

TEST METABOLICI NELL'ATLETA MARCIATORE ELITE

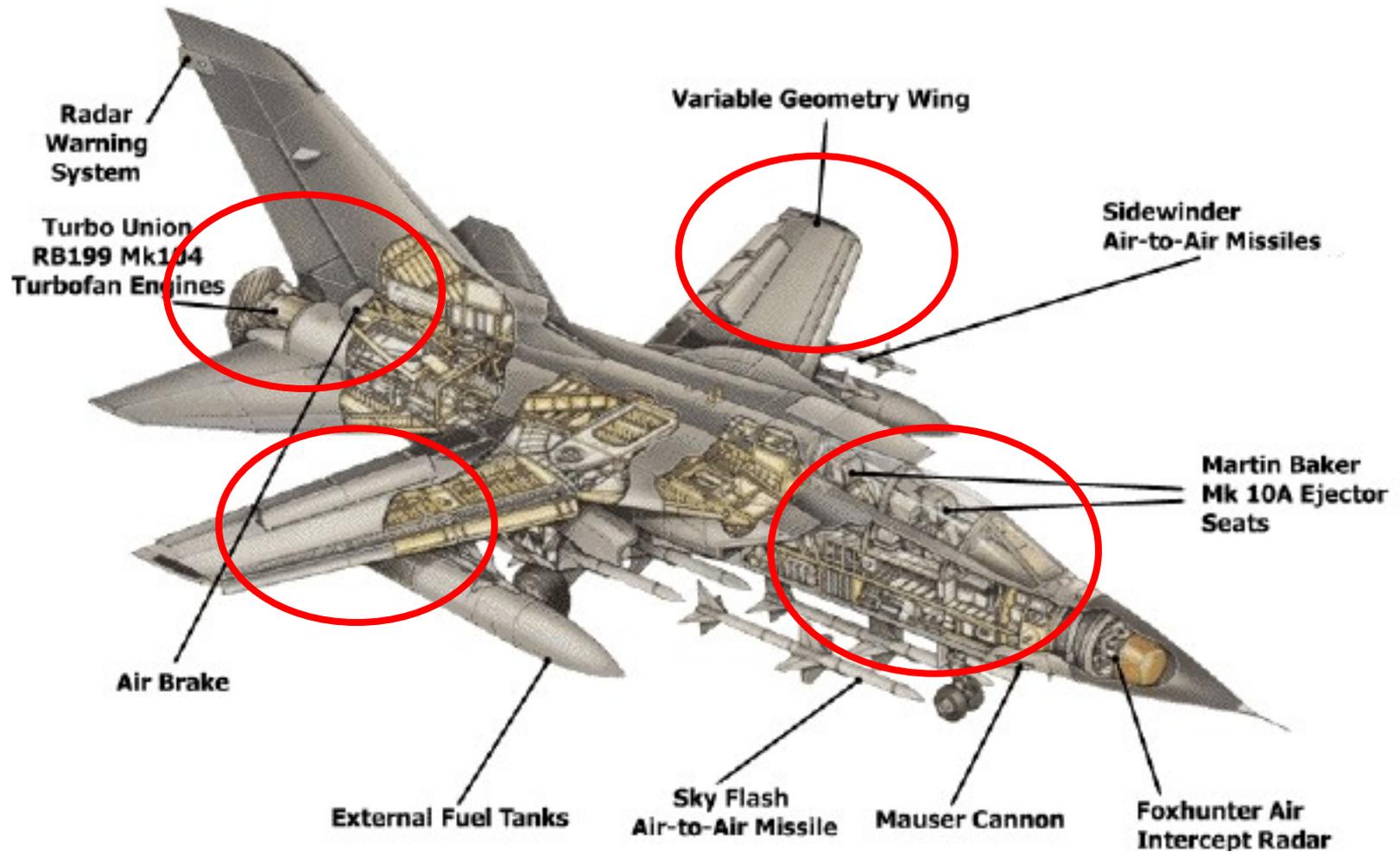
CONSIDERAZIONI PRATICHE

Dr Righetti Stefano
4/2020

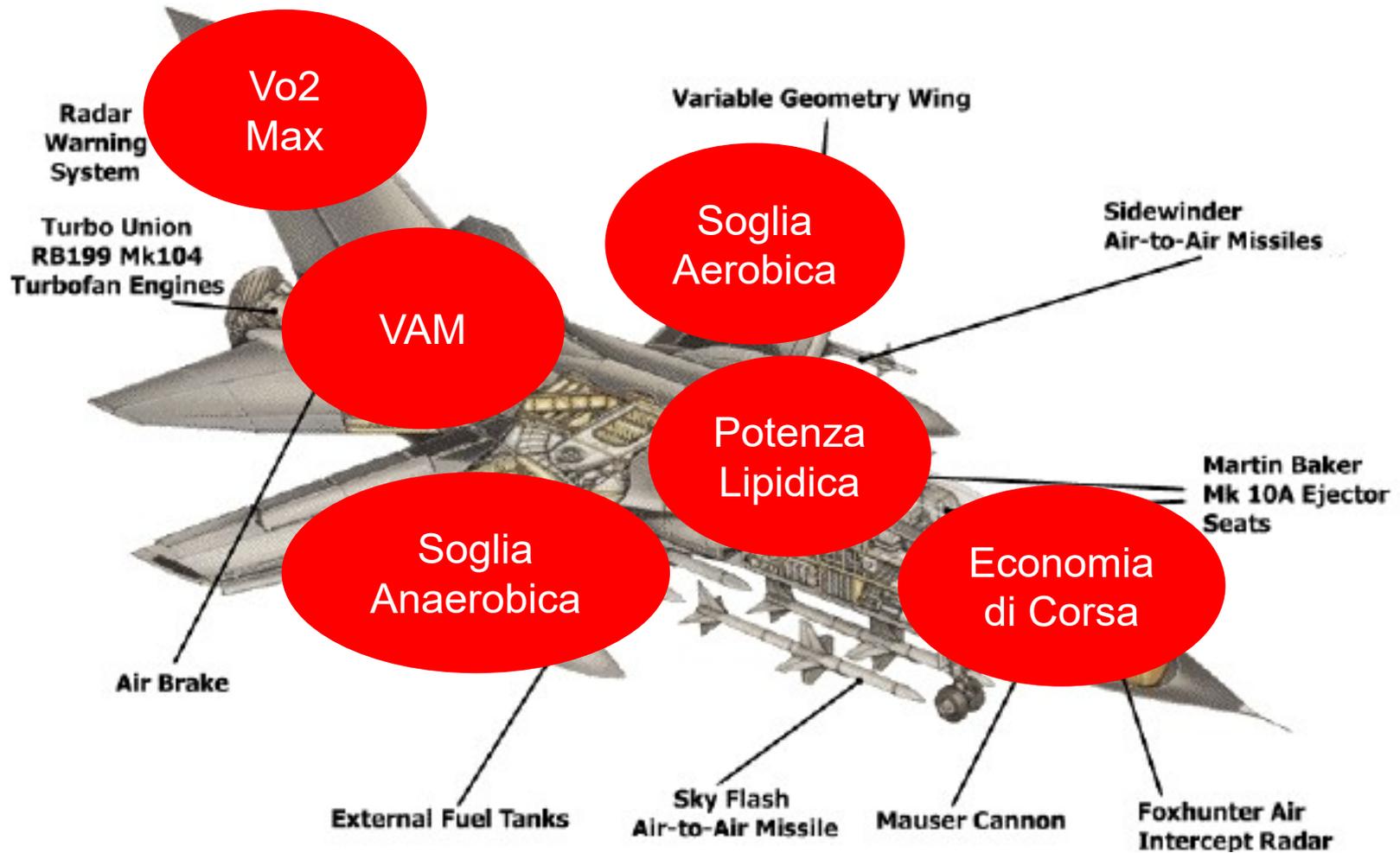
INTRODUZIONE



INTRODUZIONE



INTRODUZIONE

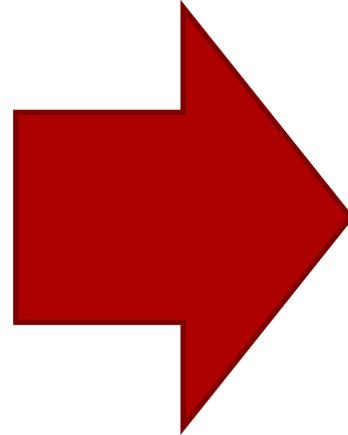
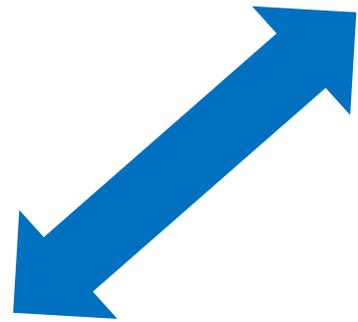




Training to Enhance the Physiological Determinants of Long-Distance Running Performance

TEST

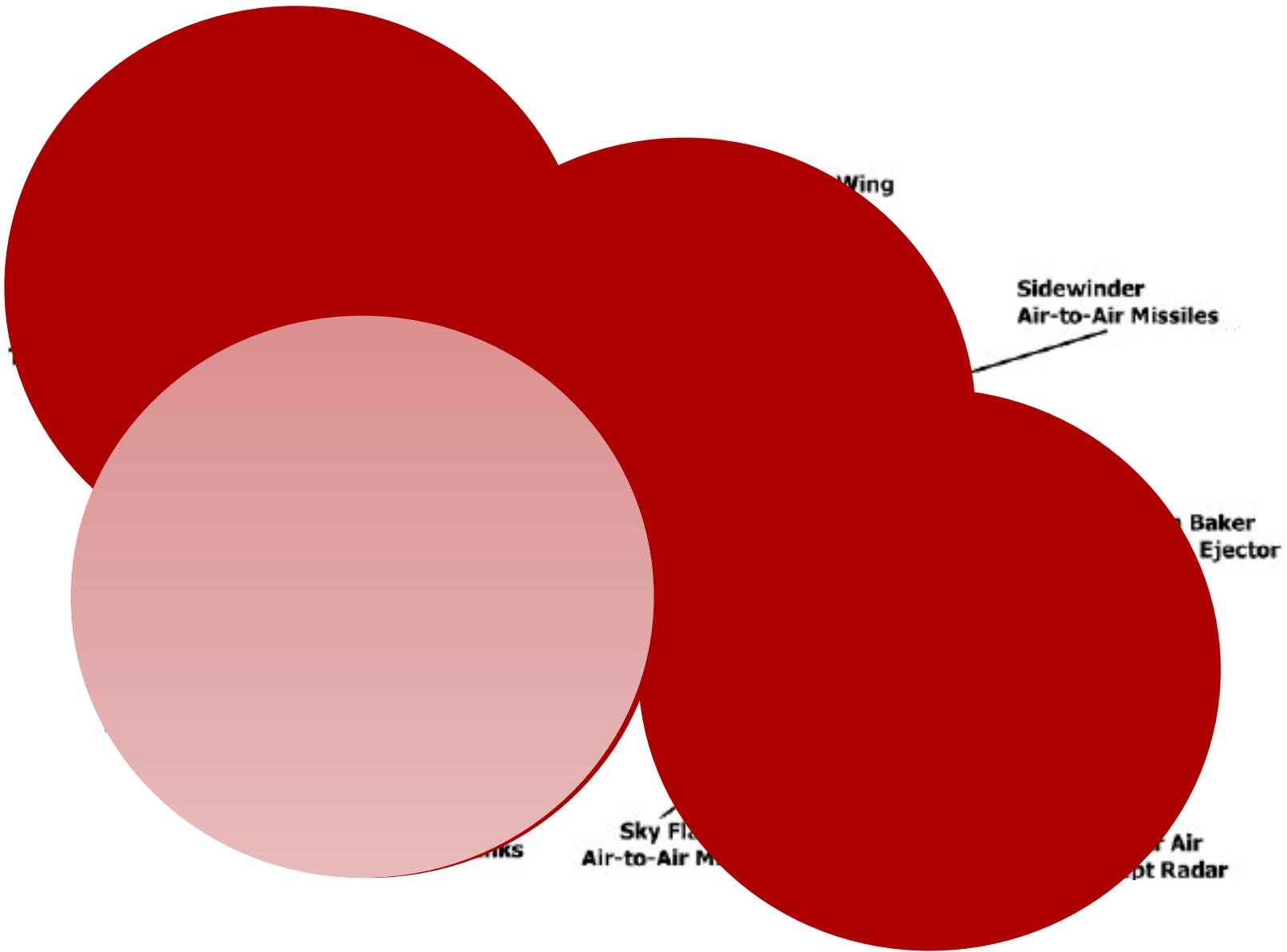
Misuro
Variabili
Fisiologiche



GUIDARE
L'ALLENAMENTO

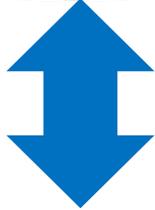


Gara

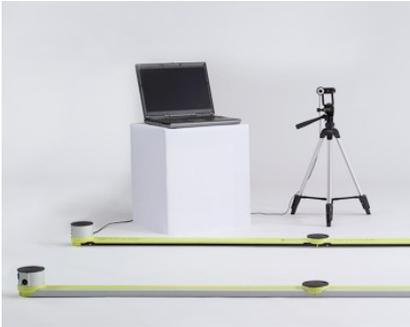




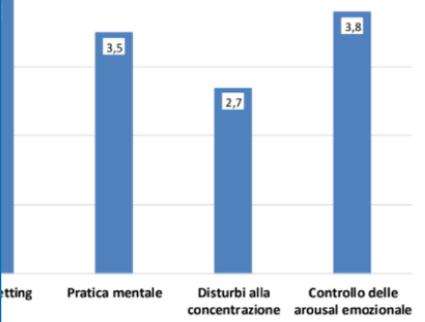
Gara



Variabili Fisiologiche



Scelta del Protocollo



STEP 1600m

LATTATO

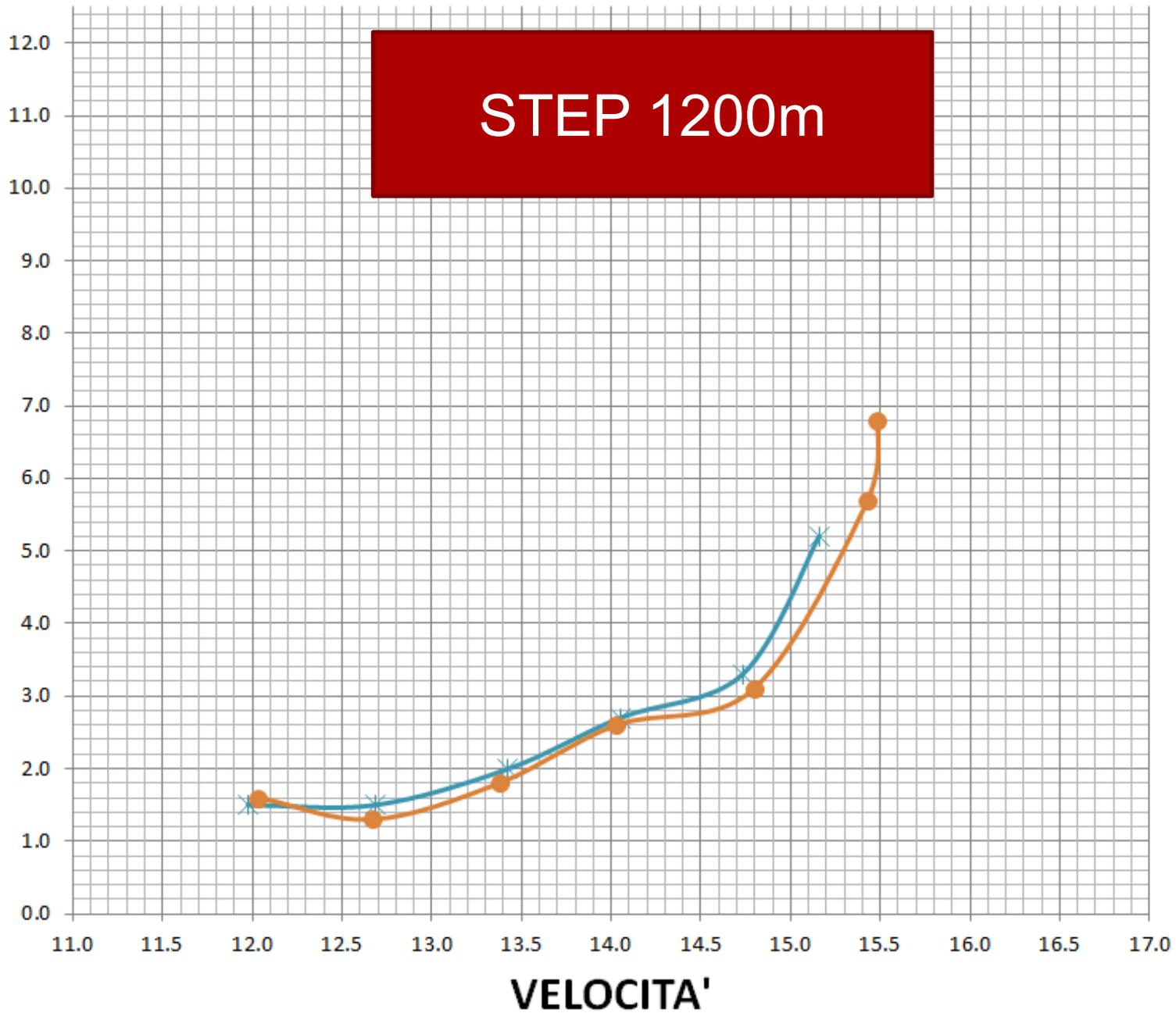


* 23/11/2019

VELOCITA'

STEP 1200m

LATTATO



23/11/2019
03/01/2020

CRITERION AND LONGITUDINAL VALIDITY OF A FIXED-DISTANCE INCREMENTAL RUNNING TEST FOR THE DETERMINATION OF LACTATE THRESHOLDS IN FIELD SETTINGS

ANTONIO LA TORRE,^{1,2} PIERLUIGI FIORELLA,^{2,3} TONY M. SANTOS,⁴ MARCELLO FAINA,³ CLARA MAURI,³ AND FRANCO M. IMPELLIZZERI^{5,6}

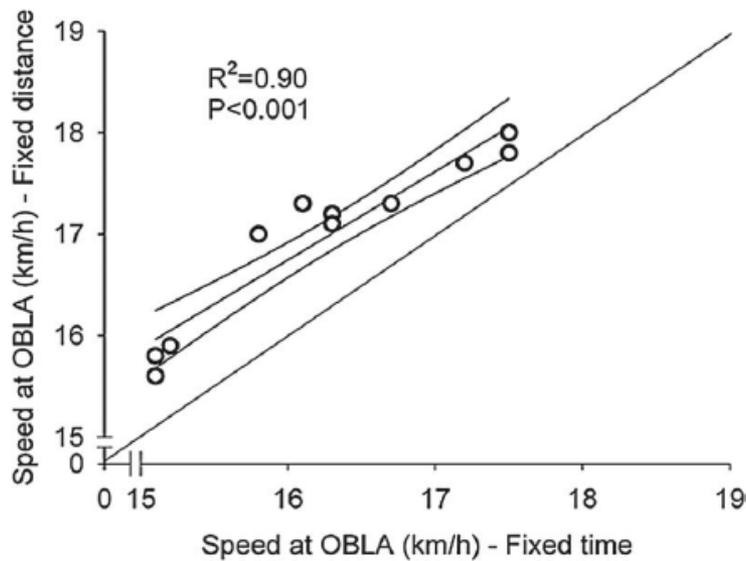


Figure 3. Correlation and confidence intervals (95%) between the lactate threshold (OBLA, see text for description) determined using fixed-distance and fixed-time interval protocols in the first session ($n = 12$).

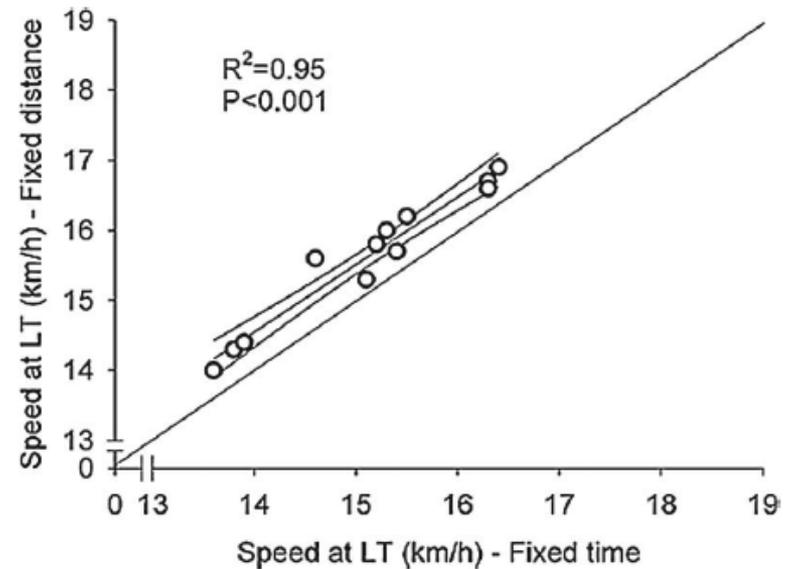


Figure 2. Correlation and confidence intervals (95%) between the lactate threshold (LT, see text for description) determined using fixed-distance and fixed-time interval protocols in the first session ($n = 12$).

Test del lattato

INCREMENTALE

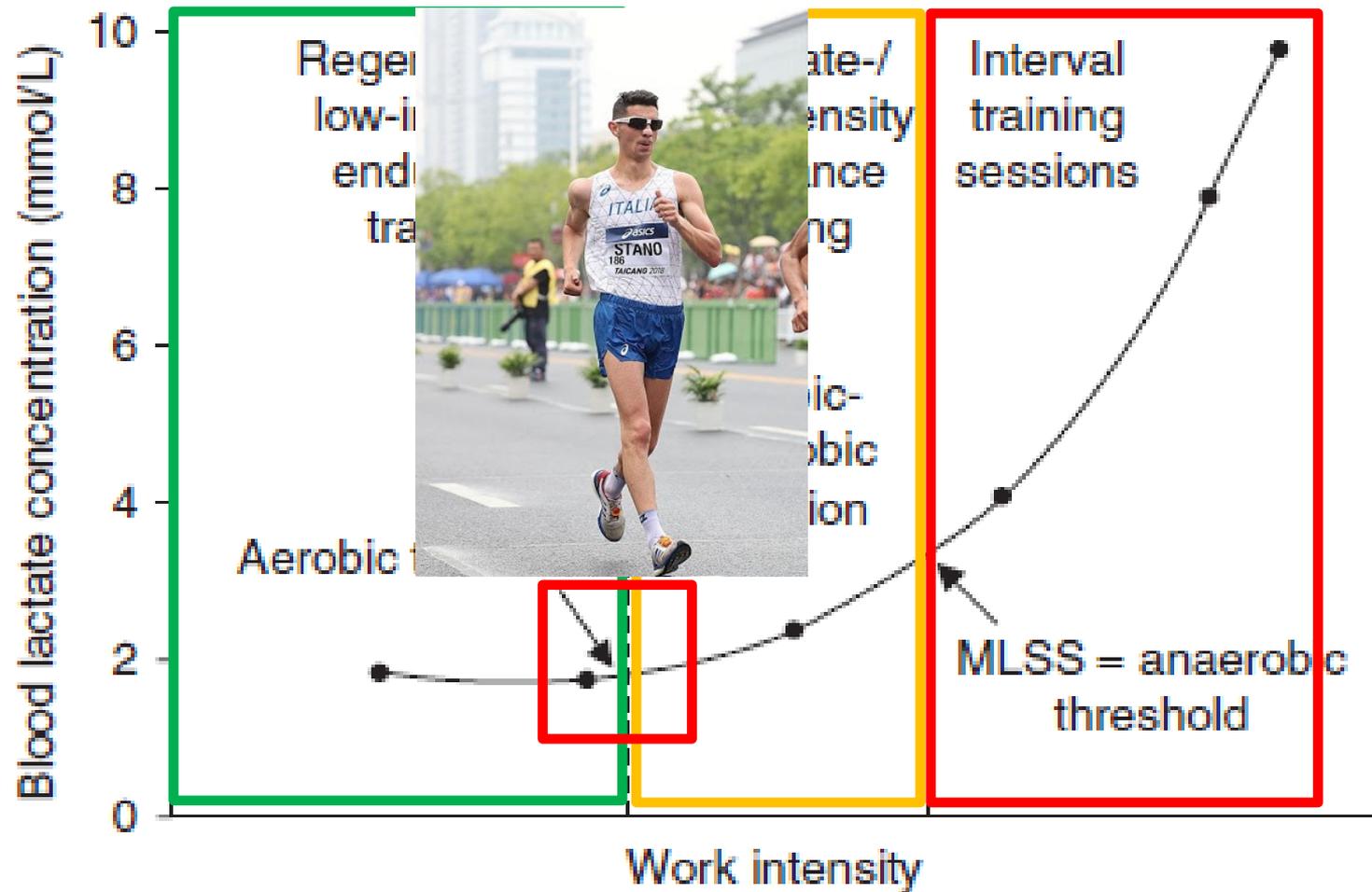
ANALISI DEI DATI

REVIEW ARTICLE

Sports Med 2008; 38 (8): 889-910
DOI: 10.1080/10401900802481182
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Lactate Threshold Concepts How Valid are They?

Oliver Faude,^{1,2} Wilfried Kindermann² and Tim Meyer^{1,2}



Test del lattato

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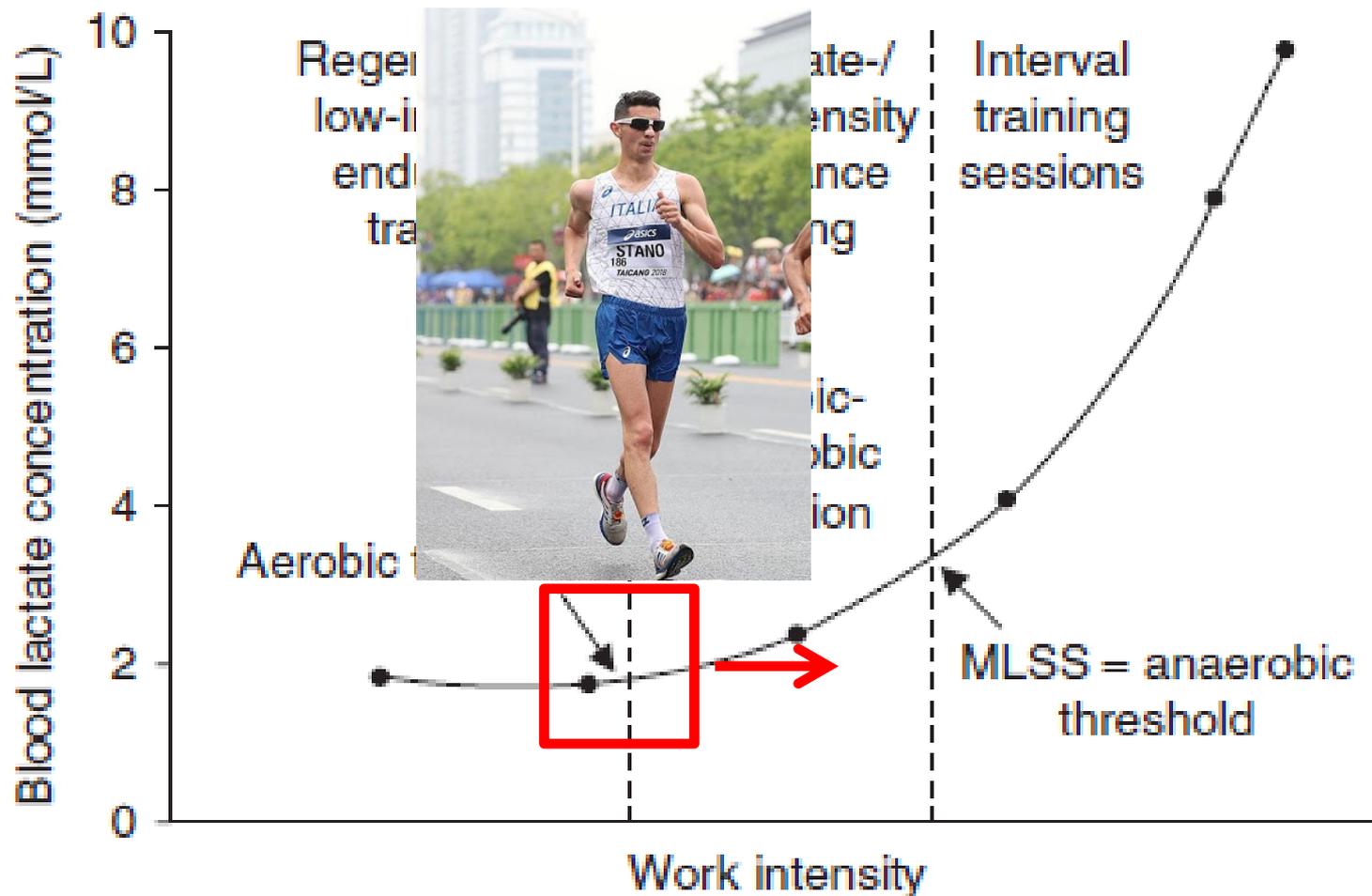
ANALISI DEI DATI

REVIEW ARTICLE

Sports Med 2008; 38 (8): 689-693
DOI: 10.1080/10401400600602481
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Lactate Threshold Concepts How Valid are They?

Oliver Faude,^{1,2} Wilfried Kindermann² and Tim Meyer^{1,2}



Test del lattato

INCREMENTALE

Pre:

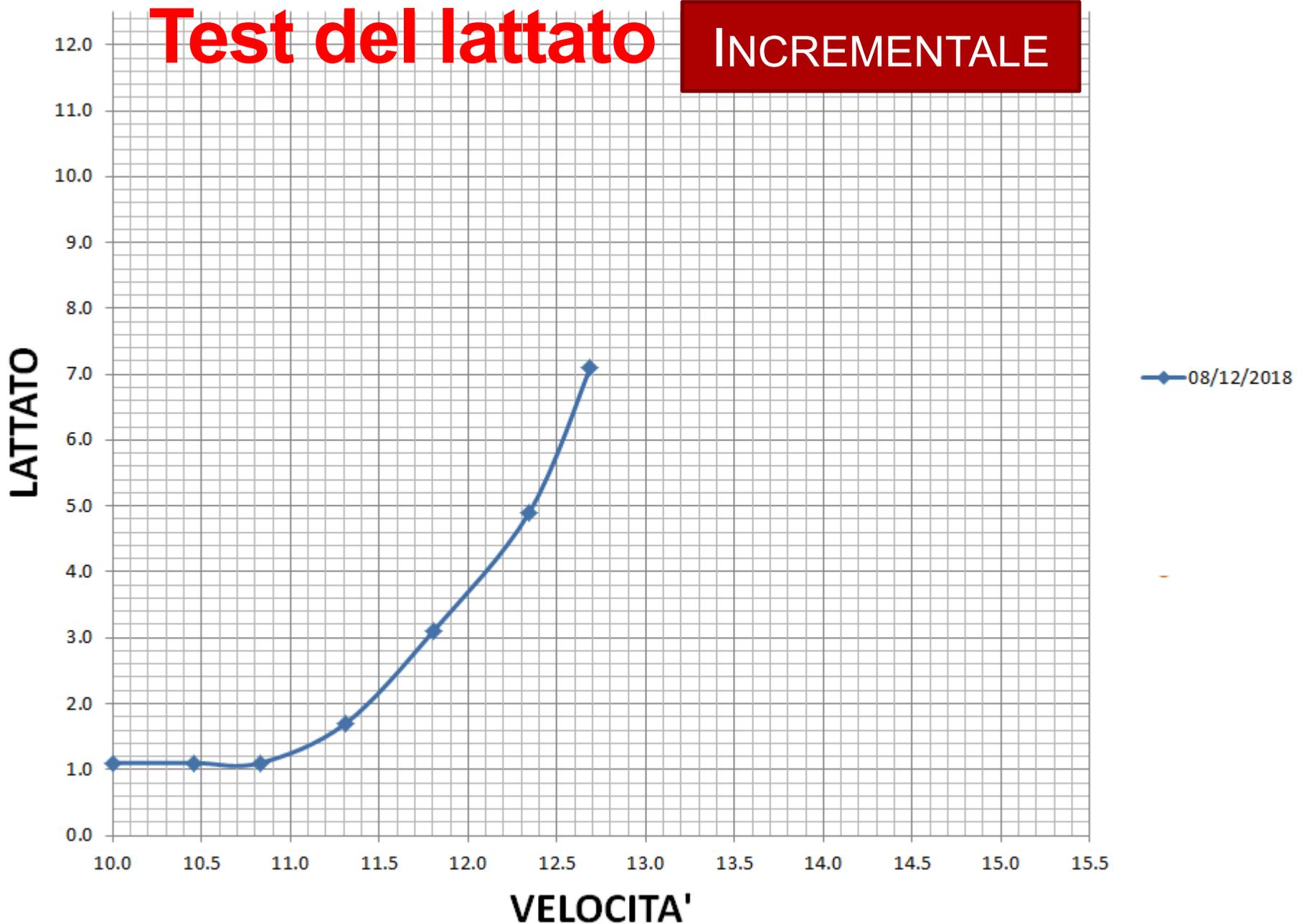
- Colazione e riscaldamento come prima di una gara (no allunghi spinti)
- Ultime 48 ore no allenamenti invasivi

Test:

- Step 1200/1600/2000m
- Incremento di velocità costante fra gli step
- Misurazione del lattato immediatamente dal lobo dell'orecchio al termine dello step
- 1' recupero
- Test condotto ad esaurimento

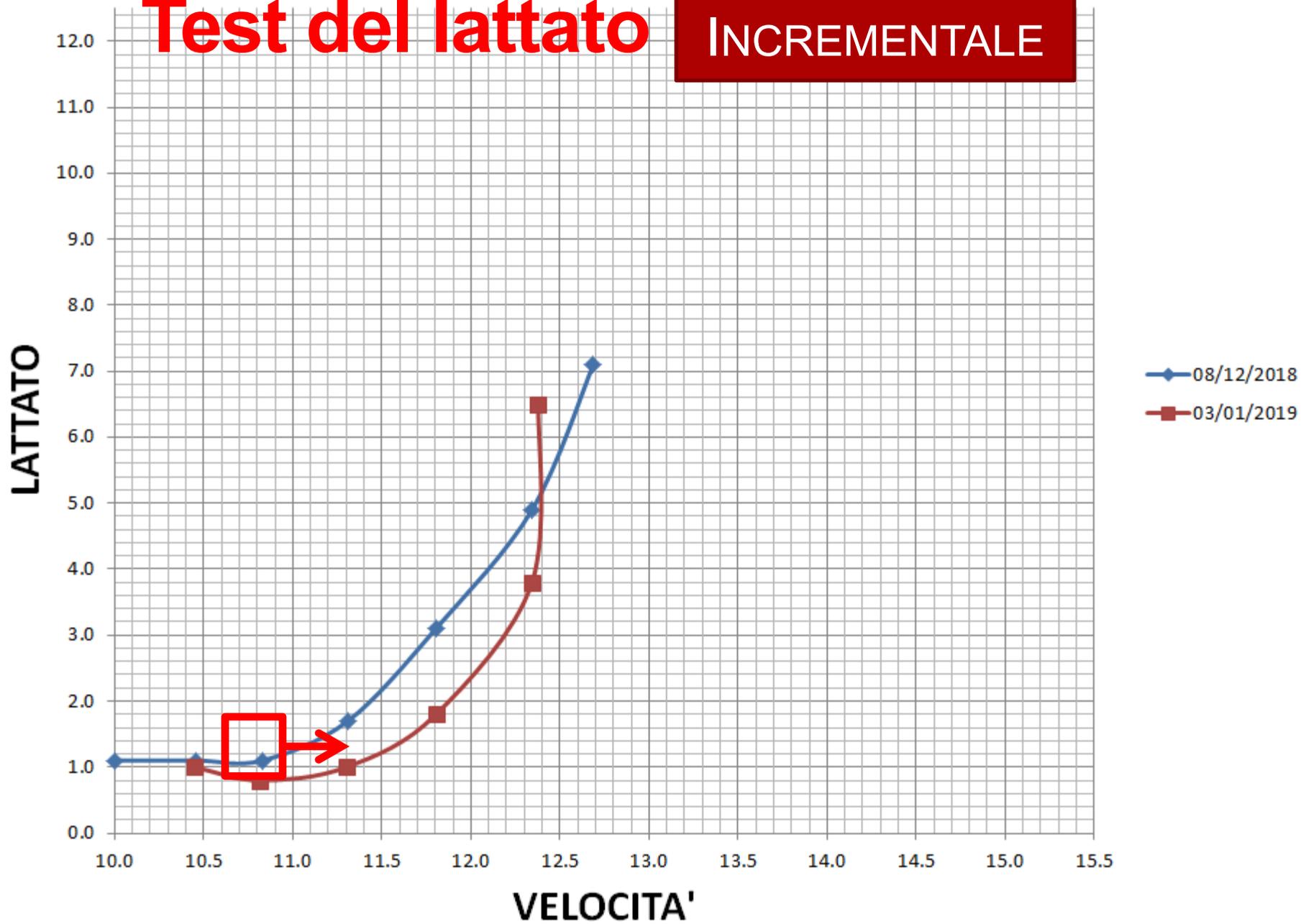
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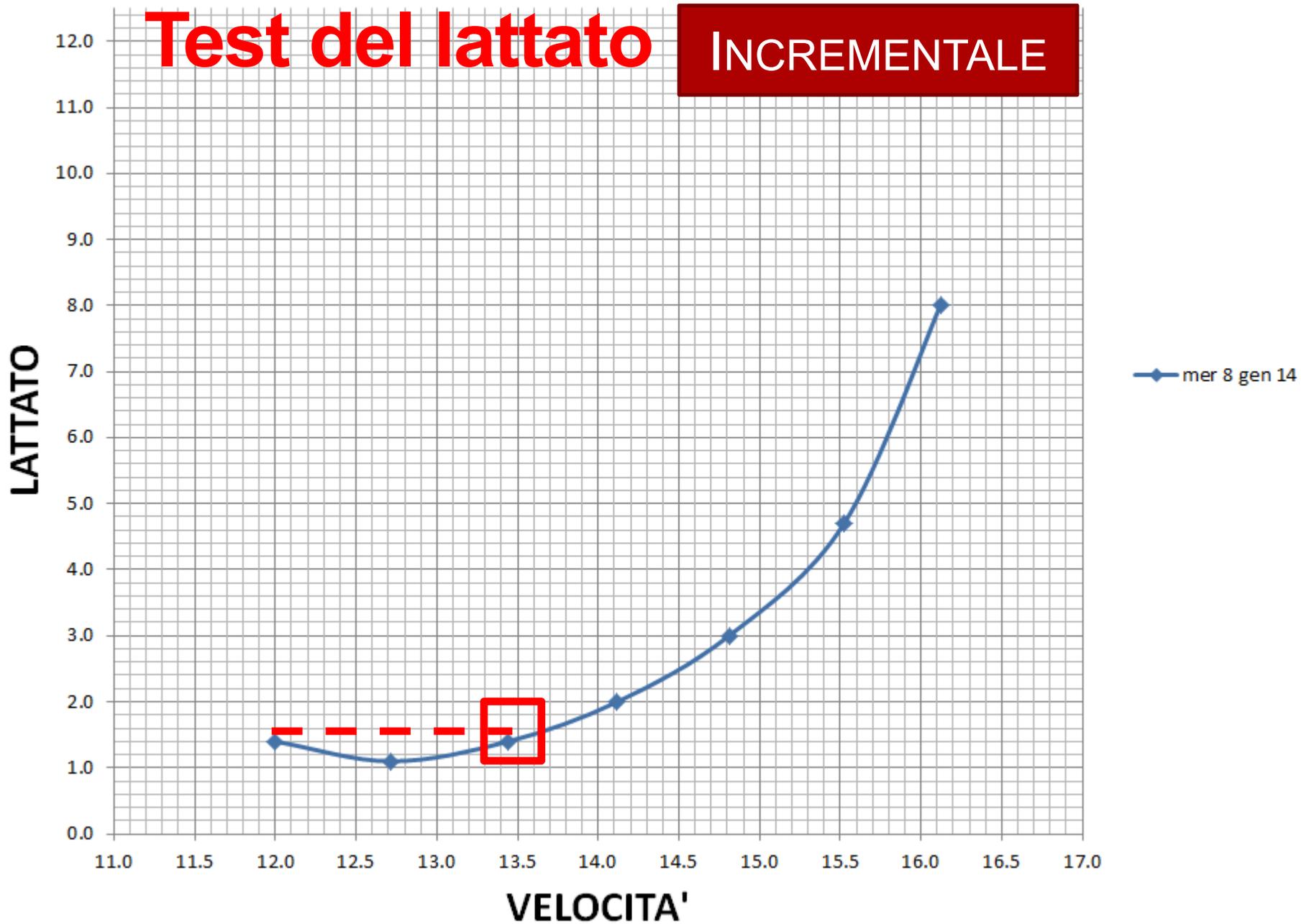
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Test del lattato

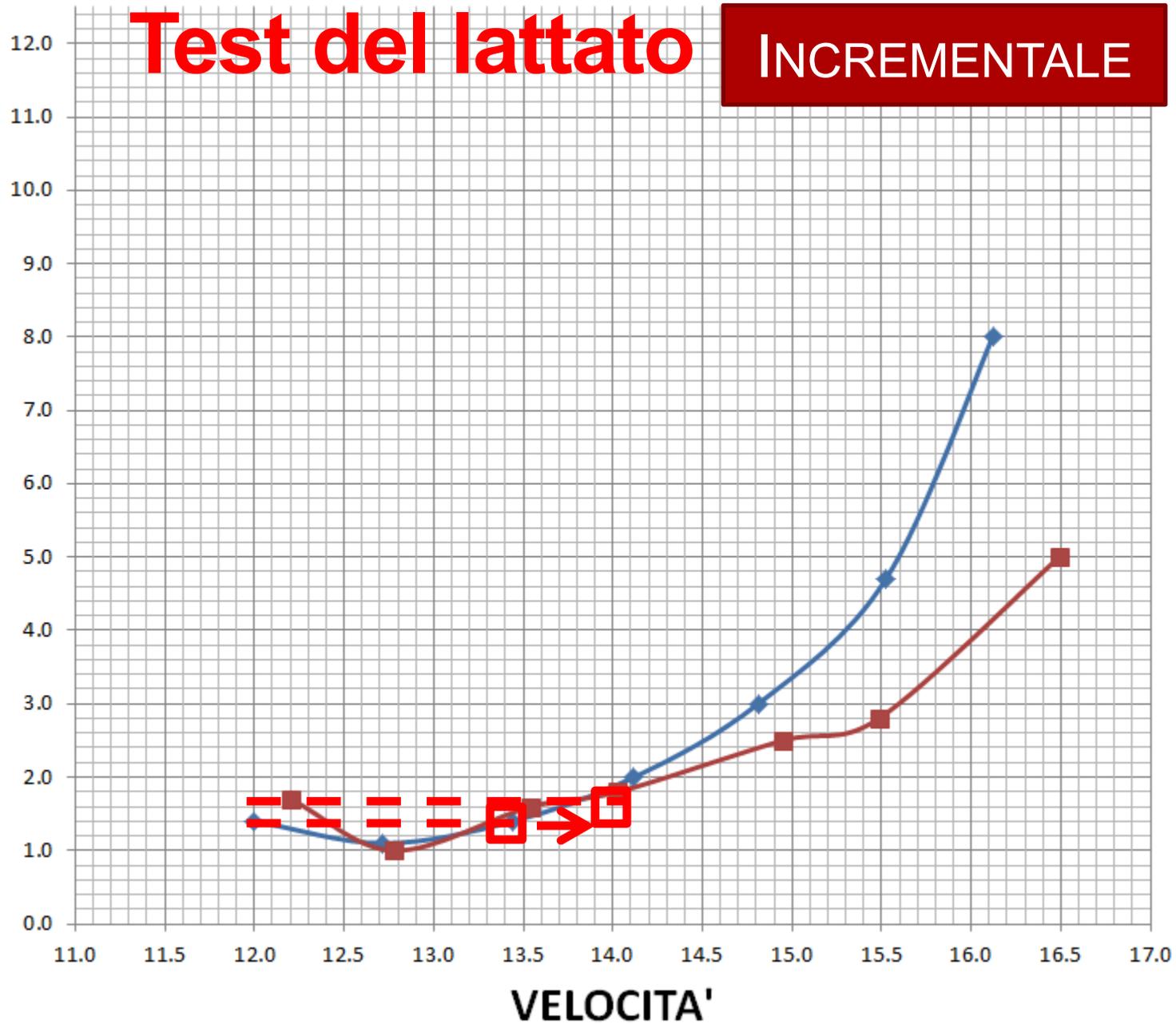
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Test del lattato

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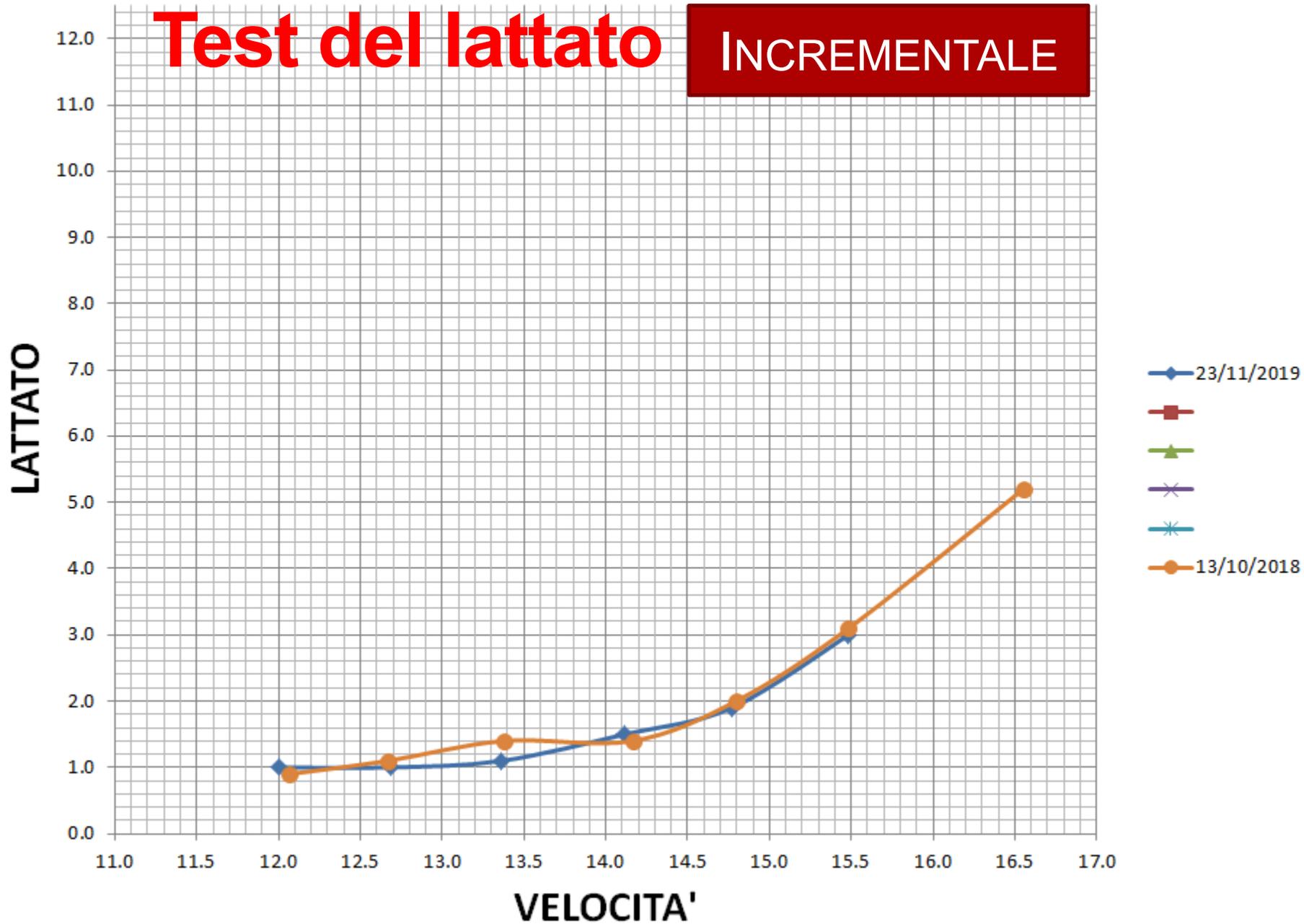
LATTATO



mer 8 gen 14

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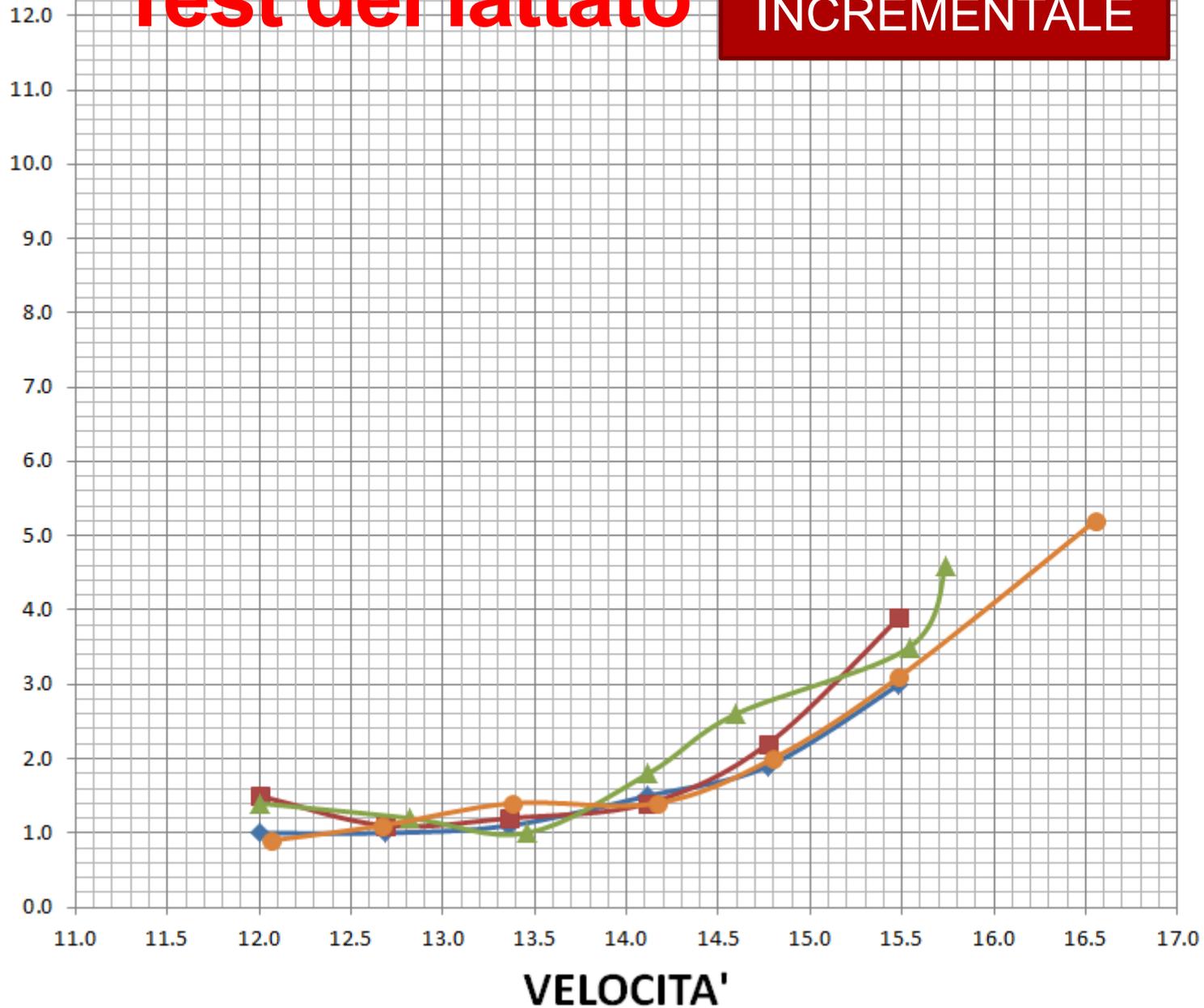
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Test del lattato

INCREMENTALE

LATTATO



- 23/11/2019
- 11/01/2020
- 05/01/2018
- 13/10/2018

Test del lattato

INCREMENTALE

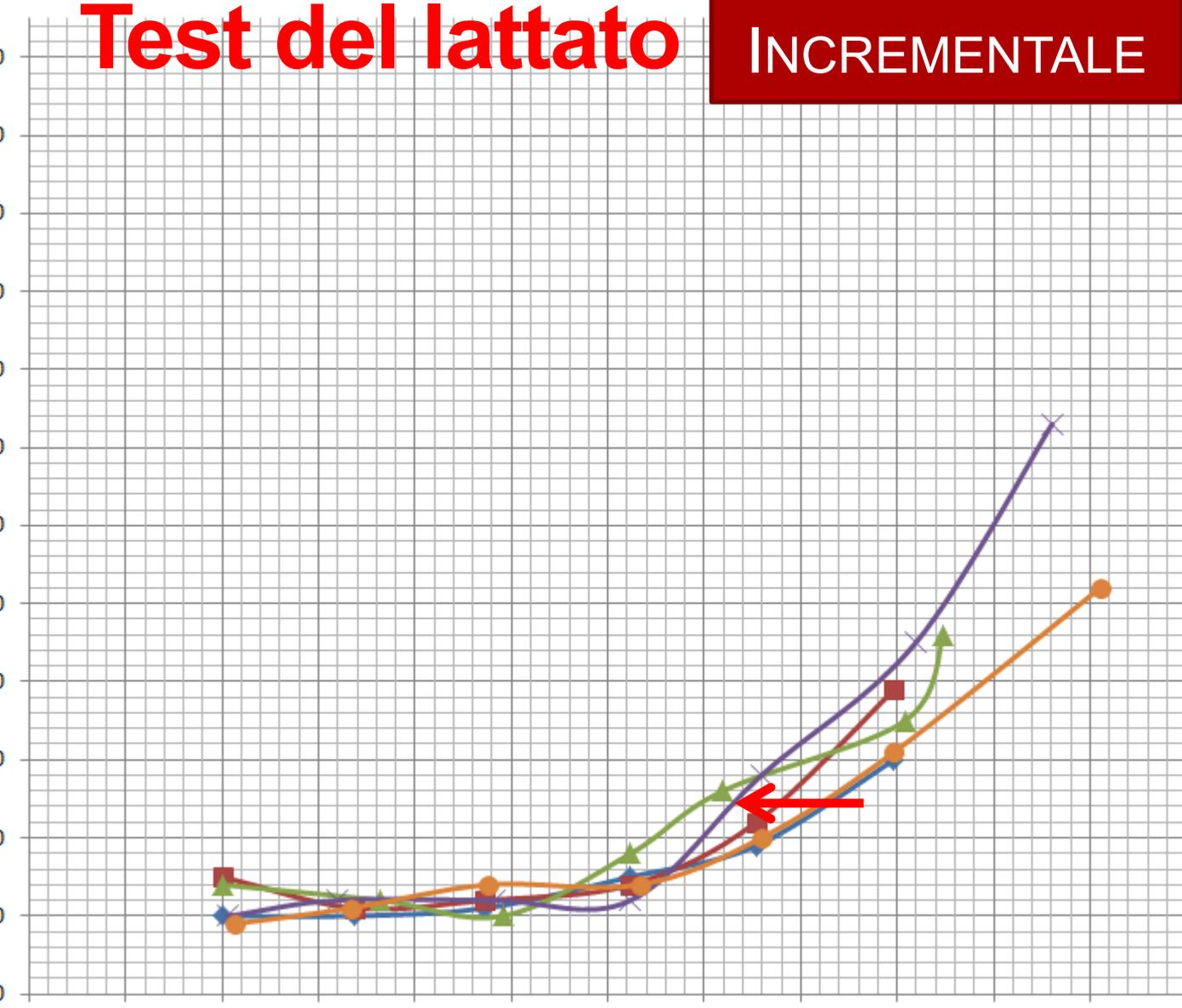
LATTATO

12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0

11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0 15.5 16.0 16.5 17.0

VELOCITA'

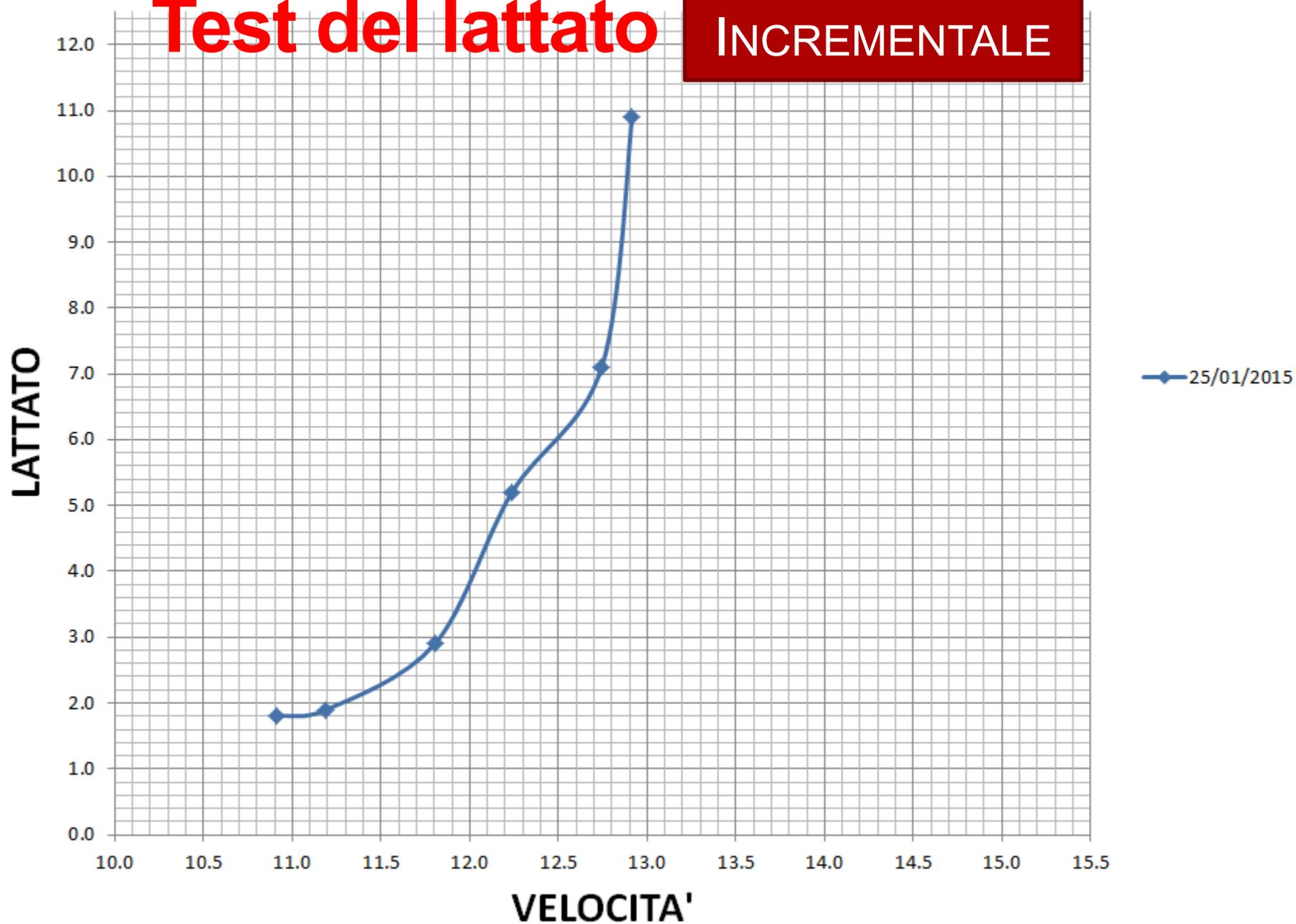
- 23/11/2019
- 11/01/2020
- 05/01/2018
- 18/07/2018
- *
- 13/10/2018



VELOCITA'	23/11/2019	11/01/2020	05/01/2018	18/07/2018	*	13/10/2018
12.0	1.0	1.5	1.3	1.0	1.0	0.9
12.7	1.0	1.2	1.2	1.1	1.1	1.0
13.4	1.1	1.2	1.0	1.1	1.1	1.4
14.1	1.4	1.3	1.8	1.1	1.1	1.3
14.7	1.8	2.2	2.6	2.5	2.5	2.0
15.5	3.0	3.9	3.5	4.5	4.5	3.0
16.5	-	-	-	7.3	-	5.2

Test del lattato

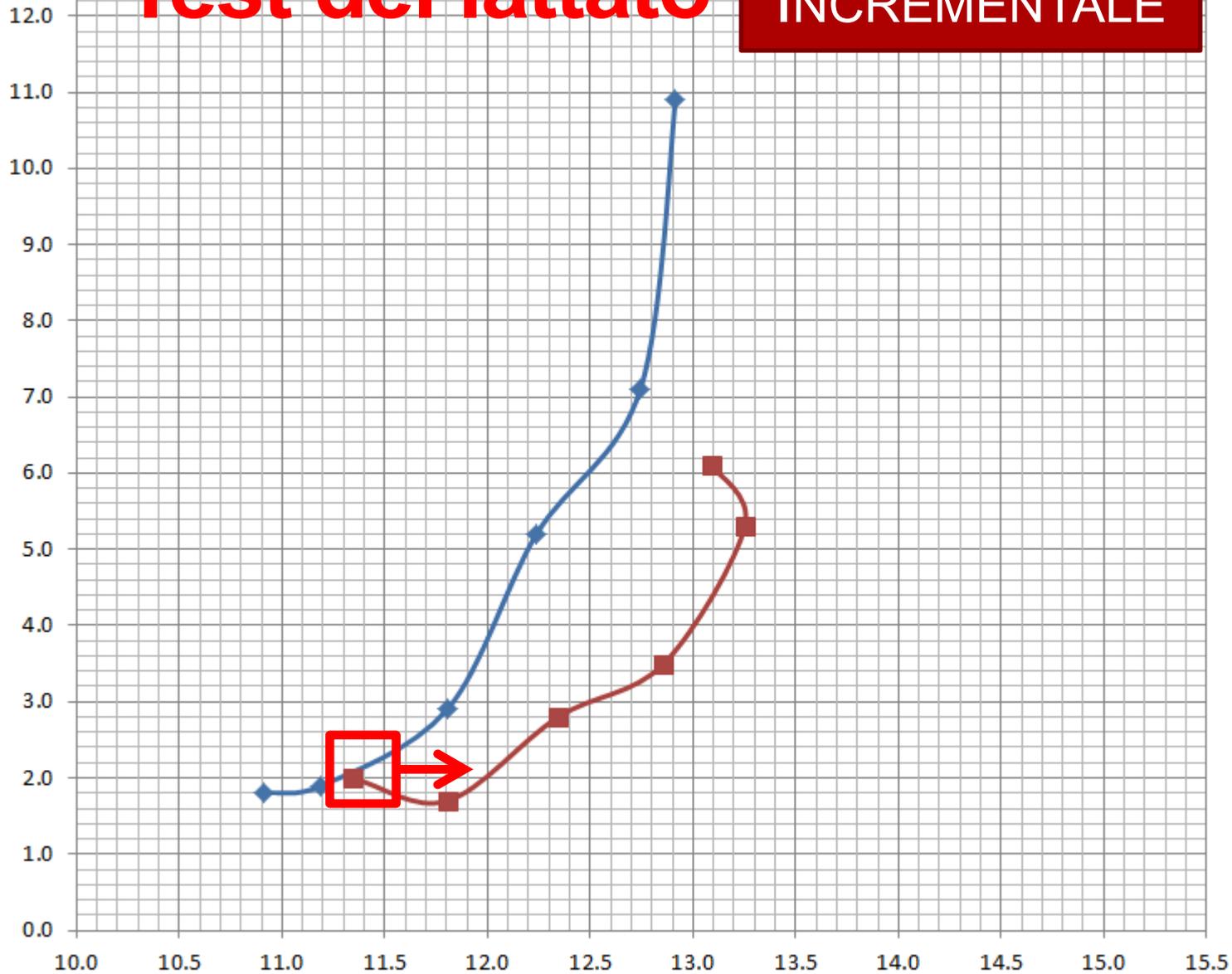
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Test del lattato

INCREMENTALE

LATTATO



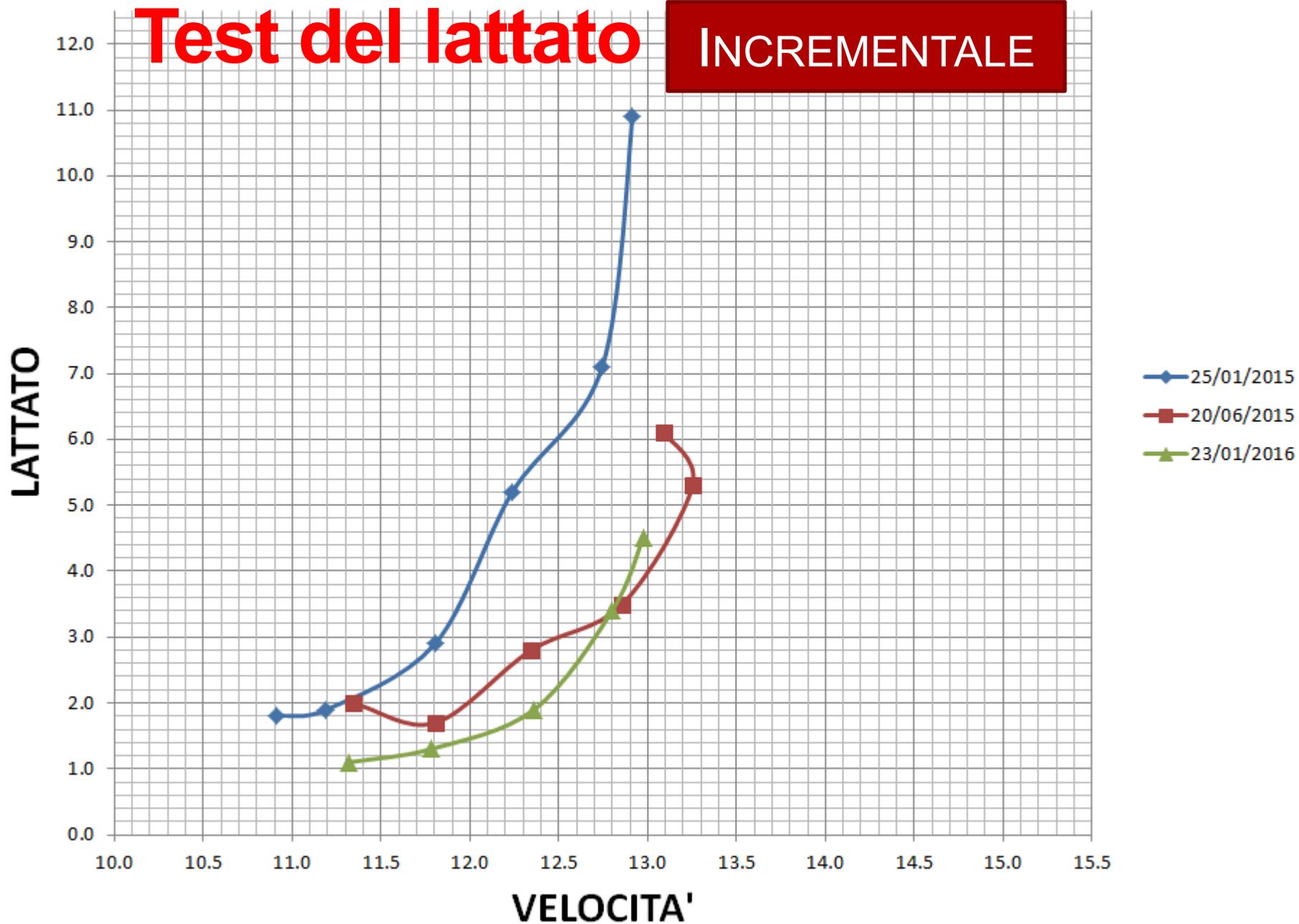
25/01/2015

20/06/2015

VELOCITA'

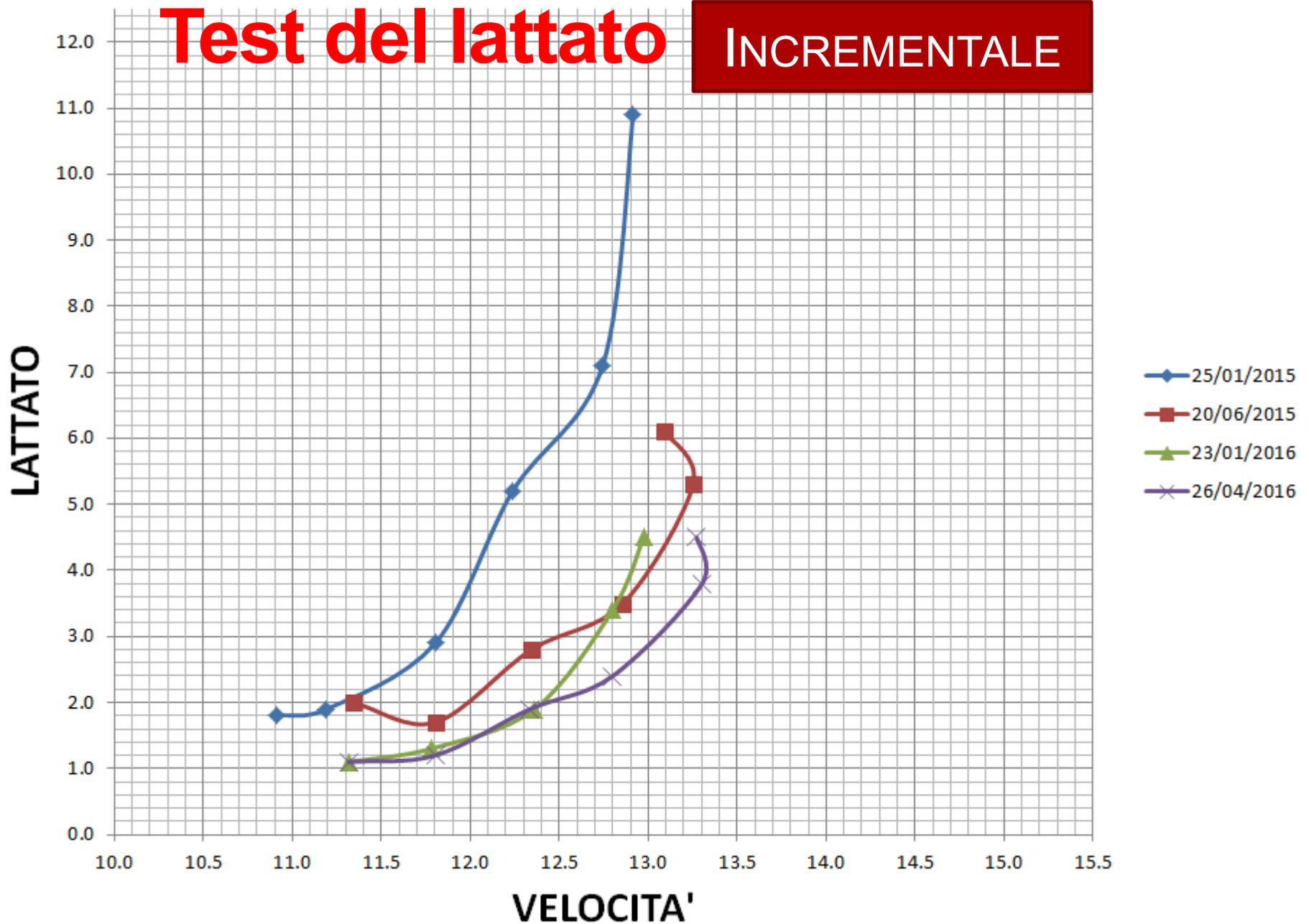
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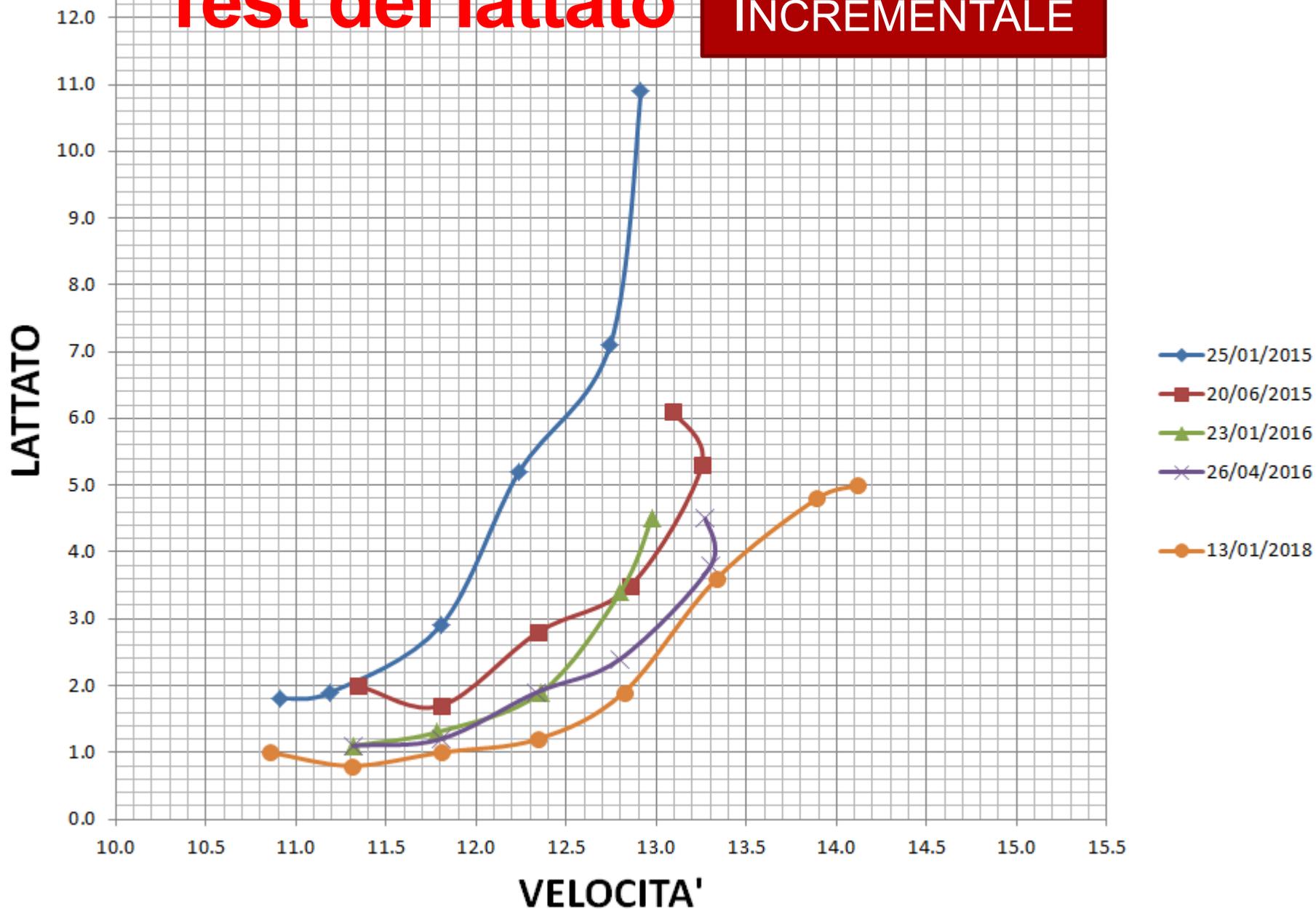
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Test del lattato

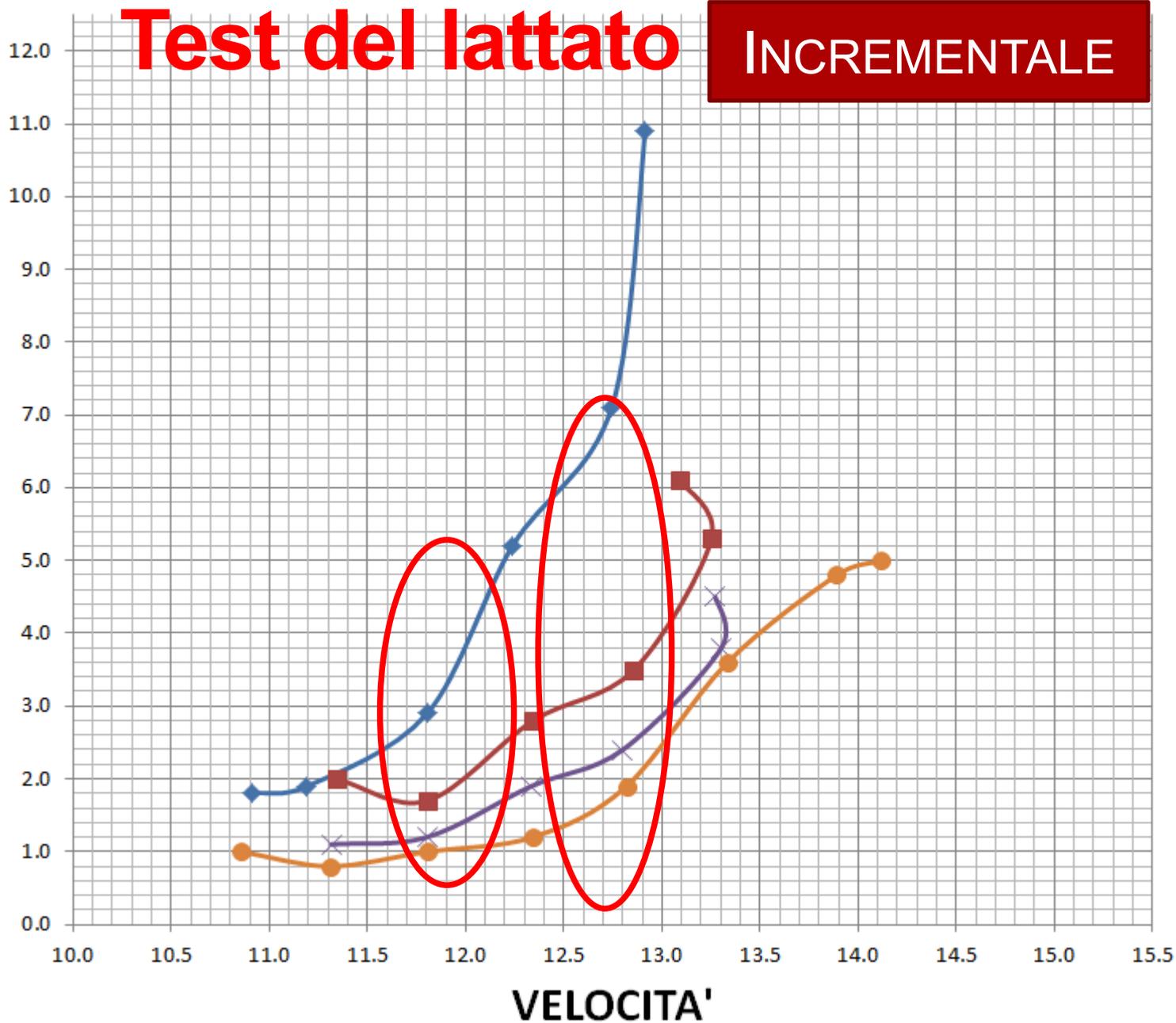
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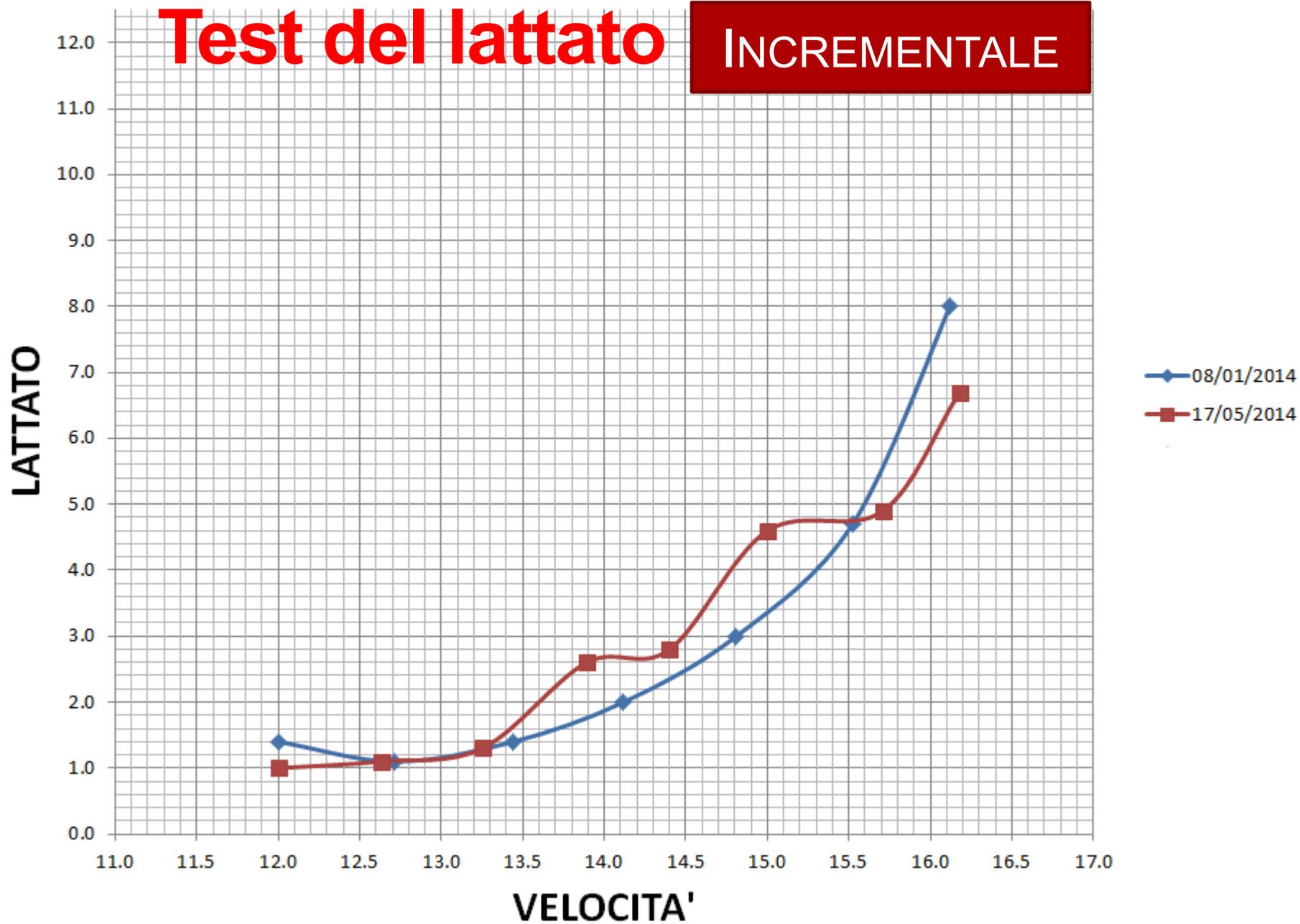
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LATTATO



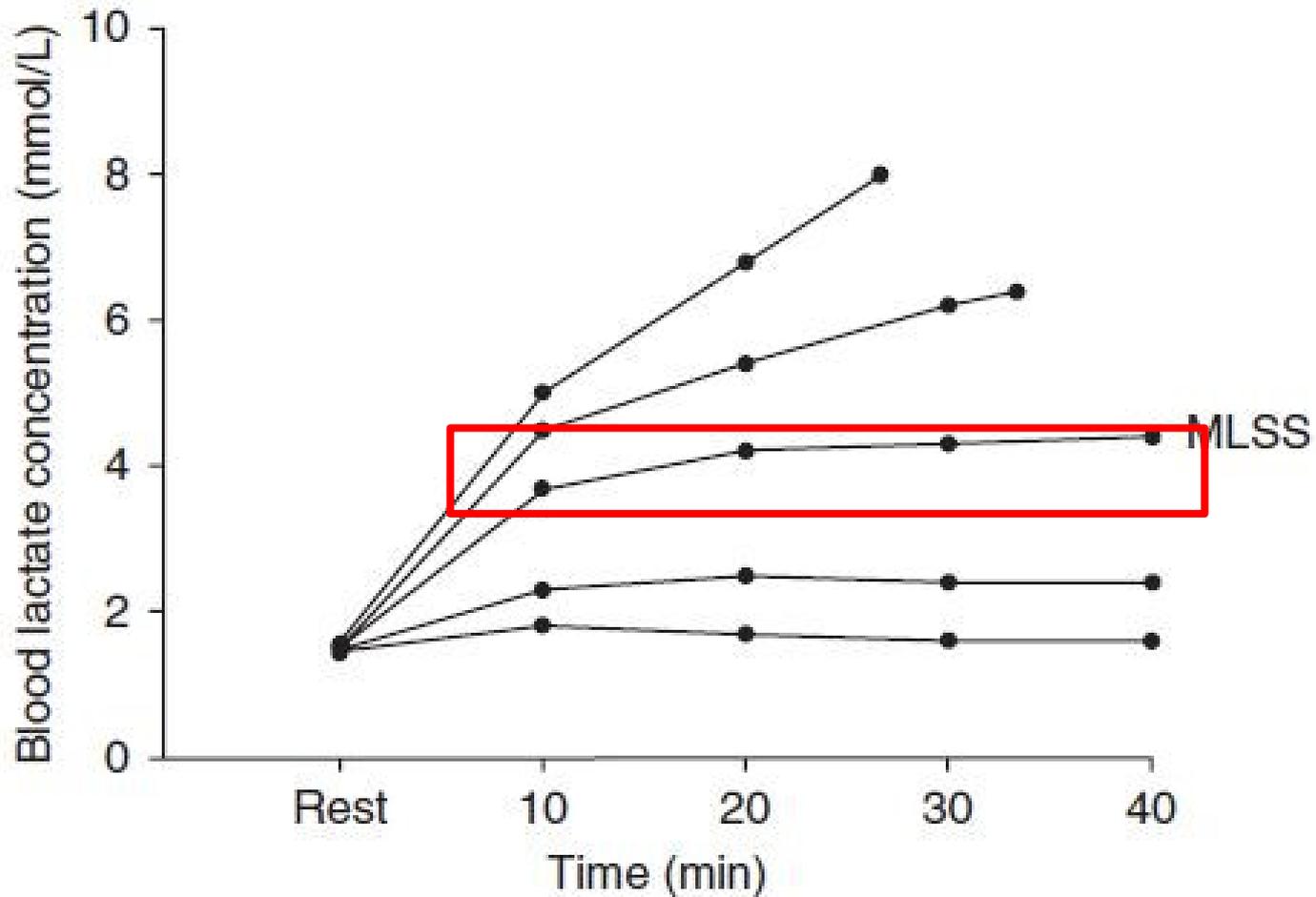
Test del lattato

INCREMENTALE



Test del lattato

VELOCITÀ COSTANTE



Test del lattato

VELOCITA' COSTANTE

Pre:

- Colazione e riscaldamento come prima di una gara (no allunghi spinti)
- Spesso associato a test incrementale alla mattina il giorno prima

Test:

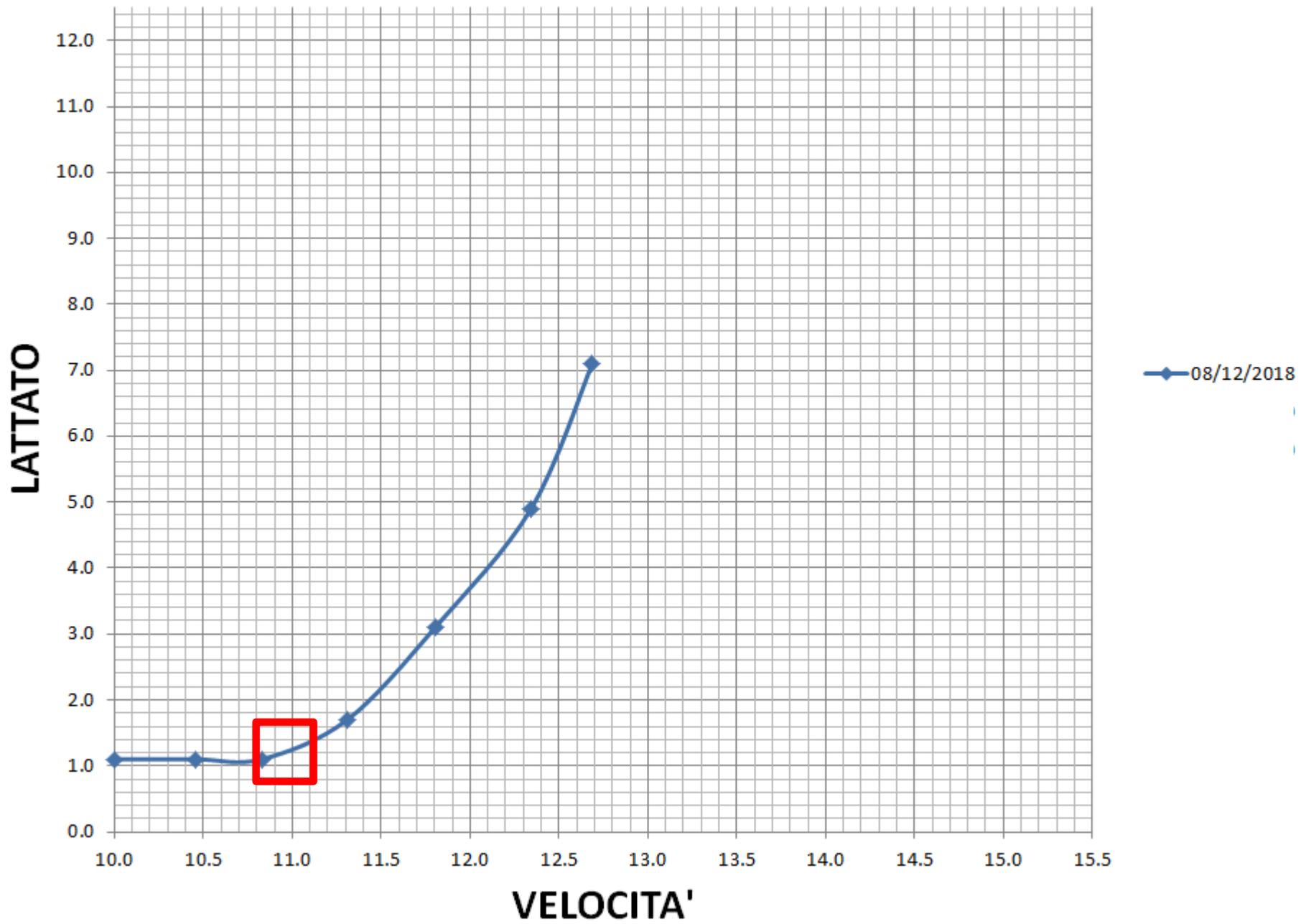
- Misurazione del lattato basale dopo riscaldamento
- Prima misurazione dopo 3-6 km
- Seconda misurazione dopo step prolungato a velocità costante
- Stop solo per pochi secondi (il tempo del prelievo)
- Ultimo step di almeno 2km più veloce (se si riesce)

Test del lattato

VELOCITÀ COSTANTE

Test: mattino 6 x 1200m; pomeriggio 10km a velocità costante + 5km in progressione

08/12/2018	km	Tempo Tot	Tempo Lap	Media/km L	Velocità Media Lattato	Fc Max
	0					1.2
	3	0:16:32	16:32.0	05:30.7	10.9	2.1 161
	10	0:55:08	38:36.0	05:30.9	10.9	2.6 174
	15	1:21:53	26:45.0	05:21.0	11.2	3.2 178
				(ultimo km 5:15)		
	rec 3'					3.7



Test del lattato

VELOCITÀ COSTANTE

Test: mattino 6 x 1200m; pomeriggio 10km a velocità costante + 5km in progressione

08/12/2018	km	Tempo Tot	Tempo Lap	Media/km L	Velocità Media Lattato	Fc Max
	0					1.2
	3	0:16:32	16:32.0	05:30.7	10.9	2.1 161
	10	0:55:08	38:36.0	05:30.9	10.9	2.6 174
	15	1:21:53	26:45.0	05:21.0	11.2	3.2 178
				(ultimo km 5:15)		
	rec 3'					3.7

Test del lattato

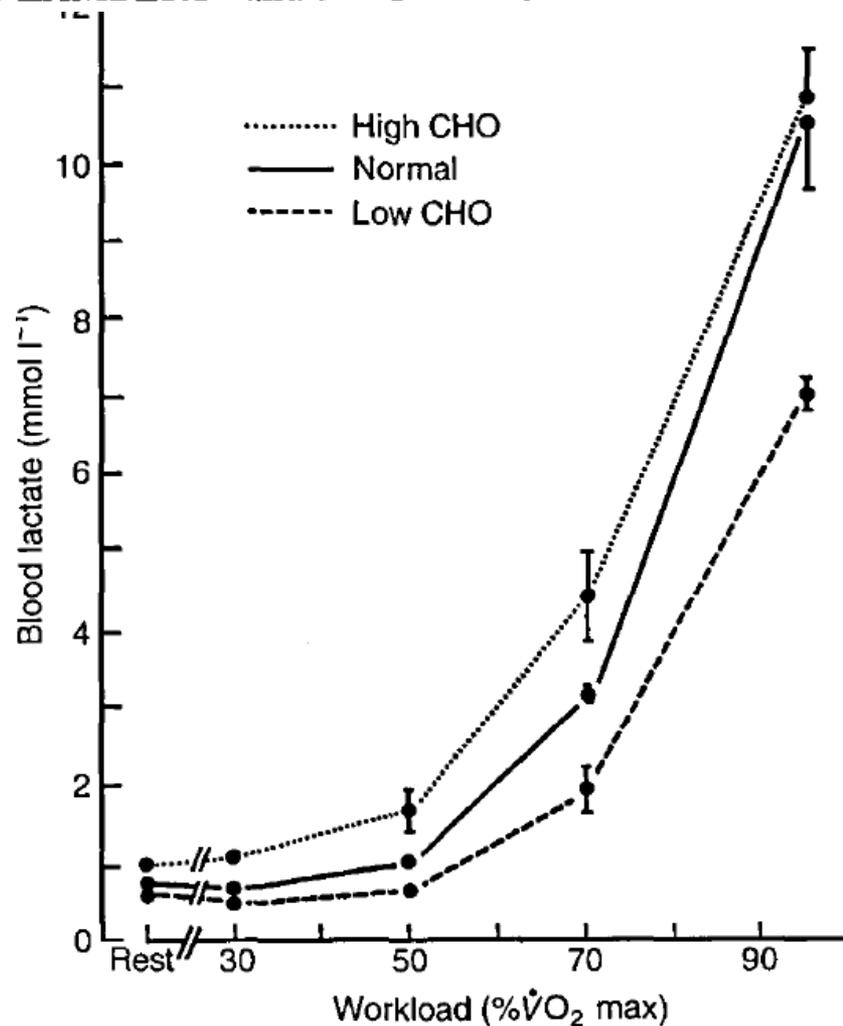
VELOCITÀ COSTANTE

Test: mattino 6 x 1200m; pomeriggio 10km a velocità costante + 5km in progressione

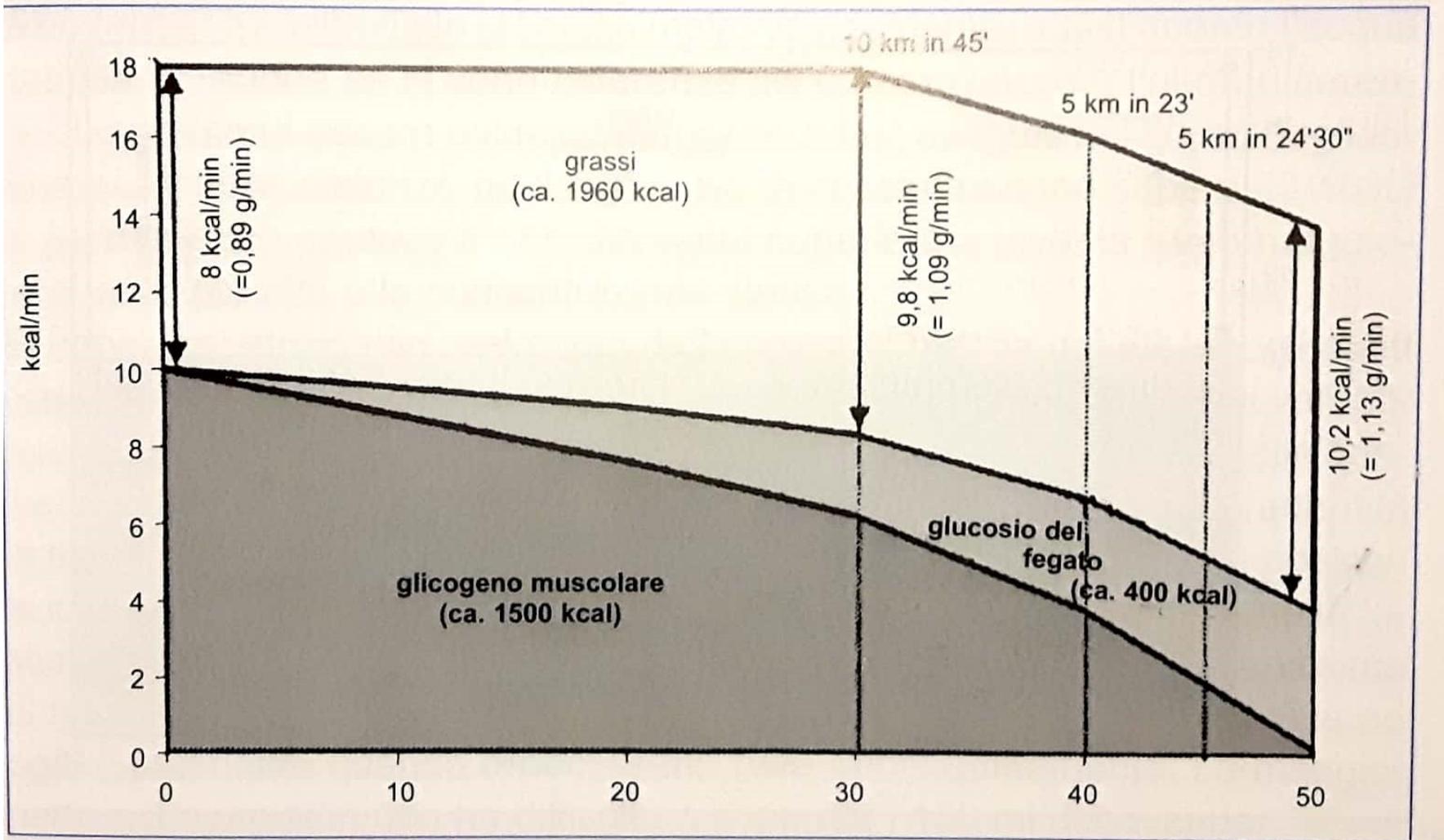
08/12/2018	km	Tempo Tot	Tempo Lap	Media/km L	Velocità Media Lattato	Fc Max
	0					1.2
	3	0:16:32	16:32.0	05:30.7	10.9	2.1 161
	10	0:55:08	38:36.0	05:30.9	10.9	2.6 174
	15	1:21:53	26:45.0	05:21.0	11.2	3.2 178
				(ultimo km 5:15)		
	rec 3'					3.7

Diet composition and the performance of high-intensity exercise

R.J. MAUGHAN,^{1*} P.L. GREENHAFF,² J.B. LEIPER,¹ D. BALL,³
C.P. LAMBERT⁴ and M. GLEESON⁵



GARA 50 km

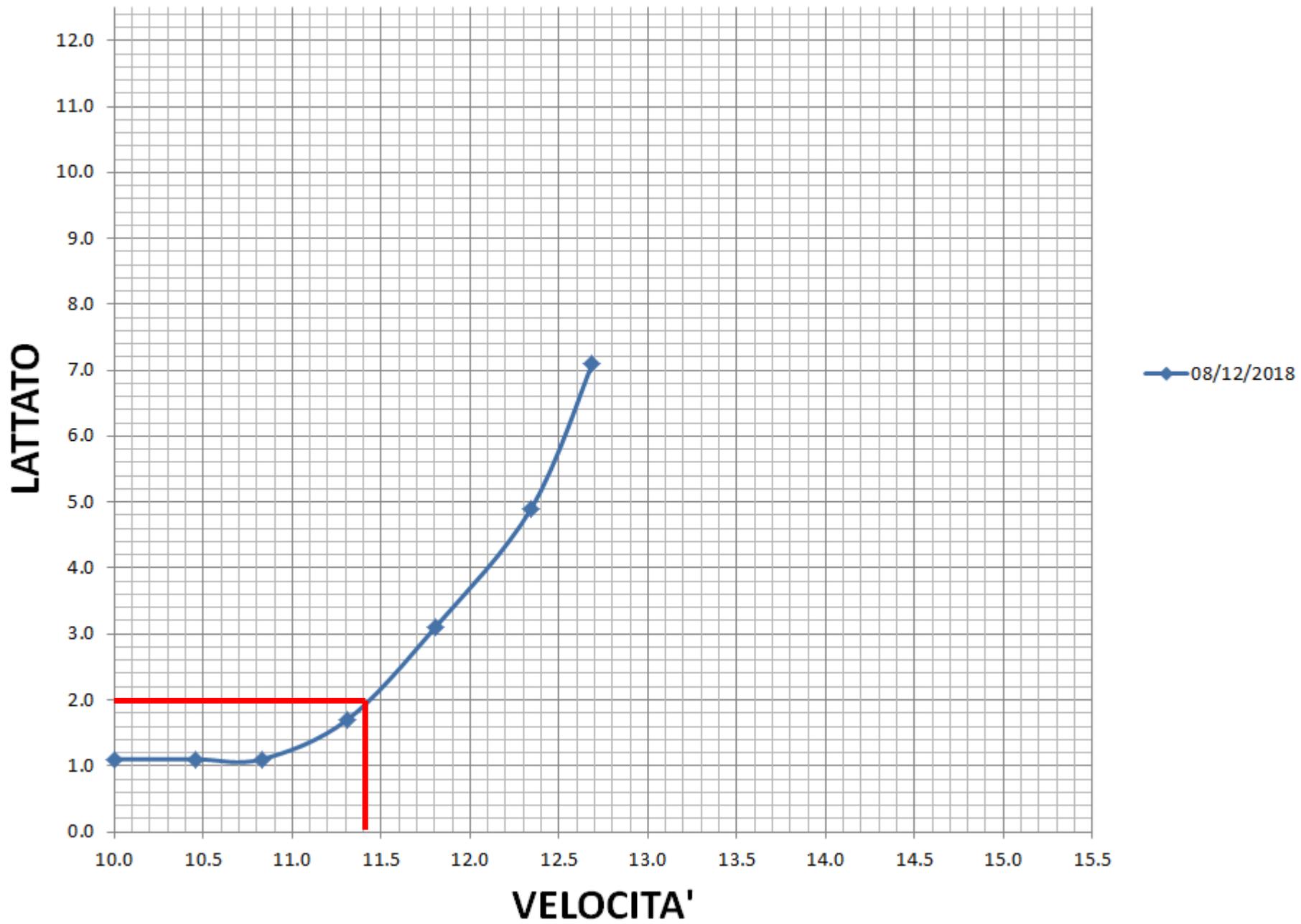


Test del lattato

VELOCITÀ COSTANTE

Test: mattino 6 x 1200m; pomeriggio 10km a velocità costante + 5km in progressione

08/12/2018	km	Tempo Tot	Tempo Lap	Media/km L	Velocità Media Lattato	Fc Max
	0					1.2
	3	0:16:32	16:32.0	05:30.7	10.9	2.1 161
	10	0:55:08	38:36.0	05:30.9	10.9	2.6 174
	15	1:21:53	26:45.0	05:21.0	11.2	3.2 178
				(ultimo km 5:15)		
	rec 3'					3.7



Test del lattato

VELOCITÀ COSTANTE

Test: 21km a velocità costante (lieve progressione) + 4km forte

18/03/2017	km	Tempo Tot	Tempo Lap	Media/km	Velocità	Media Lattato	FC max
	0					1.5	
	6	0:28:20	28:20.0	04:43.3		12.7	171
	10	0:46:59	18:39.0	04:39.7		12.9	187
	15	1:10:04	23:05.0	04:37.0		13.0	186
	21	1:37:26	27:22.0	04:33.7		13.2	186
	25	1:54:16	16:50.0	04:12.5		14.3	191
	arr					4.2	

Test del lattato

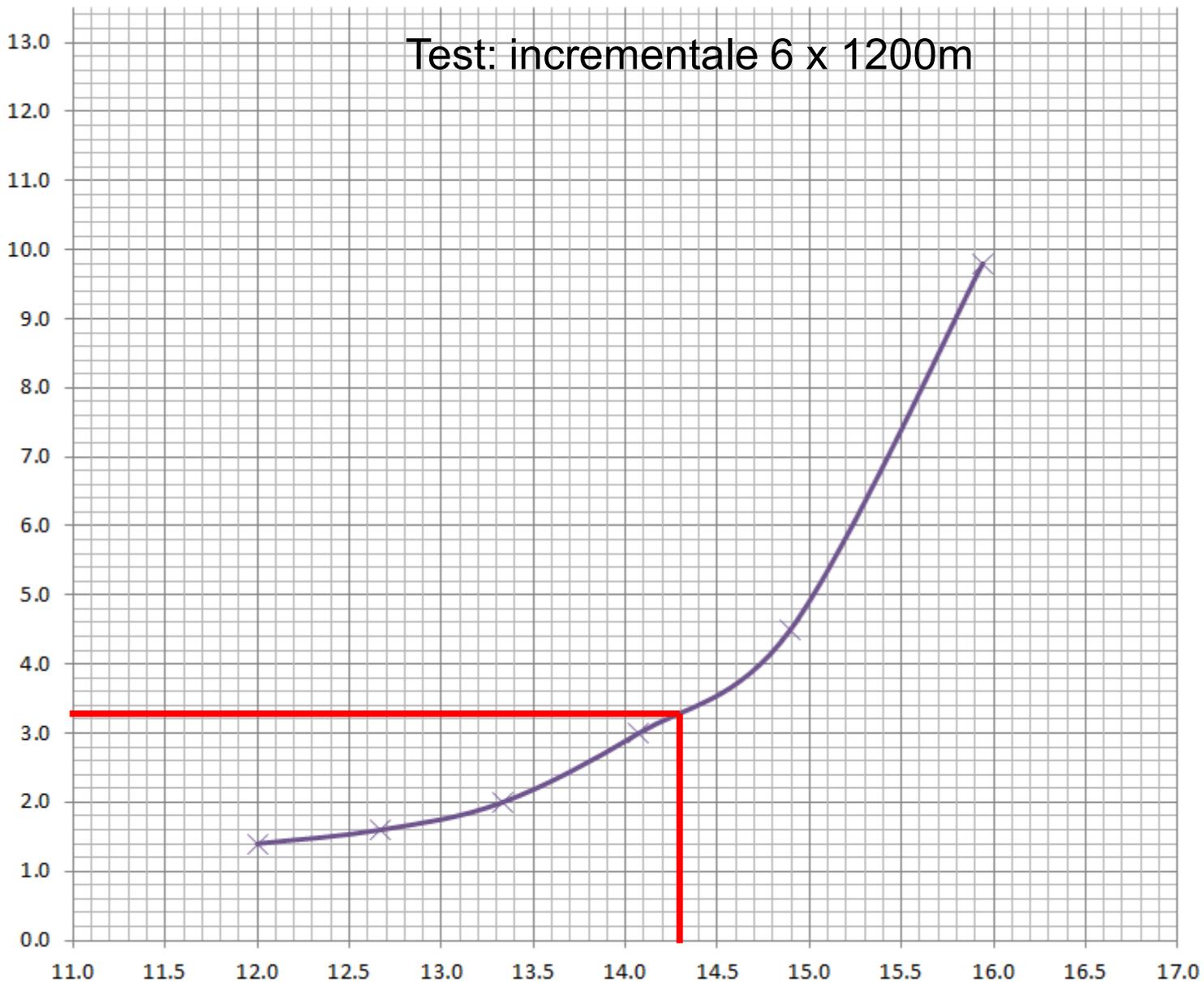
VELOCITÀ COSTANTE

Test: 21km a velocità costante (lieve progressione) + 4km forte

18/03/2017	km	Tempo Tot	Tempo Lap	Media/km	Velocità	Media Lattato	FC max
	0					1.5	
	6	0:28:20	28:20.0	04:43.3		12.7	171
	10	0:46:59	18:39.0	04:39.7		12.9	187
	15	1:10:04	23:05.0	04:37.0		13.0	186
	21	1:37:26	27:22.0	04:33.7		13.2	186
	25	1:54:16	16:50.0	04:12.5		14.3	191
	arr					4.2	

Test: incrementale 6 x 1200m

LATTATO



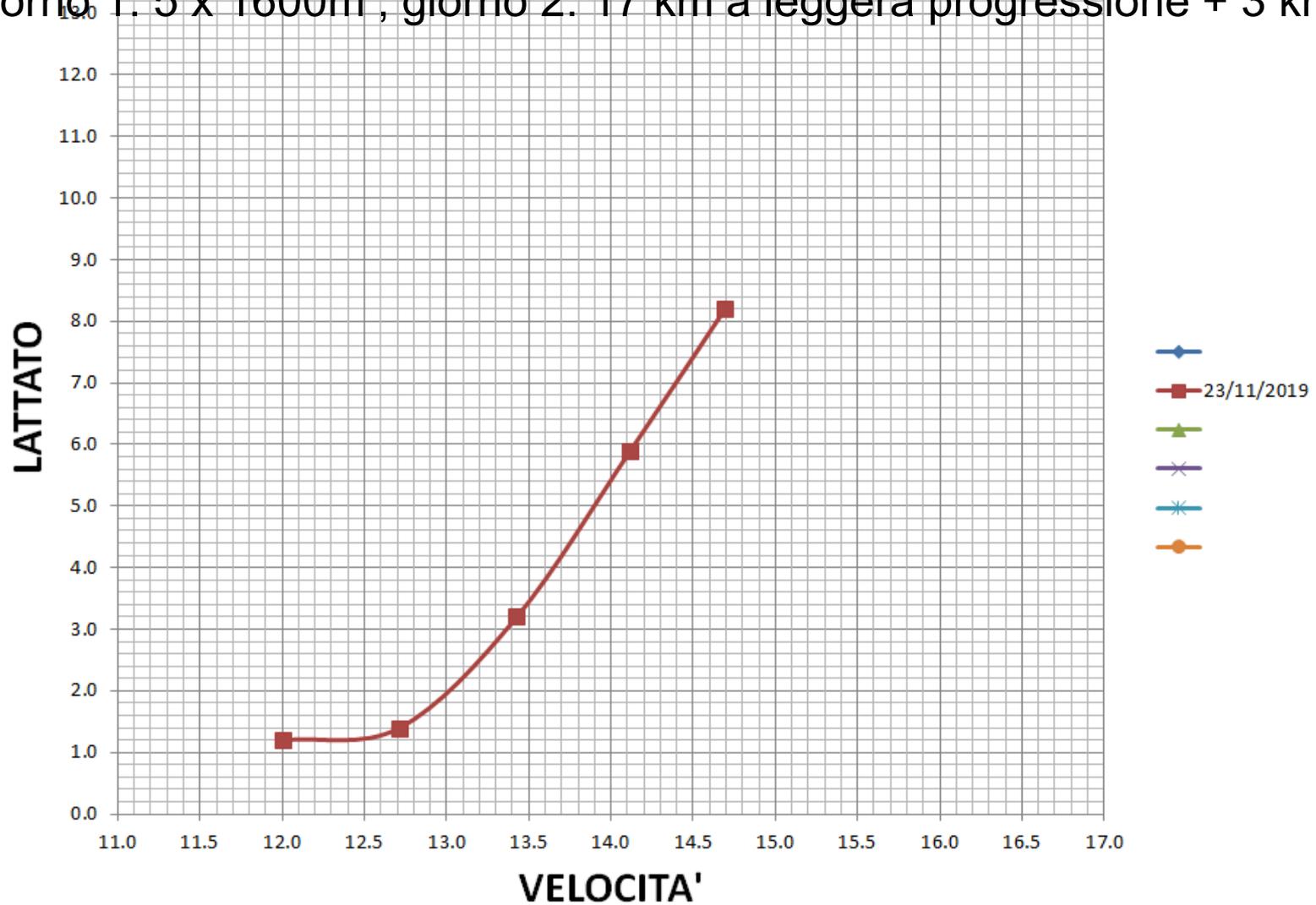
VELOCITA'

- ◆
-
- ▲
- × 11/02/2017
- *
-

Test del lattato

VELOCITÀ COSTANTE

Test giorno 1: 5 x 1600m ; giorno 2: 17 km a leggera progressione + 3 km forte



Test del lattato

VELOCITÀ COSTANTE

Test giorno 1: 5 x 1600m ; giorno 2: 17 km a leggera progressione + 3 km forte

24/11/2019	km	Tempo Tot	Tempo Lap	Media/km	Velocità	Media Lattato	FC max	Fc media
	0					1.3		
	5	00:23:57	00:23:57	00:04:47	12.5	2.1	155	145
	10	00:47:51	00:23:54	00:04:47	12.6		175	150
	15	01:10:54	00:23:03	00:04:37	13.0		182	155
	17	01:20:01	00:09:07	00:04:34	13.2	4.6	183	151
	20	01:33:21	00:13:20	00:04:27	13.5	3.7	186	161
	rec 3'					3.2		

Test del lattato

VELOCITÀ COSTANTE

Test giorno 1: 5 x 1600m ; giorno 2: 17 km a leggera progressione + 3 km forte

24/11/2019	km	Tempo Tot	Tempo Lap	Media/km	Velocità	Media Lattato	FC max	Fc media
	0					1.3		
	5	00:23:57	00:23:57	00:04:47	12.5	2.1	155	145
	10	00:47:51	00:23:54	00:04:47	12.6		175	150
	15	01:10:54	00:23:03	00:04:37	13.0		182	155
	17	01:20:01	00:09:07	00:04:34	13.2	4.6	183	151
	20	01:33:21	00:13:20	00:04:27	13.5	3.7	186	161
	rec 3'					3.2		

Test del lattato + VO2

VELOCITÀ COSTANTE

Data	01/04/2015	1 step	2 step	3 step	4 step	5 step
Lunghezza km		2.5 ≈13		2.5 ≈15		1.5
Ritmo		04:45.0	04:43.0	04:38.0	04:38.0	04:36->4:28 (ultimi 300m)
Vo2 (ml)/kg/min; media ultimi 2		52.97		49.71		52.57
RER		0.95		0.92		0.87
LAC		2		2.8		2
Data	01/11/2015	1 step	2 step	3 step	4 step	5 step
Lunghezza km		3	15	3	15	2.5
Ritmo		00:04:45	00:04:41	00:04:36	00:04:40	04:40
Vo2 (ml)/kg/min; media ultimi 5		53.9		55.8		52.9
RER		0.95		0.99		0.92
Vo2 (L)/Km; ultimo km		15.01		15.079		14.49
Vo2 (mL)/kg/Km; ultimo km		256.581197		257.7607		247.6923077
LAC		1.6		1.7		1.6
Peso (Kg)		58.5				
Data	26/02/2016	1 step	2 step	3 step	4 step	5 step
Lunghezza km		3	15	3	15	2.5
Ritmo		00:04:45	00:04:40	00:04:40	00:04:40	da 4,36 a 4,24
Vo2 (ml)/kg/min		52.2		51.7		56-57,8
RER		0.91		0.92		da 0,83 a 0,87
Vo2 (L)/Km; ultimo km						
Vo2 (mL)/kg/Km; ultimo km		#DIV/0!		#DIV/0!		#DIV/0!
LAC		2.4		1.6		2.9

Test a carico costante



PESO: Pre e Post allenamento

Integrazione:

- Liquidi
- Carboidrati
- Sali



Test VO2 in Laboratorio

VELOCITÀ COSTANTE + INCREMENTALE

08/04/2017

Test: Basale 3' + 4' a 13km/h + recupero 8' + incrementale (da 11 km/h + 0.5km/h ogni minuto)

Walking Economy a 13km/h

Vo2 ml/kg*min 67.50

Kcal/min 20.00

Kcal/Kg*min 0.33

Kcal/kg*km 1.51

RQ 0.88

SAer	03:35	13.50 km/h	00:04:27 min/km
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Sanaer	07:20	14.00 km/h	00:04:17 min/km
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VAM	10:40	16.00 km/h	00:03:45 min/km
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VO2max		78.80 ml/Kg*min	
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RQ al picco		1.07	
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Test VO2 in Laboratorio

VELOCITÀ COSTANTE + INCREMENTALE

08/04/2017

Test: Basale 3' + 4' a 11.5 km/h + recupero 8' + incrementale (da 10km/h + 0.5 km/h ogni minuto)

Walking Economy a 11.5km/h

Vo2 ml/kg*min	55.90
Kcal/min	15.50
Kcal/Kg*min	0.27
Kcal/kg*km	1.43
RQ	0.95

SAer	12 km/h	00:05:00	min/km
Sanaer	13 km/h	00:04:37	min/km
VAM	14 km/h	00:04:17	min/km
VO2max	60.3 ml/Kg*min		
RQ al picco	1.11		