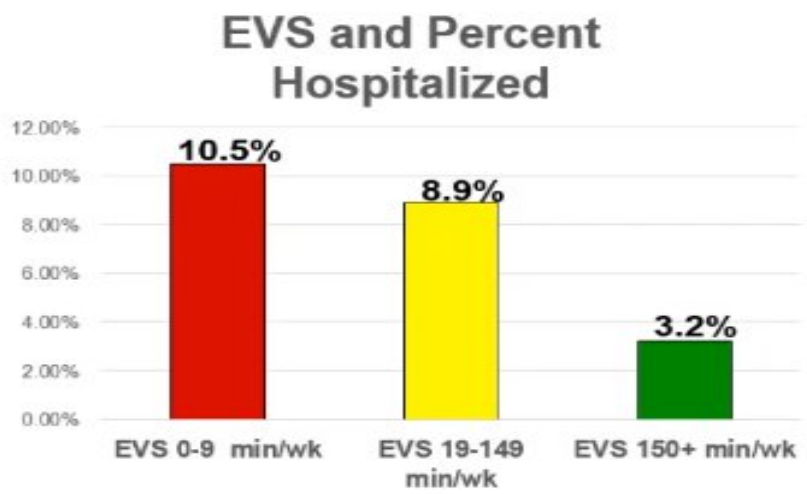
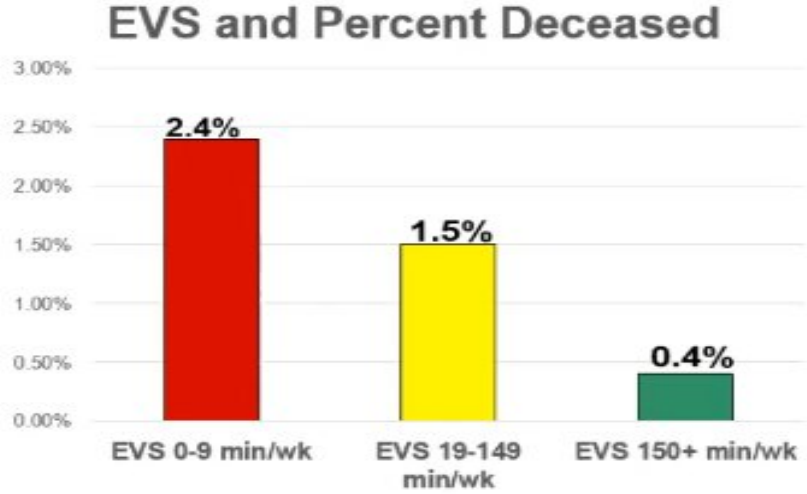
GRAZIE PER LA VOSTRA ATTENZIONE

Original research

Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: a study in 48 440





Sallis BJSM 2021