

SEDICESIMO CONVEGNO DI TRAUMATOLOGIA CLINICA E FORENSE

Corso di aggiornamento specifico in
traumatologia dello sport
Il calcio

Salsomaggiore 23 novembre 2018



THERMAE
DI SALSOMAGGIORE



Meccanobiologia: recupero articolare

Dott. Ermes Marco Rosa
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Marathon Sport Center
Brescia

Salsomaggiore 23 novembre 2018

MECCANOLOGIA

La **meccanobiologia** è un ramo emergente della scienza che unisce la biologia e l'ingegneria per lo studio delle funzioni cellulari. Lo studio di tale ramo si concentra su come le forze fisiche e i cambiamenti nelle proprietà meccaniche delle cellule e dei tessuti contribuiscono allo sviluppo, alla differenziazione cellulare, alla fisiologia e alla malattia delle cellule stesse.

MECCANOTERAPIA

- **Meccanoterapia:** la somministrazione della corretta stimolazione meccanica che determina una risposta riparativa quindi terapeutica a livello cellulare.

Tessuto cartilagineo

- Nel calcio il trauma del ginocchio rappresenta uno dei principali infortuni e lo stato del tessuto cartilagineo determina la ripresa più o meno rapida della completa funzionalità articolare. La rigenerazione del tessuto cartilagineo rappresenta una delle più importanti sfide della medicina moderna.

Tessuto cartilagineo

- Le caratteristiche strutturali conferiscono al tessuto cartilagineo le tipiche proprietà biomeccaniche, ma ne rappresentano anche i limiti riparativi.
- Il trattamento riabilitativo risulta cruciale nei processi di maturazione e “riparazione” del neo tessuto riparativo quindi il programma riabilitativo deve mirare a generare adeguati stimoli meccanici per il corretto adattamento e rimodellamento del tessuto di riparazione allo scopo di ricostituire un ambiente articolare idoneo alle richieste funzionali del paziente stesso.

Cause aumento infortuni negli sportivi d'élite

- L'aumento costante delle dimensioni antropometriche degli atleti.
- L'aumento della velocità di esecuzione del gesto tecnico.
- L'aumento del numero delle competizioni

Prevenzione

L'evoluzione dell'allenamento ha contrastato solo in parte la prevenzione degli infortuni negli sport individuali e di squadra, infatti viene migliorato notevolmente il trofismo muscolare ma questo processo non riesce a proteggere sufficientemente la strutture tendinee e articolari.

Tipologia dell'infortunio

Negli sport individuali come atletica leggera, nuoto, ciclismo gli infortuni sono principalmente dovuti a sovraccarichi funzionali mentre in sport di squadra come calcio, pallavolo, rugby sono soprattutto traumatici e interessano principalmente le strutture articolari.

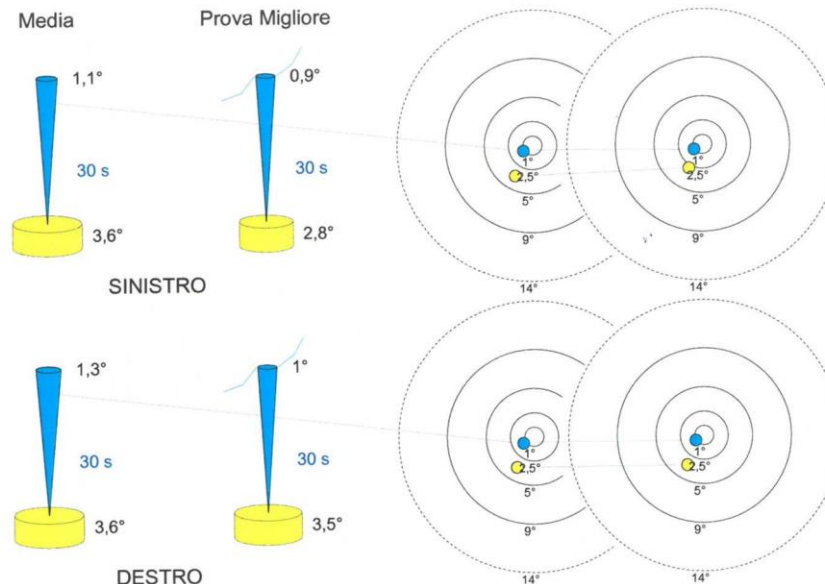
WINTECARE



Marathon Sport Center

DELOS





■ la presenza dei segmenti azzurri indica che la prova è stata eseguita con gli arti superiori liberi

SINISTRO

L'autonomia (100%) è nei limiti della norma (50° percentile, equivalente al picco di stabilità degli adulti giovani). La strategia precauzionale è assente.

La stabilità posturale dinamica sinistra (0,9°) è ottima.

L'instabilità del sistema uomo-tavola è pari a 3,7°.

La strategia utilizzata è corretta: il controllo posturale è raffinato.

Azione posturale degli arti superiori

Gli arti superiori svolgono una azione posturale stabilizzante. L'instabilità (cono posturale) si riduce di 0,2°.

* La stabilità potrebbe essere di livello inferiore in quanto il soggetto è stato in appoggio con le mani per un tempo superiore al 5% della durata della prova.

** La stabilità potrebbe essere di livello inferiore al valore indicato in quanto il soggetto è stato in appoggio con le mani (strategia precauzionale) per un tempo uguale o superiore al 10% della durata della prova.

*** Quando il soggetto appoggia le mani (strategia precauzionale) per un tempo uguale o superiore al 25% della prova, la stabilità viene ritenuta comunque insufficiente.

TESTO MODIFICABILE DALL'UTENTE PER PERSONALIZZARE L'INTESTAZIONE:

Aprire un Test - Cliccare Test Analizza

Menu - Impostazioni - Scelta Intestazione Pagina Referto - Nuovo

Fleggare Salva come intestazione predefinita

Valutazione del 13-06-2017

Rosucci Martina

Indirizzo:

Telefono:

Altezza: 171



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Data di nascita: 09/05/1992

Sesso: F

Peso: 60

STRATEGIE POSTURALI DINAMICHE

TEST DI RIVA DINAMICO

(monopodalico)

SINISTRA

STRATEGIE

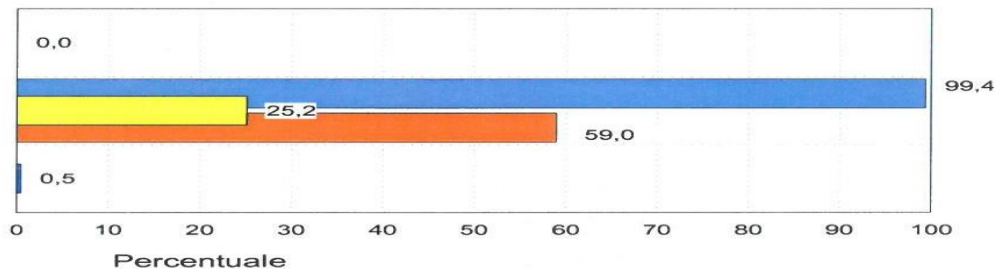
Precauzionale

Visuo-Propriocettiva

(raffinata DVC $\leq 1^\circ$)

(low perf DVC $\leq 2,5^\circ$, DEB $\leq 8^\circ$)

Vestibolare



DESTRA

STRATEGIE

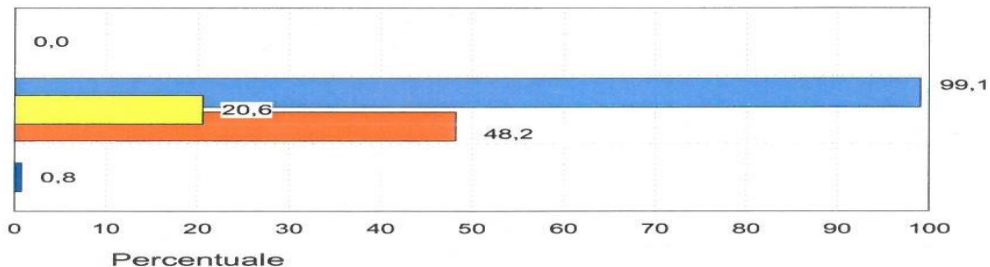
Precauzionale

Visuo-Propriocettiva

(raffinata DVC $\leq 1^\circ$)

(low perf DVC $\leq 2,5^\circ$, DEB $\leq 8^\circ$)

Vestibolare



ISOCINETICA



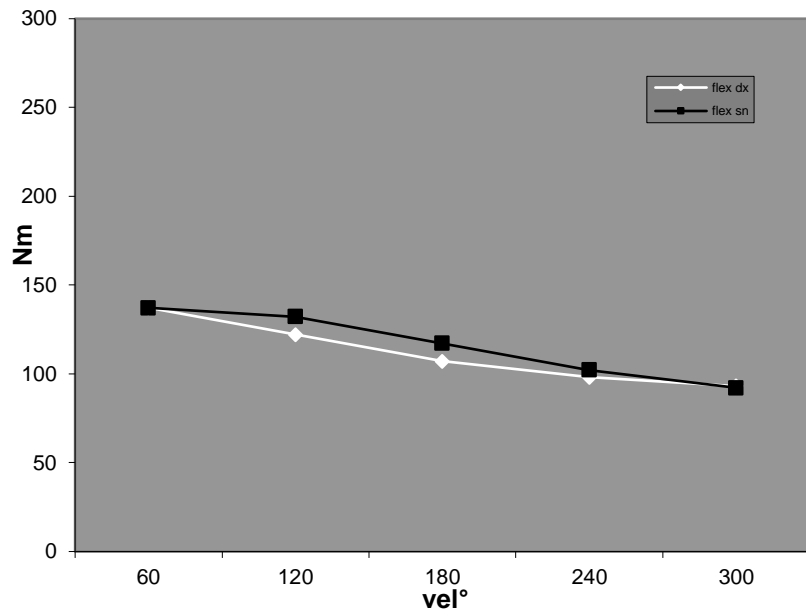
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Test isocinetico Cybex II

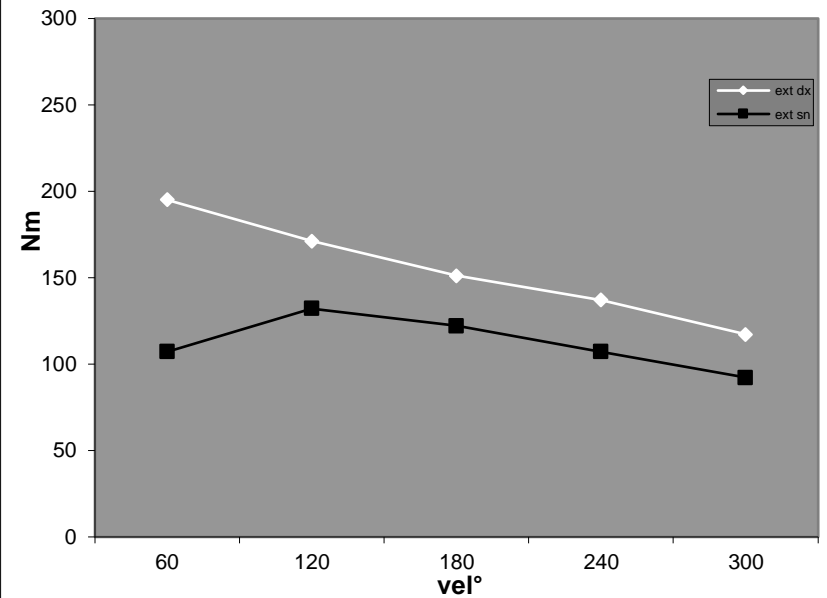
Equilibrio muscolare

vel°	ext dx	flex dx	ext sn	flex sn	ext ds/ext sn	flex ds/flex sn	flex ds/ext ds	flex sn/ext sn
					%	%	%	%
60	195	137	107	137	182,2	100,0	70,3	128,0
120	171	122	132	132	129,5	92,4	71,3	100,0
180	151	107	122	117	123,8	91,5	70,9	95,9
240	137	98	107	102	128,0	96,1	71,5	95,3
300	117	93	92	92	127,2	101,1	79,5	100,0

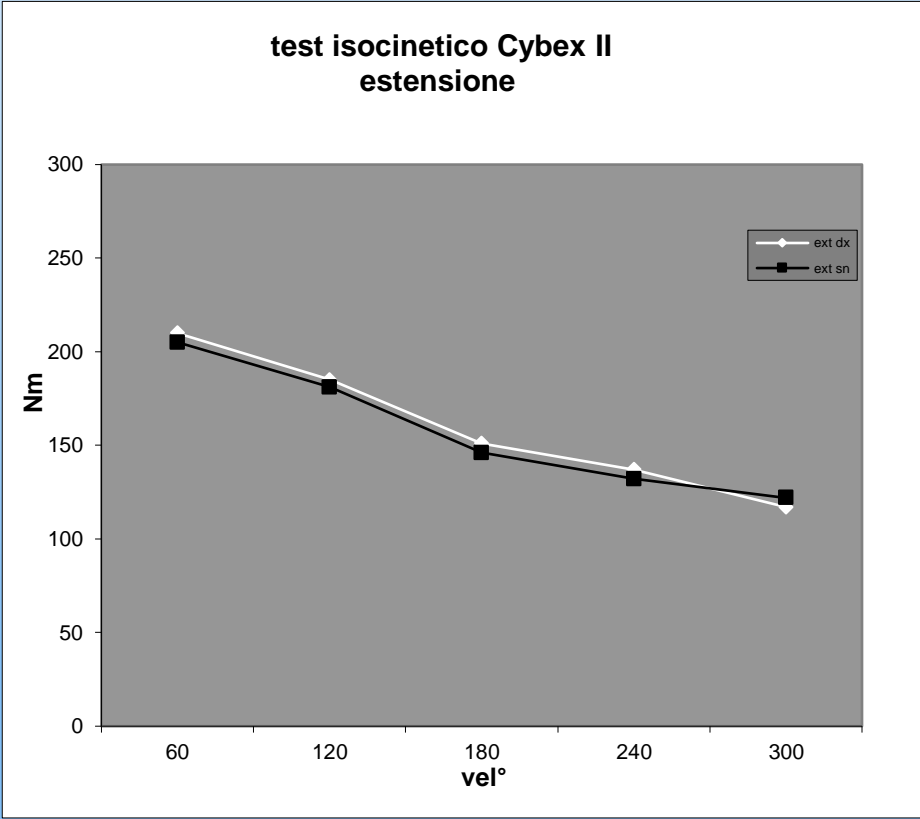
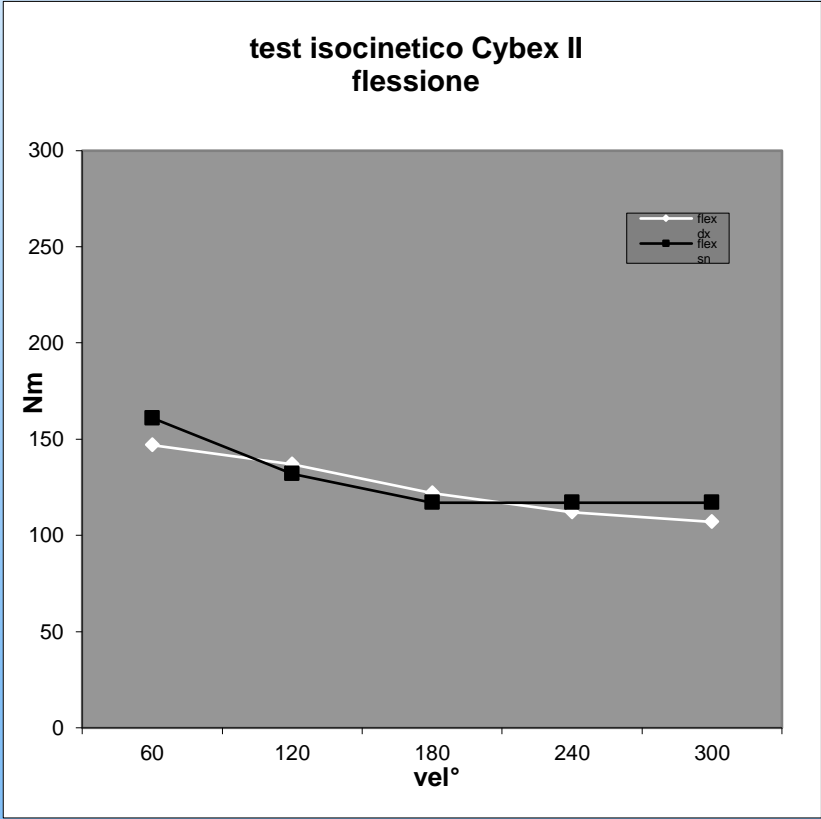
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flessione**



**test isocinetico Cybex II
estensione**



Foster Jekel			18 o8 2010						
Test isocinetico Cybex II					Equilibrio muscolare				
vel°		ext dx	flex dx	ext sn	flex sn	ext ds/ext sn	flex ds/flex sn	flex ds/ext ds	flex sn/ext sn
						%	%	%	%
60		210	147	205	161	102,4	91,3	70,0	78,5
120		185	137	181	132	102,2	103,8	74,1	72,9
180		151	122	146	117	103,4	104,3	80,8	80,1
240		137	112	132	117	103,8	95,7	81,8	88,6
300		117	107	122	117	95,9	91,5	91,5	95,9



GPS



GPS



GPS



Infortunistica nel calcio femminile di alto livello

Dott. Ermes Marco Rosa
Specialista in Medicina dello Sport
Marathon Sport Center
Brescia

Salsomaggiore 23 novembre 2018

SETTIMANA TIPO

- Lunedì 1h15' (scarico per chi ha giocato)
- Martedì doppio: 1h al mattino forza su campo - 1h15' tecnico al pomeriggio
- Mercoledì 1h45'
- Giovedì riposo
- Venerdì 1h rifinitura
- Sabato Partita
- Domenica riposo

Impegni Brescia femminile 2017/19

- **Campionato** 22 partite più lo spareggio scudetto contro la Juventus (domenica sera)
- **Coppa Italia** 6 turni di coppa Italia comprensivi di quarti con la Juventus semifinale con Tagnavacco (martedì) e finale con la Fiorentina (sabato sera).
- **Champions league** 4 partite.
- **Nazionale** 7 calciatrici in nazionale A 3 nazionali giovanili 2 nazionale polacca 1 portoghese 1 finlandese



WE CARE ABOUT FOOTBALL

Women elite injury pilot study

- Studio pilota promosso dall'UEFA con lo scopo di monitorare gli infortuni nei Clubs partecipanti all'UEFA CHAMPIONS LEAGUE 2017/18.
- Lo studio ha raccolto i dati dei 12 clubs da Gennaio a Maggio 2018.

Clubs partecipanti allo studio pilota dell'UEFA

1. Participating clubs

This season report contains results from January to May of the 2017/18 season for 13 teams that all participated in the Woman Elite Club Injury Pilot Study. The following teams have been included: AFC Ajax, AFC Brescia Femminile, Chelsea FC, Club Atlético de Madrid, FC Bayern München, FC Barcelona, FC Rosengård, Fiorentina Women's FC, Juventus, Linköping FC, Manchester City FC, Olympique Lyonnais, Sporting Clube de Portugal.

Type of training			FO	FO			F	F	F	FO	F	F	F	F	FO	F	F	F	FO
Type of surface			A	A	A	A	A	A	A	A	A	A			A	A	A	A	A
Player name	Code	Date	1	2	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26
		Exp	90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105	75
Di Criscio Federica		WBS01		90	90	90	105	105	75	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT
Daleszczczyk Katarzyna		WBS02		N	N	N	N	105	75	AT	AT	AT	AT	AT	AT	AT	AT	60	60
Giugliano Manuela		WBS03		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Herum Nora		WBS04		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Mendes Monica		WBS05		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Ceasar Camelia		WBS06		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Girelli Cristiana		WBS07		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Sabatino Daniela		WBS08		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Giacinti Valentina		WBS09		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Bergamaschi Valentina		WBS10		N	N	N	N	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT	AT
Sikora Alexandra		WBS11		N	N	N	N	105	75	105	140	105	105	75	105	140	105	105	105
Fusetti Laura		WBS12		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Hendrix Brooke		WBS13		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Marchitelli Chiara		WBS14		N	N	N	N	AT	AT	AT	AT	AT	AT	AT	AT	140	105	105	105
Tomaselli Martina		WBS15		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Pettenuzzo Tecla		WBS16		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Ghisi Laura		WBS17		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105
Cacciamali Isabel		WBS18		90	90	90	105	105	75	105	140	105	105	75	105	140	105	105	105

Brescia calcio femminile

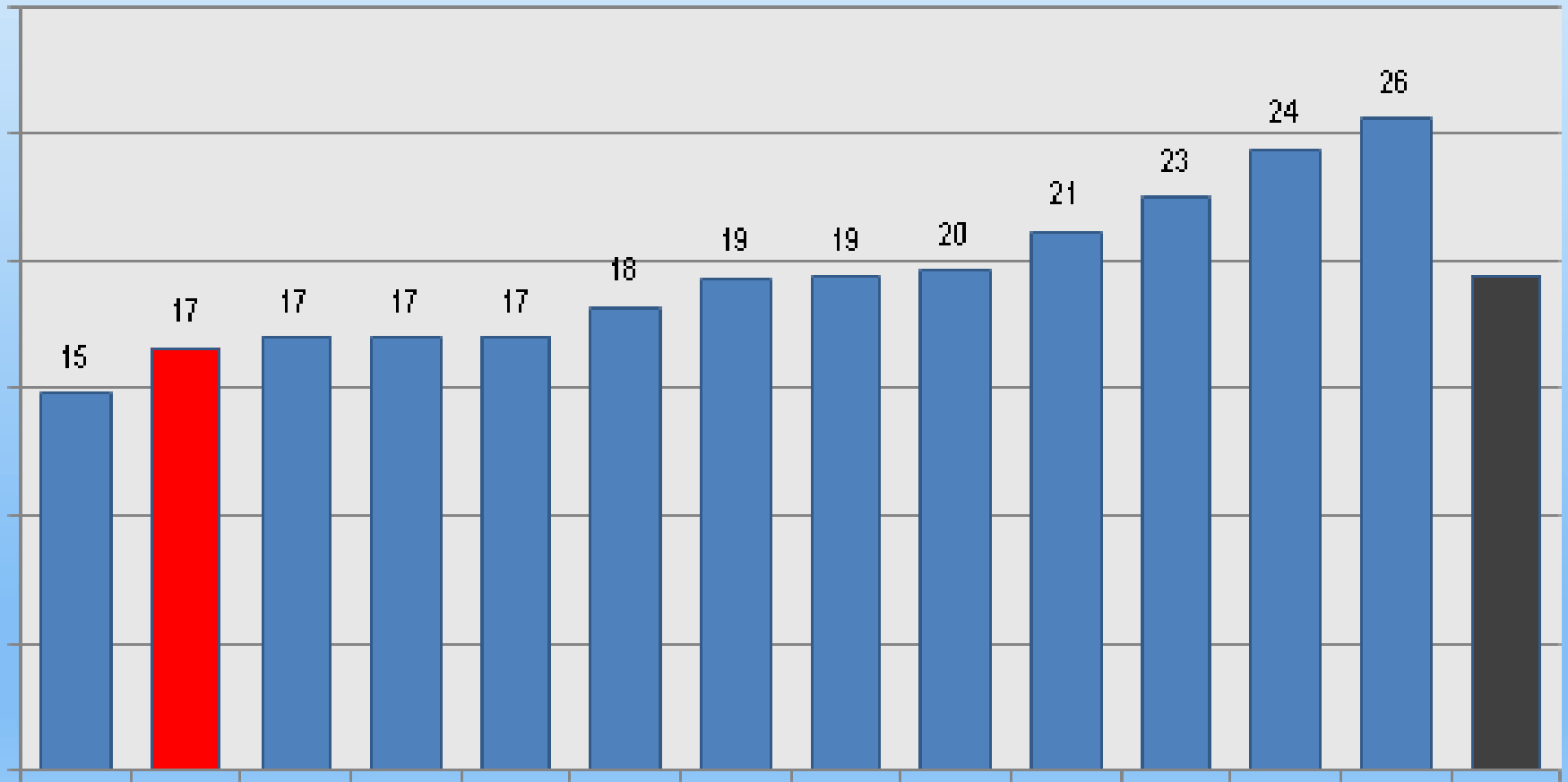
		Type of match	L	L	L
		Type of surface	G	G	G
Player name	Code	Date	11	17	24
		Tot	990	990	990
Di Criscio Federica	WBS01		41	AM	AM
Daleszczczyk Katarzyna	WBS02		54	AM	
Giugliano Manuela	WBS03		90	90	90
Herum Nora	WBS04		77	45	87
Mendes Monica	WBS05		49	90	87
Ceasar Camelia	WBS06		90	90	
Girelli Cristiana	WBS07		90	90	90
Sabatino Daniela	WBS08		90	89	90
Giacinti Valentina	WBS09		90	81	89
Bergamaschi Valentina	WBS10		AM	AM	AM
Sikora Alexandra	WBS11		90	90	90
Fusetti Laura	WBS12		90	90	90
Hendrix Brooke	WBS13		90	90	90
Marchitelli Chiara	WBS14		AM	AM	90
Tomaselli Martina	WBS15		36	45	N
Pettenuzzo Tecla	WBS16		13	90	90
Ghisi Laura	WBS17			1	3
Cacciamali Isabel	WBS18			9	3
Magri Serena	WBS19				1
Zanzi Francesca	WBS20				

Type of match			C	L	L	L	C	C
Type of surface			A	G	A	A	G	G
Player name	Code	Date	2	5	12	20	22	26
		Tot	990	990	990	1320	990	990
Di Criscio Federica	WBS01		90	70	90	120		90
Daleszczczyk Katarzyna	WBS02		90	17	58	120	28	35
Giugliano Manuela	WBS03		79	90	90	120	90	90
Herum Nora	WBS04		11	66	32	10	3	57
Mendes Monica	WBS05			90	35		90	55
Ceasar Camelia	WBS06			90	90	28	90	90
Girelli Cristiana	WBS07		90	90	90	120	90	90
Sabatino Daniela	WBS08		90	90	90	120	87	90
Giacinti Valentina	WBS09		90	73	90	110	62	90
Bergamaschi Valentina	WBS10		AM	AM	AM	AM	AM	AM
Sikora Alexandra	WBS11		90	90	76	120	90	90
Fusetti Laura	WBS12		90	90	90	120	90	90
Hendrix Brooke	WBS13		90	90	55	120	90	90
Marchitelli Chiara	WBS14		90			92		
Tomaselli Martina	WBS15			24			90	33
Pettenuzzo Tecla	WBS16		90	20	90	120	90	
Ghisi Laura	WBS17							
Cacciamali Isabel	WBS18				14			
Magri Serena	WBS19							
Zanzi Francesca	WBS20							

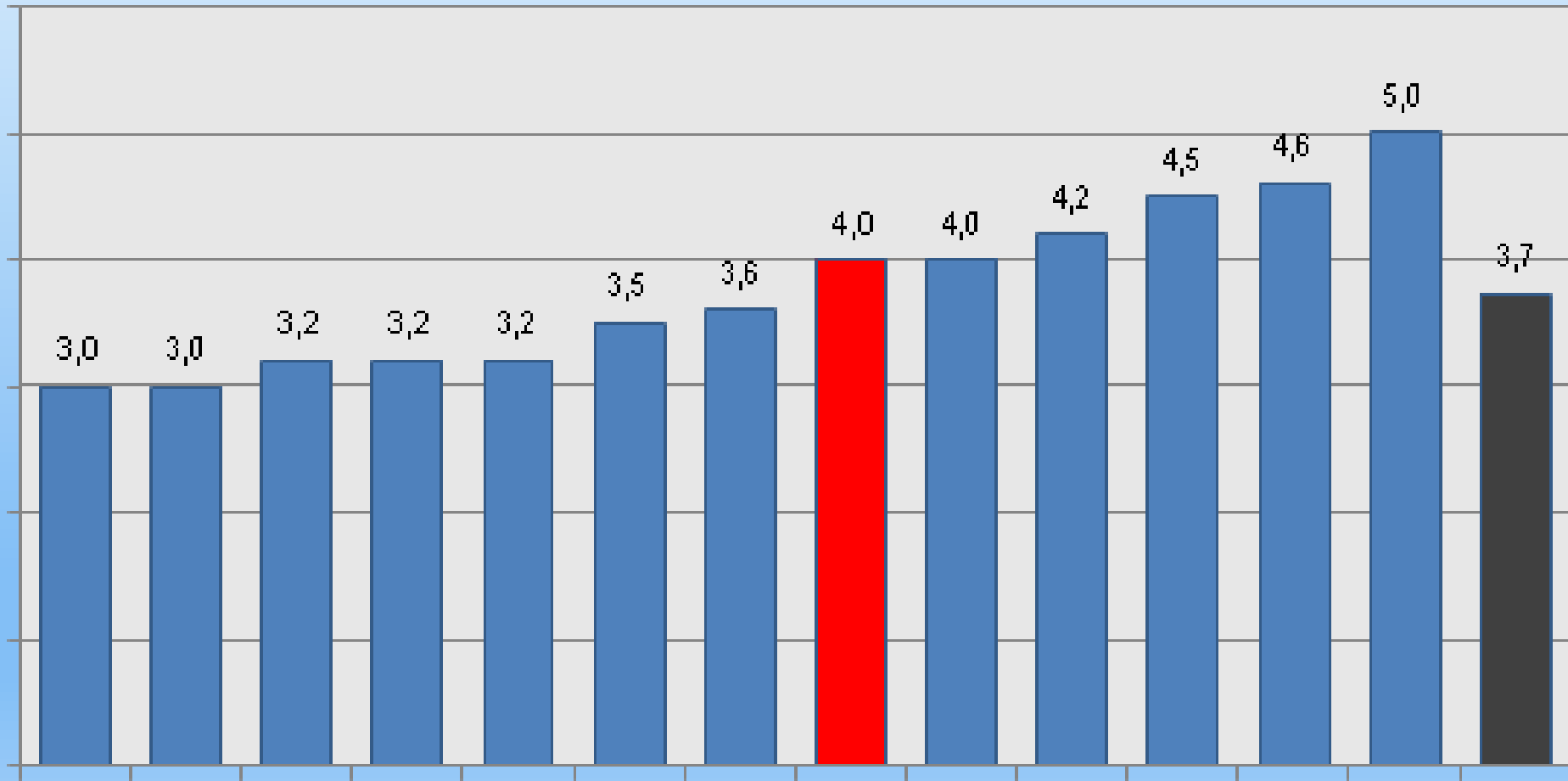
Player Details									
Name:			Team:			Code no:			
Date of injury:			Date of return to full participation: (Send injury card, even if player is still in rehabilitation)						
Injured Body Part						Injury side			
Head/face		Shoulder/clavicle		Forearm		Hip/groin		Lower leg/Achilles tendon	
Neck/cervical spine		Upper arm		Wrist		Thigh		Ankle	
Sternum/upper back		Elbow		Hand/finger/thumb		Knee		Foot/toe	
Abdomen									
Low back/pelvis									
Injury side		Right		Left		Bilateral/central			
Type of Injury									
Concussion			Lesion of meniscus/cartilage			Haematoma/contusion/bruise			
Fracture			Muscle rupture/strain			Abrasion			
Other bone injury			Tendon rupture/tendinosis			Laceration			
Dislocation/sublux			Synovitis/effusion			Nerve injury			
Sprain/ligament			Overuse unspecified			Dental injury			
Other injury (please specify):									
Indicate type of training or match where injury occurred?									
When did the injury occur?		Training		Match (min. of injury)		N/A (overuse injury)			
Football training	Football & other training			Friendly match			Europa League match		
Other training	Reserve/youth team training			League match			Other Cup match		
	National team training			Champions League match			Reserve youth team match		
N/a							National team match		
Injury mechanism									
Was the injury caused by overuse (gradual onset) or trauma (acute onset)?					Overuse		Trauma		N/a
Was the injury caused by contact or collision?			No	Yes, with other player			Yes, with object (specify)		
Running/sprinting	Dribbling		Sliding		Heading		Blocked		
Twisting/turning	Jumping/landing		Overuse		Tackled by other player		Use of arm/elbow		
Shooting	Falling/diving		Hit by ball		Tackling other player		Other acute mechanism		
Passing/crossing	Stretching		Collision		Kicked by other player		Unknown mechsanim		
Injury mechanism (describe in words)									
Other information									
Was this a re-injury?			No			Yes (give date of return from previous injury)			
Referee's sanction: (acute match injuries only)			No foul		Opponent foul Own foul			Yellow card Red card	
Examination:			Clinical only X ray		Ultrasonography MRI (enclosed MRI form)			Arthroscopy Other (specify)	
Diagnosis: (specify results of examination)									
Best guess as to why the injury occurred: (medical teams opinion)									

Player Details									
Name: Marchitelli		Team: Brescia calcio femminile			Code no: WBS14				
Date of injury: 3/4-3-18		Date of return to full participation: (Send injury card, even if player is still in rehabilitation)							
Injured Body Part						Injury side			
Head/face		Shoulder/clavícula		Forearm		Hip/groin		Lower leg/Achilles tendon	
Neck/cervical spine		Upper arm		Wrist		X Thigh		Ankle	
Sternum/upper back		Elbow		Hand/finger/thumb		Knee		Foot/toe	
Abdomen									
Low back/pelvis									
Injury side	Right	X Left		Bilateral/central					
Type of Injury									
Concussion		Lesion of meniscus/cartilage				Haematoma/contusion/bruise			
Fracture		X Muscle rupture/strain				Abrasion			
Other bone injury		Tendon rupture/tendinosis				Laceration			
Dislocation/sublux		Synovitis/effusion				Nerve injury			
Sprain/ligament		Overuse unspecified				Dental injury			
Other injury (please specify):									
Indicate type of training or match where injury occurred?									
When did the injury occur?		X Training		Match (min. of injury)			N/A (overuse injury)		
Football training	Football & other training			Friendly match			Europa League match		
Other training	Reserve/youth team training			League match			Other Cup match		
	X National team training			Champions League match			Reserve youth team match		
N/a							National team match		
Injury mechanism									
Was the injury caused by overuse (gradual onset) or trauma (acute onset)?				Overuse		Trauma		X N/a	
Was the injury caused by contact or collision?		X No	Yes, with other player			Yes, with object (specify)			
Running/sprinting	Dribbling	X Sliding		Heading			Blocked		
Twisting/turning	X Jumping/landing	Overuse		Tackled by other player			Use of arm/elbow		
Shooting	Falling/diving	Hit by ball		Tackling other player			Other acute mechanism		
Passing/crossing	X Stretching	Collision		Kicked by other player			Unknown mechanisim		
Injury mechanism (describe in words)		She felt							
Other information									
Was this a re-injury?		X No		Yes (give date of return from previous injury)					
Referee's sanction: (acute match injuries only)		No foul	Opponent foul Own foul			Yellow card Red card			
Examination:		Clinical only X ray	X Ultrasonography MRI (enclosed MRI form)			Arthroscopy Other (specify)			
Diagnosis: (specify results of examination)		First degree injury to the middle third of the left semimembranosus muscle							
Best guess as to why the injury occurred: (medical teams opinion)				Marathon Sport Center					
Other comments:									

Allenamenti al mese

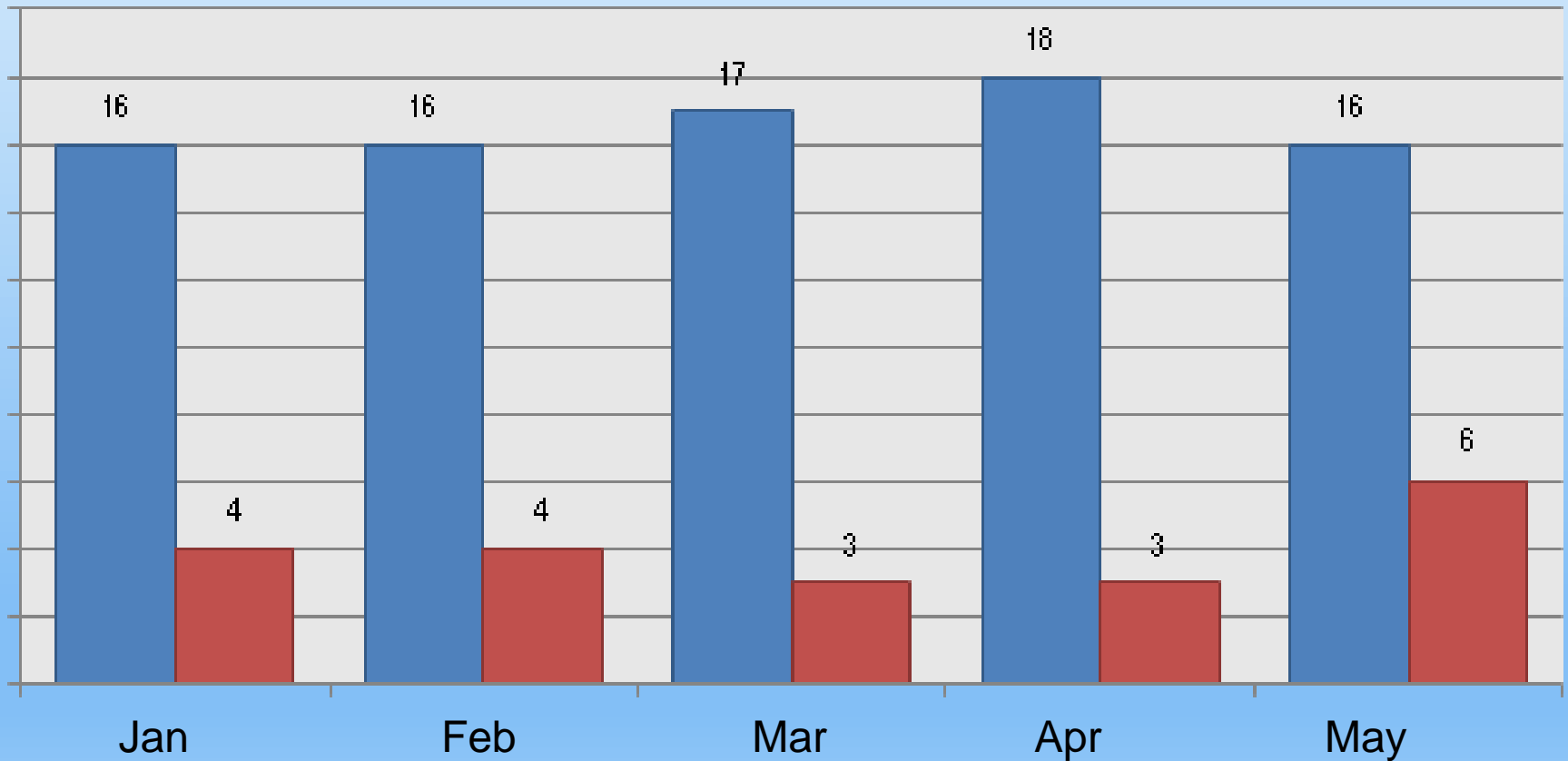


Media partite in un mese

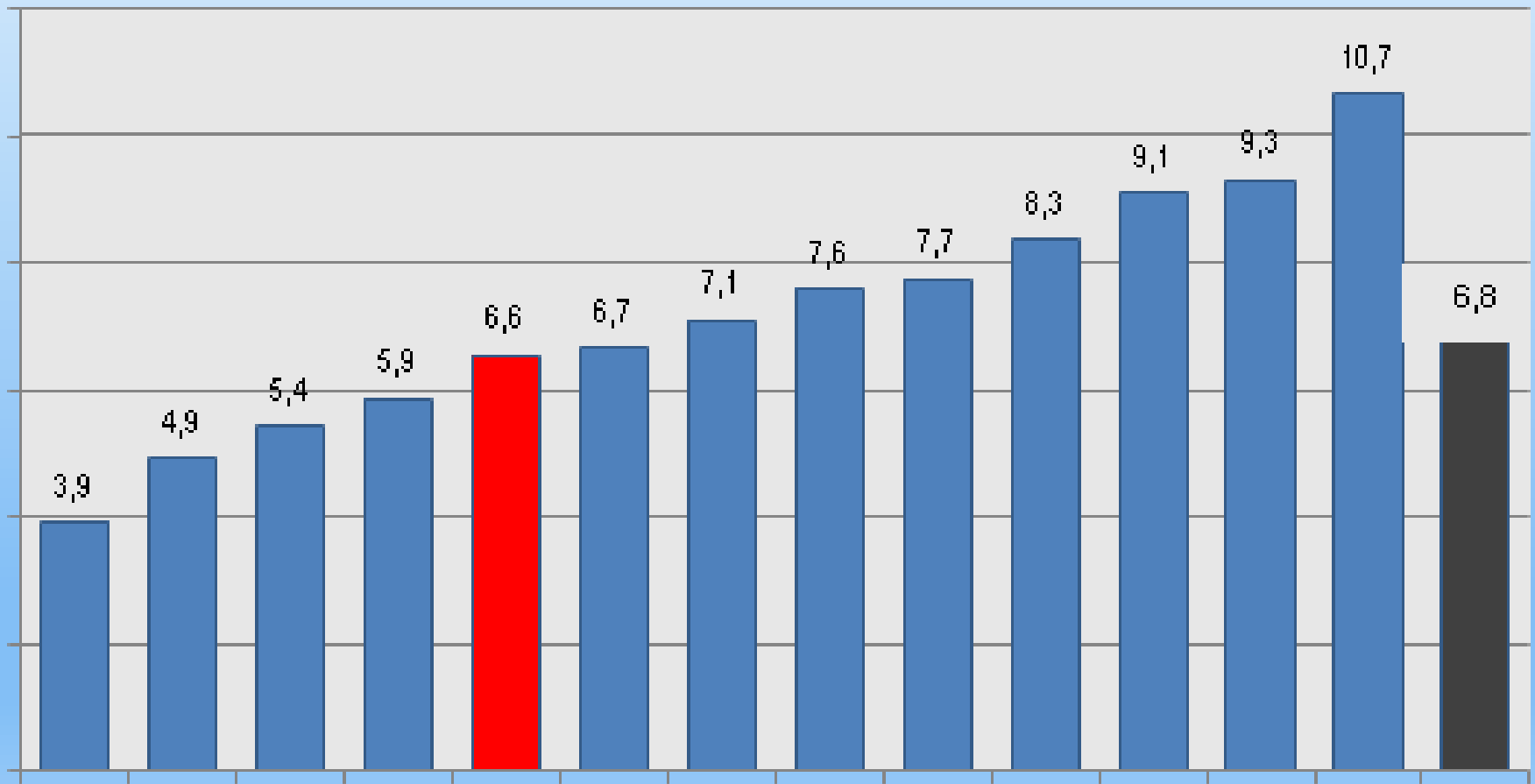


Marathon Sport Center

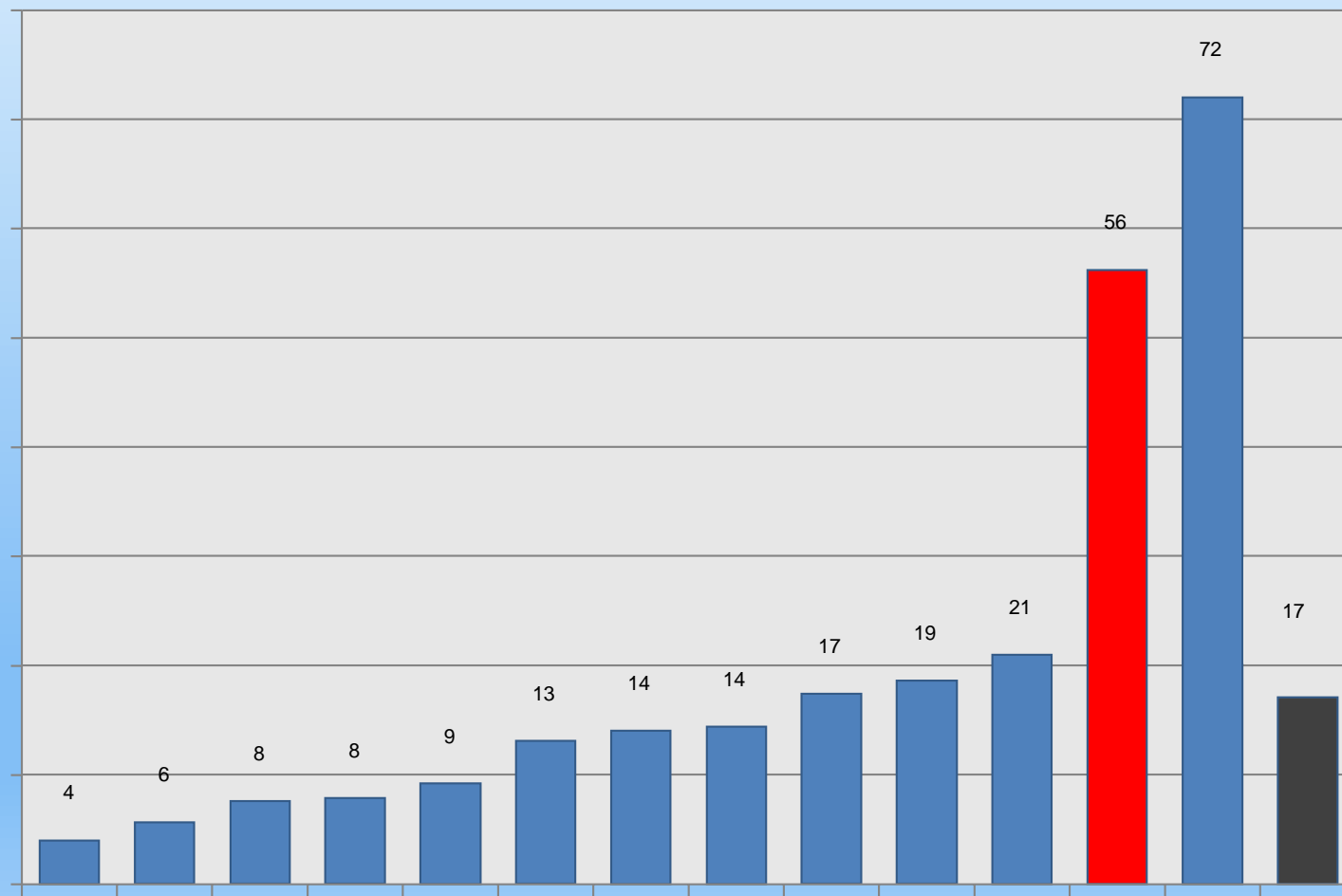
Partite e allenamenti per ogni mese



Ore di allenamento per ogni partita

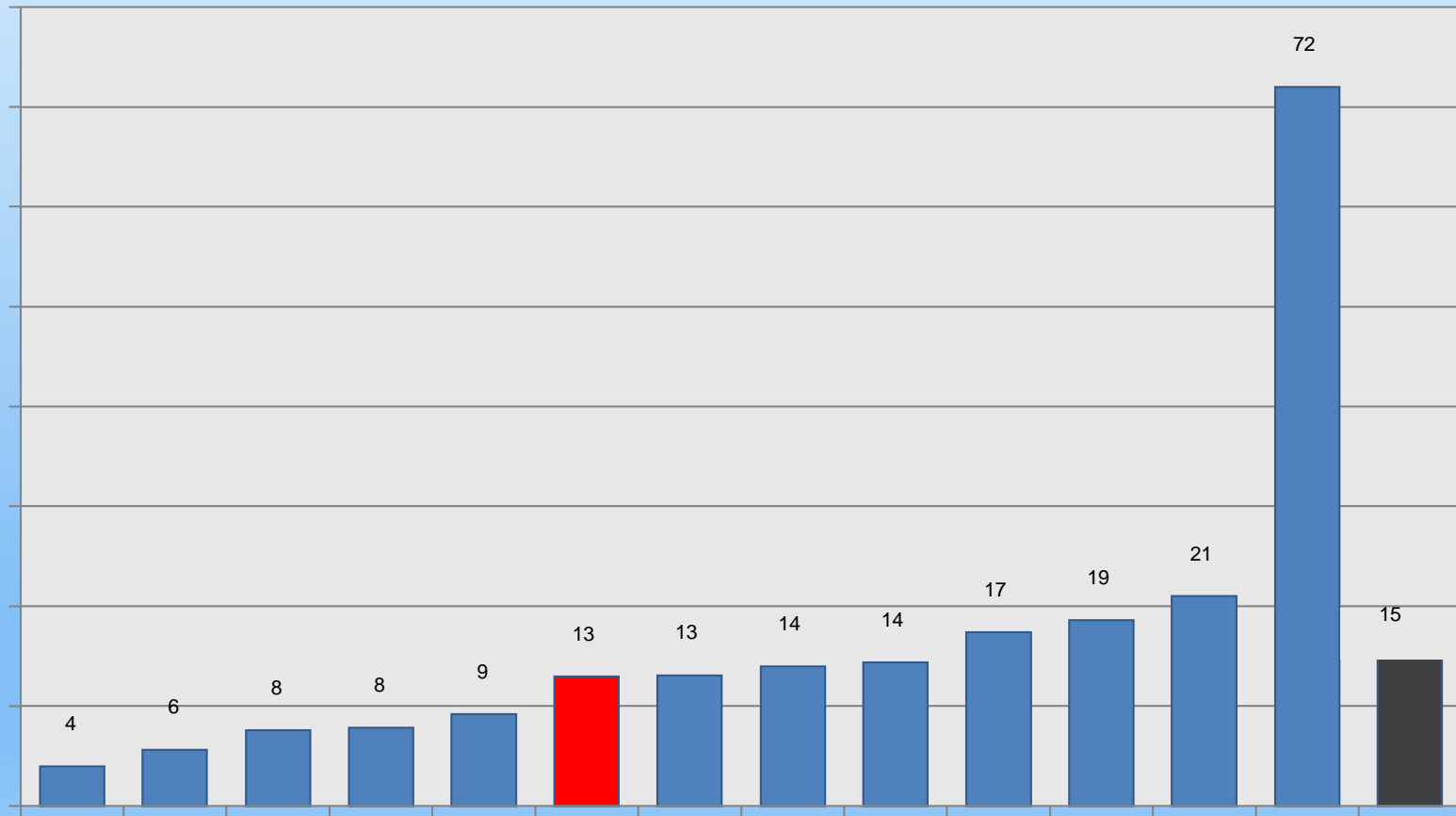


Giorni di assenza allenamenti per infortunio



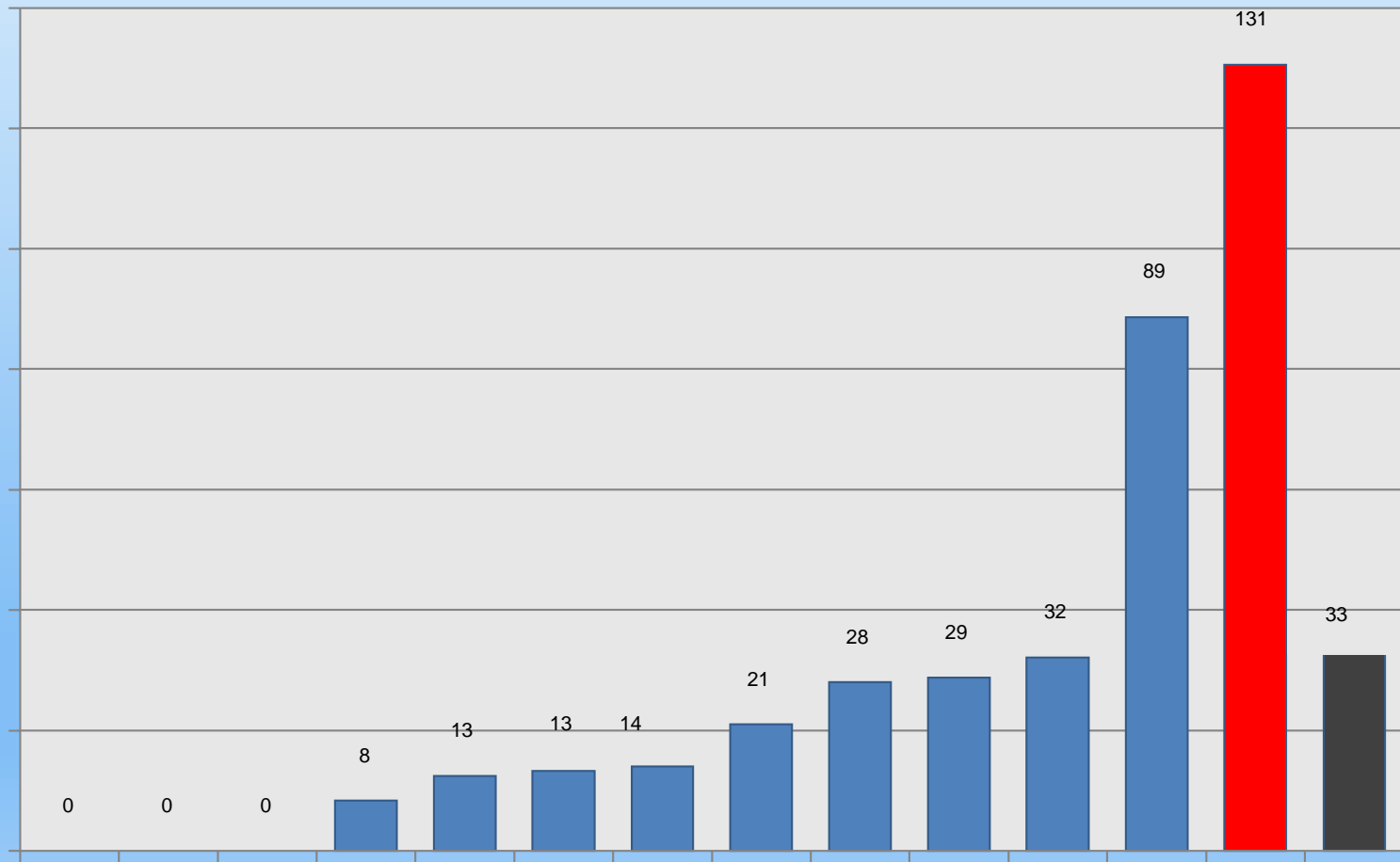
Marathon Sport Center

Assenza allenamenti per infortuni muscolari



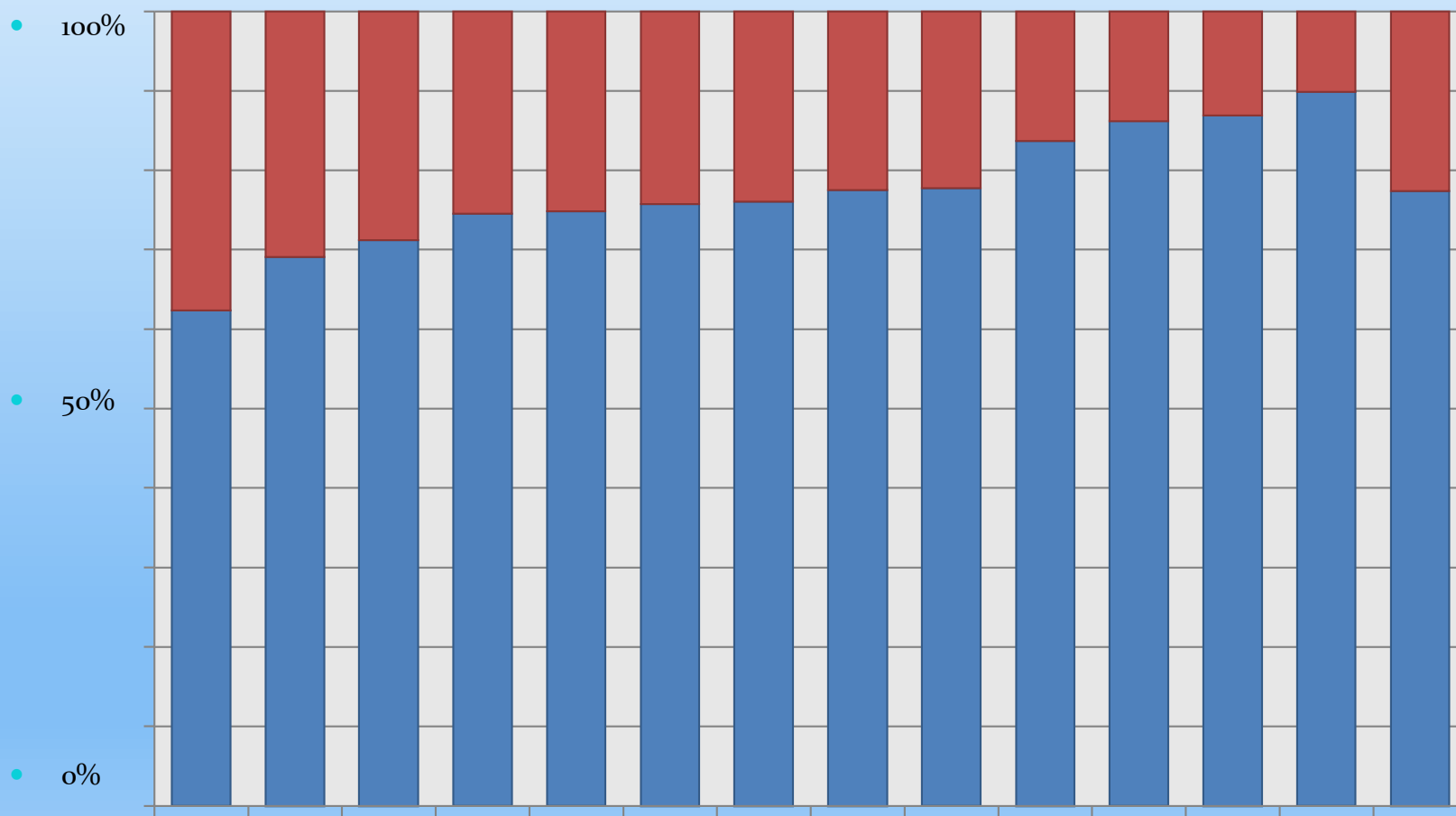
Marathon Sport Center

Assenza per infortuni ai legamenti



Marathon Sport Center

Rapporto allenamenti e assenze per infortunio



Assenze ai matches per infortunio

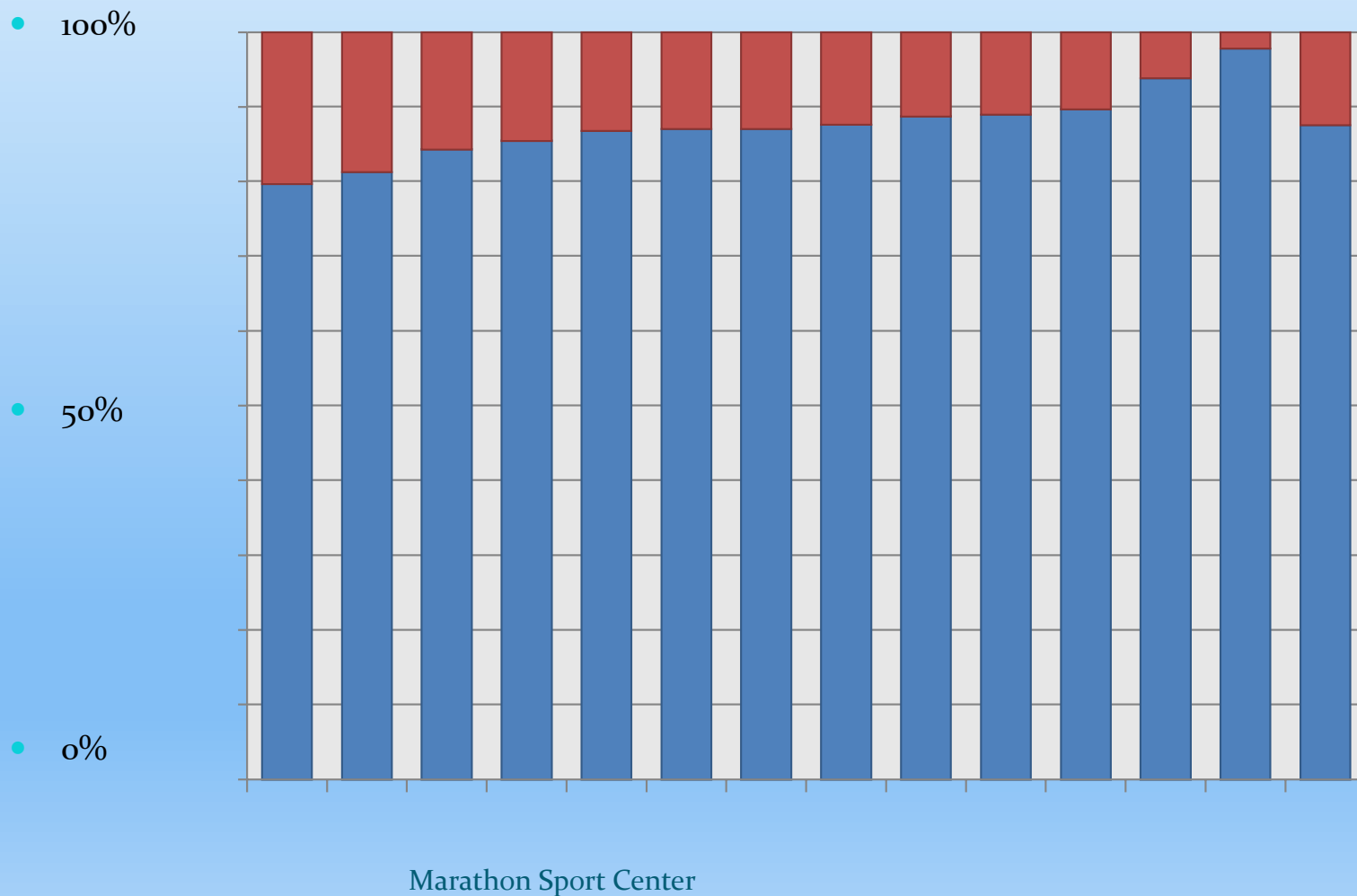


Figure 4. Ratio of training hours to match hours

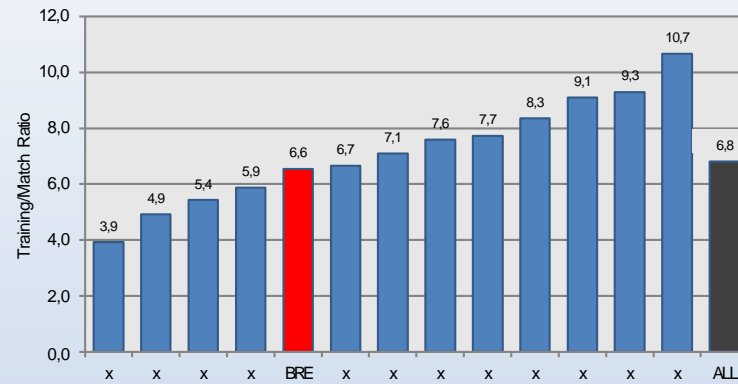
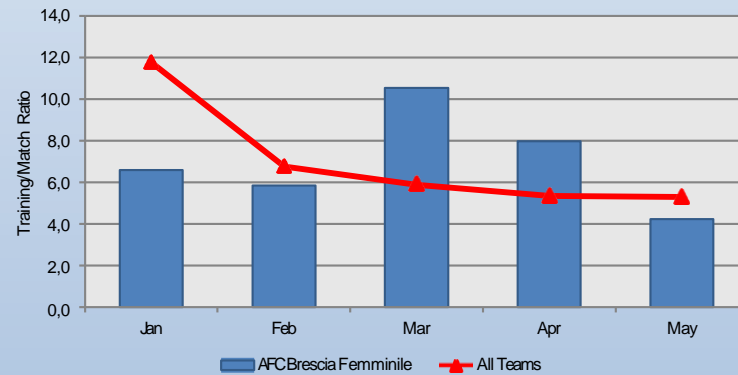


Figure 5. Ratio of training hours to match hours for AFC Brescia Femminile over the study period in comparison to all teams



5 General injuries

5.1 General injury patterns

The figures below show the relative distribution (%) of different injuries. In total the 13 Woman Elite Club teams reported 217 injuries, with 129 training injuries (59%) and 88 match injuries (41%). There were 21 severe injuries (1%), 83 muscle injuries (38%) and 37 ligament injuries (17%).

AFC Brescia Femminile reported 7 injuries (2 training injuries; 5 match injuries) during the study period, including 1 severe injury, 2 muscle injuries and 2 ligament injuries.

Figure 6. Distribution of injury locations

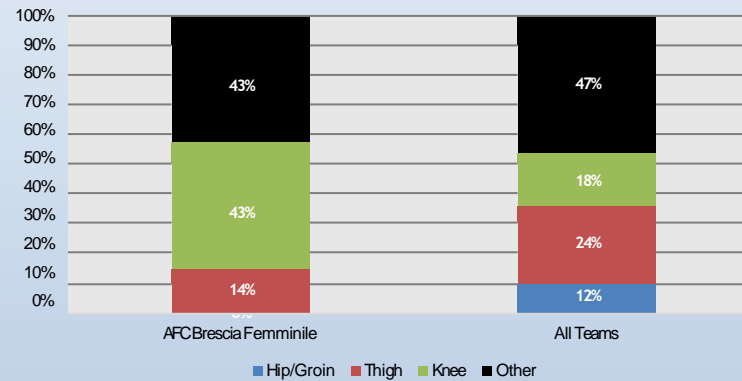


Figure 7. Distribution of injury types

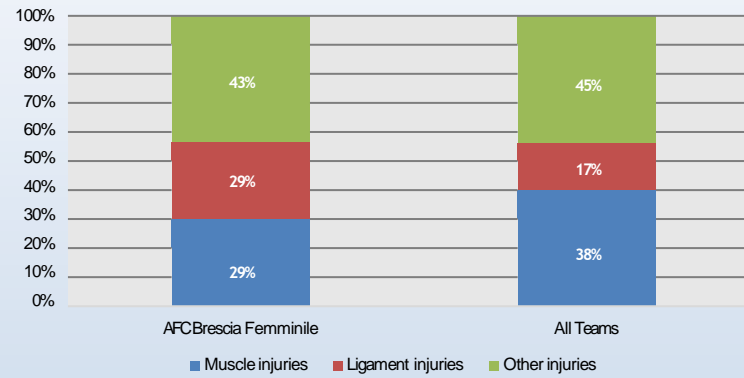


Figure 8. Distribution of overuse/traumatic injuries

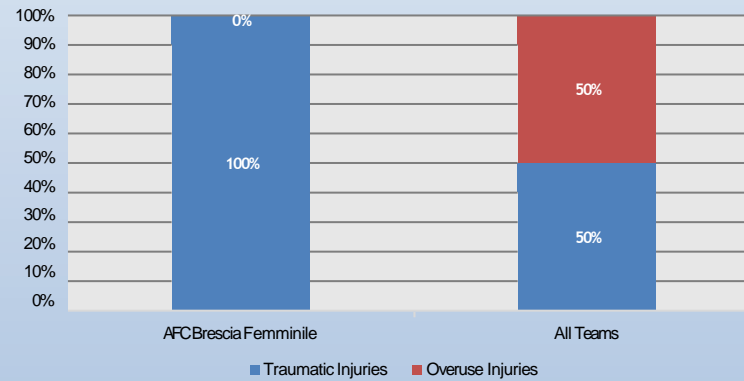


Figure 9. Distribution of contact/non-contact injuries

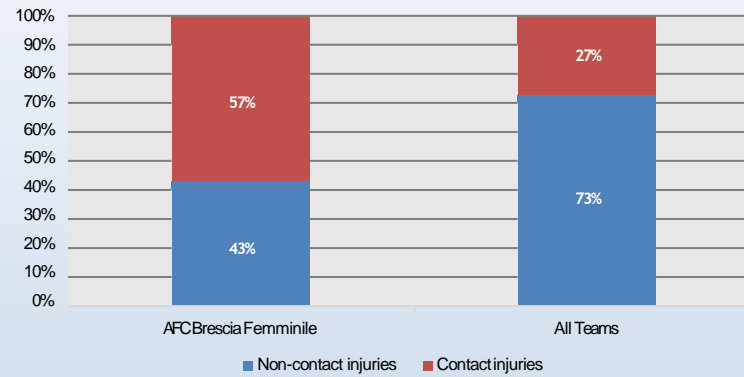
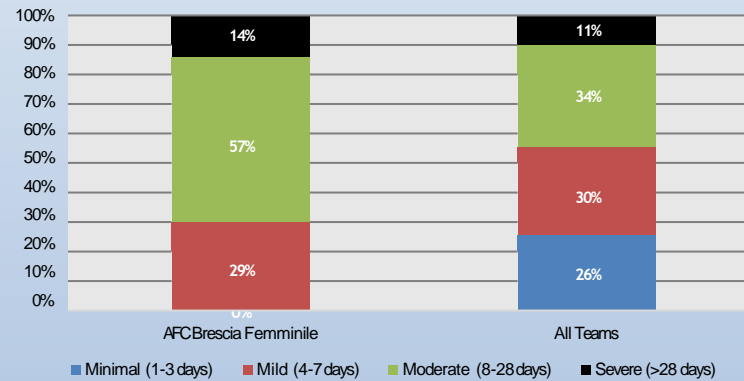


Figure 10. Distribution of injury severities



6 Training injuries

6.1 Training injury rate

The mean training injury rate for all teams was 4.7 injuries for every 1 000 training hours, with individual rates ranging from 0.0 to 12.1 at the various clubs.

Figure 12. Training injury rate

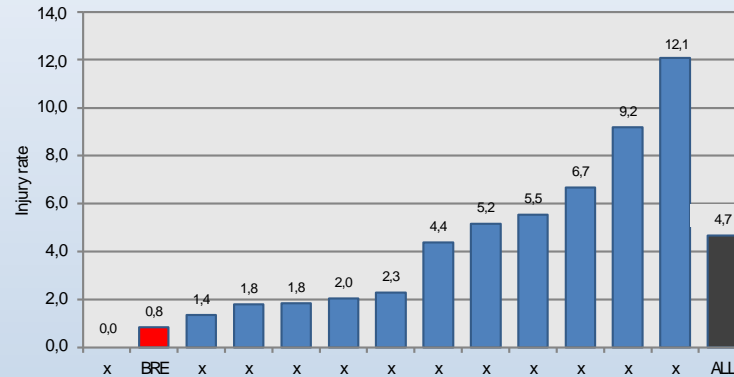
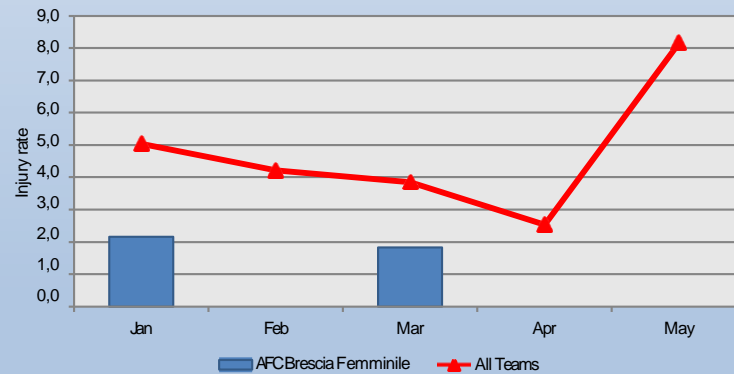


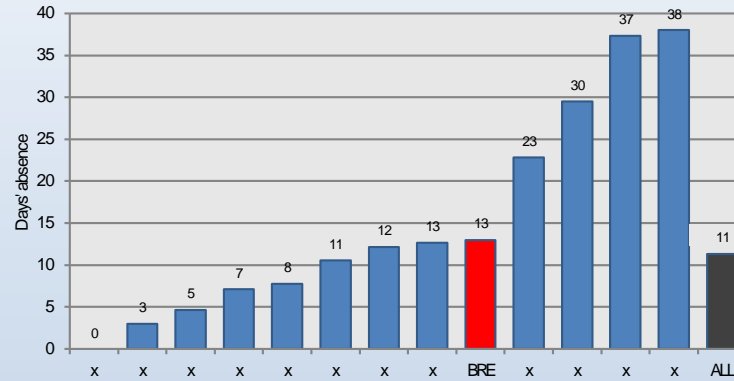
Figure 13. Training injury rates for AFC Brescia Femminile over the study period in comparison to all teams



6.2 Days' absence for training injuries

The average absence for training injuries among the teams was 11 days, ranging from 0 to 38 days at the various clubs.

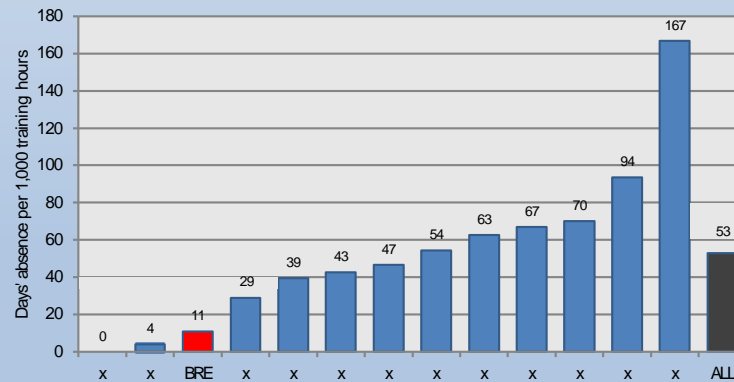
Figure 14. Days' absence for training injuries



6.3 Burden of training injuries

The mean injury burden in training was 53 days' absence/1 000 hours, ranging from 0 to 167 at the various clubs.

Figure 15. Training injury burden





GRAZIE