

HEALTH ORGANIZATION IN FOOTBALL CLUBS

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HEALTH CARE IN FOOTBALL CLUBS DEPENDS ON MAINLY FOUR FACTORS

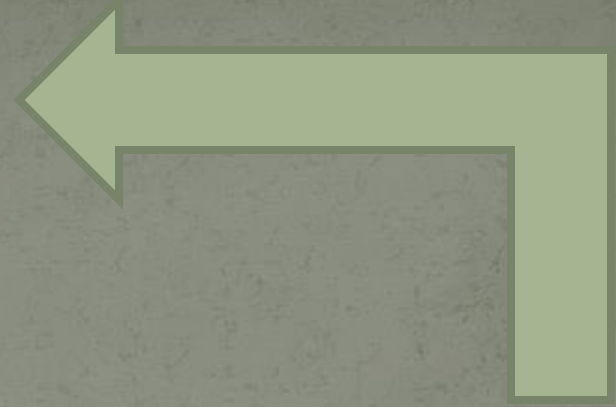
- **OWNER**
- **SPORT MANAGER OR MANAGER OF CLUB**
- **COACH STAFF**
- **MEDICAL STAFF**

**HOW COULD THESE FACTORS
INFLUENCE ON HEALTH CARE?**

***THERE ARE
FIVE
POSSIBILITIES***

I

EDUCATION



SPORT MANAGER

COACH STAFF

MEDICAL STAFF

SUPPORT

OWNER

10-15% OF ANUAL BUDGET SHOULD BE FOR SPORTS MEDICINE
(testing, rehabilitation, nutrition, supplementation, evaluation
of training process, etc.)

II

EDUCATION

OWNER

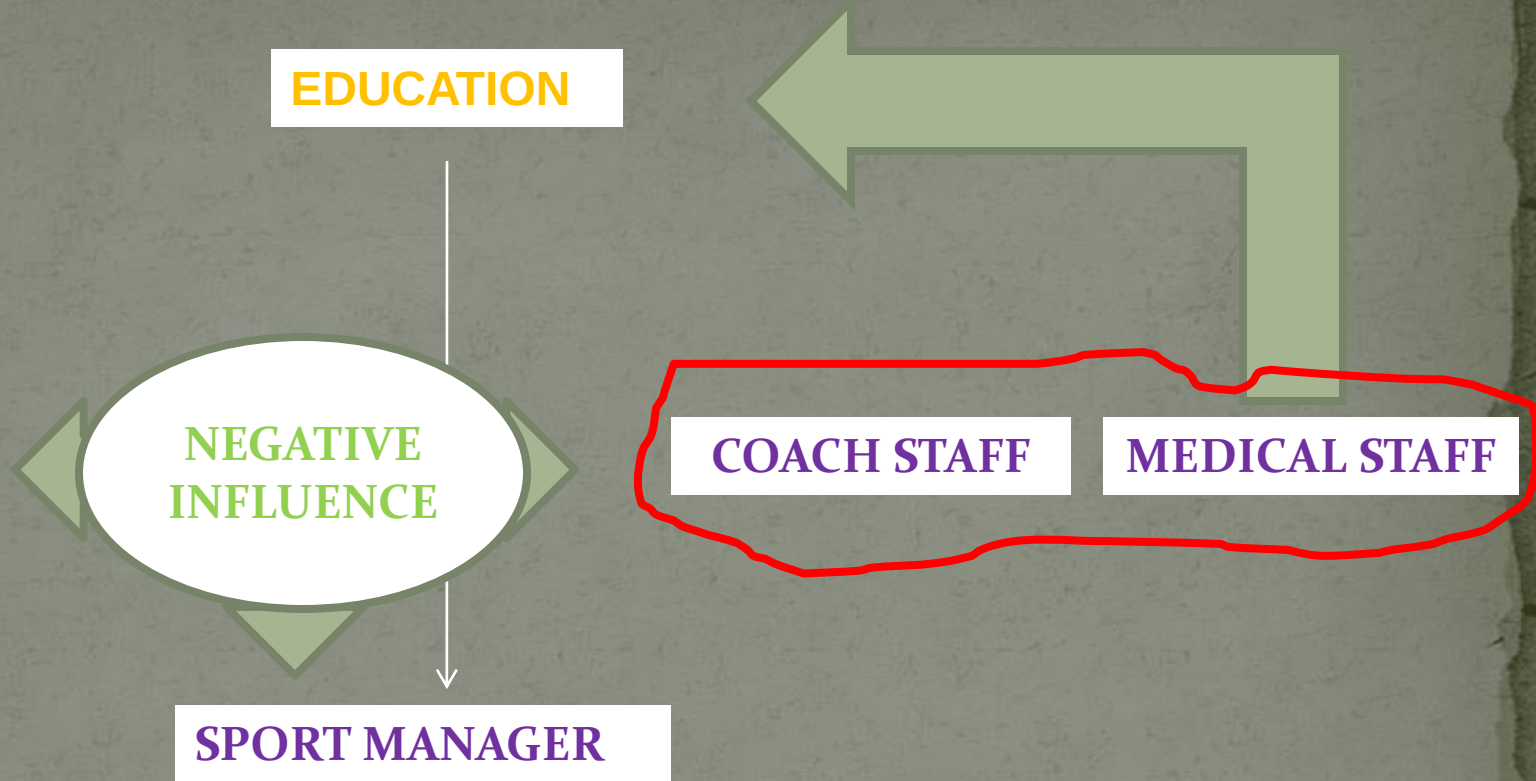
NEGATIVE
INFLUENCE

COACH STAFF

MEDICAL STAFF

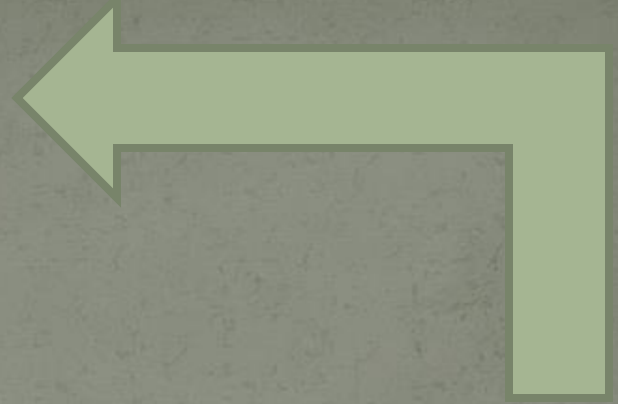
SPORT MANAGER

THE MOST CRITICAL MISSING LINK IN MACEODNIAN FOOTBALL IN
ORDER OF APPLAING AN APPROPRIATE HEALTH CARE IN CLUBS



III

EDUCATION



OWNER

SPORT MANAGER

MEDICAL STAFF

COACH STAFF

Football player

**Succesfull
health
care**

coach

physician



IV

EDUCATED AT THE SAME LEVEL

OWNER

SPORT MANAGER

COACH STAFF

MEDICAL STAFF

THE GREATEST CHANCES TO PROVIDE APPROPRIATE MEDICAL CARE

V

**WHO SHOULD EDUCATE IN THIS
SITUATION ????????**

OWNER

SPORT MANAGER

COACH STAFF

MEDICAL STAFF

WHAT IS APPROPRIATE MEDICAL CARE IN A FOOTBALL CLUB ?

- PREVENTION AND TREATMENT OF INJURIES AND ILLNESS
- ADEQUATE RECOVERY
- PREPARTICIPATION EXAMINATION
- EVALUATION AND MONITORING OF THE EFFECTS OF TRAINING PROCESS
- EMERGENCY CARE ON THE FIELD
- NUTRITION AND SUPPLEMENTATION
- ANTIDOPING
- PHYSIOTHERAPY AND KINESYOTHERAPY

WHO COULD (SHOULD) PROVIDE (MANAGE) THIS MEDICAL CARE?

- **PHYSICIAN OF GENERAL MEDICINE**
- **ORTHOPEDIST OR TRAUMATOLOGIST**
- **SPECIALIST OF INTERNAL MEDICINE**
- **SPECIALIST OF PHYSICAL MEDICINE AND REHABILITATION**

OR MAYBE

- **SPECIALIST OF SPORTS MEDICINE**

FIFA AND UEFA MEDICAL PROJECTS

- **FIFA 11**
- **FIFA Emergency manual**
- **Nutrition booklet**
- **Pocket CONCUSSION RECOGNITION TOOL**
-

National seminars of licensing the doctors engaged in football clubs

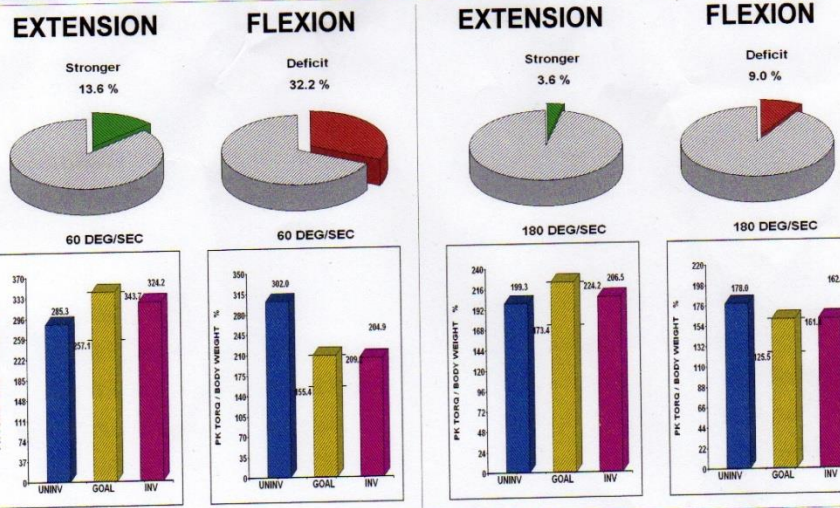
*WHERE DO THE PROBLEMS COME
FROM?*

Profesional football player – without health problems, in preparation period of training process, regular isokinetic testing

Doctor of the club was physician on first year of specialisation of orthopedy; two physio

The given advice was to escape competitions and to provide individual strength program

# OF REPS (60/60)													
# OF REPS (180/11)													
PEAK TORQUE	PM	60.0	60.0		60.0								
PEAK TQ/BW	%	285.3	324.2		302.0	204.9		199.3	206.5		178.0	162.0	
MAX REP TOT WORK	J	243.3	219.2	9.9	414.6	167.2	59.7	197.8	191.9	3.0	198.6	160.6	19.1
COEFF. OF VAR.	%	6.7	4.8		5.6	5.8		9.8	6.6		9.4	12.9	
AVG. POWER	WATTS	147.2	157.3	-6.8	127.3	112.6	11.5	245.6	264.2	-7.5	233.7	218.1	6.7
TOTAL WORK	J	928.8	1045.9	-12.6	1155.5	749.7	35.1	1702.1	1895.8	0.4	1678.2	1463.3	12.8
ACCELERATION TIME	MSEC	10.0	10.0		130.0	30.0		50.0	40.0		50.0	50.0	
DECELERATION TIME	MSEC	50.0	50.0		50.0	40.0		160.0	130.0		190.0	150.0	
ROM	DEG	95.3	83.9		95.3	83.9		108.0	102.1		108.0	102.1	
AVG PEAK TQ	N-M	167.9	240.2		172.7	153.3		129.6	146.7		125.5	115.9	
AGONIANTAG RATIO	%	105.8	63.2	G: 61.0				89.3	78.5	G: 72.0			

**Comments:**

PEAK TORQUE:	Highest muscular output at any moment during a repetition. Indicative of a muscle's strength capabilities.
WORK OUTPUT:	Represented as a percentage normalized to bodyweight and compared to an established goal.
MAX REP/TOT WORK:	Work is indicative of work. Work is indicative of a muscle's capability to produce force throughout the total muscular force output for the repetition with greatest force.
AGE POWER:	Total work divided by time. Power represents how quickly a muscle can produce force.
TIME TO PEAK:	Time taken for a muscle to produce its maximum force. Indicative of a muscle's neuromuscular capabilities to move the limb at the beginning of the range of motion.
DECELERATION TIME:	Time taken for a muscle to produce its maximum force. Indicative of a muscle's neuromuscular capabilities to move the limb at the end of the range of motion.
ACCELERATION RATIO:	Total time to go from isokinetic speed to zero speed. Indicative of a muscle's neuromuscular capability to eccentrically control the limb at the end of the range of motion.
ANGIOTAG RATIO:	The Reciprocal muscle group ratio. Excessive imbalances may predispose a joint to injury.
DEFICITS:	1 to 10%: No significant difference 11 to 25%: Rehabilitational recommended to improve muscle performance balance. >25%: Significant Functional Impairment 1. Isometric deficit indicates involved extremity performed better than uninvolved

Comprehensive Evaluation

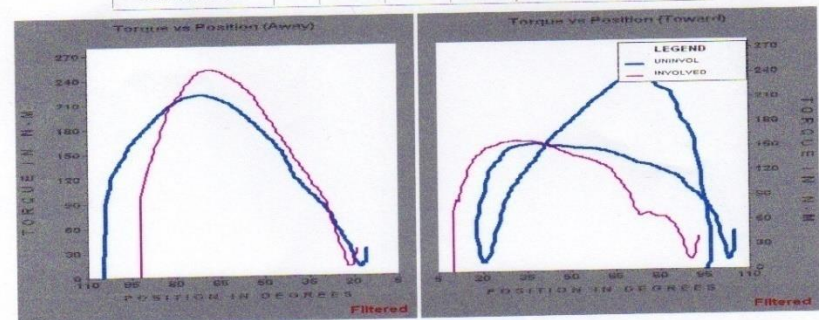
Name:			
ID:			
Birth Date:	9/23/1982	(M/d/yyyy)	
Ht:	179		
Wt:	78.0		
Gender:	Male		

Session:	7/6/2009 5:53:43 AM	Windowing:	None
Involved:	None	Protocol:	Isokinetic Bilateral
Clinician:		Pattern:	Extension/Flexion
Referral:		Mode:	Isokinetic
Joint:	Knee	Contraction:	CON/CON
Diagnosis:	test	GET:	No Gravity Correction

EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC		
# OF REPS: Right 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT
# OF REPS: Left 5	LEFT	RIGHT		LEFT	RIGHT	
PI						
P						
TI						
AN						
TOI						
TO						
CI						
MAX						
MA						
WR						
WO						
WC						
V						
ACC						
DEC						
AGON/ANTAG RATIO	%	105.8	63.2	G: 61.0		

After 20 days of treatment on friendly match play, the player was meniscal injury free after arthroscopy and 6 months was out of regular football training process

*After 20 days of testing,
on friendly match, there
was meniscal injury,
after arthroscopy, two
months was out of
regular football training
process*



- *Profesional football player* – 10 months after reconstruction of right LCA– in regular training process with painful and swollen knee – surgeon advised him that this is normal situation, he could train and if the problem exist in the future he will put an injection in the knee

N
IC
B
H
V
G

He was excluded from the training process and a individual strength program was proposed

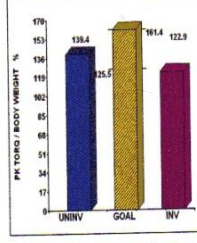
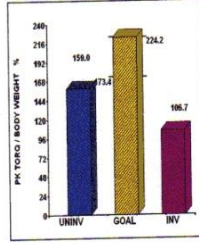
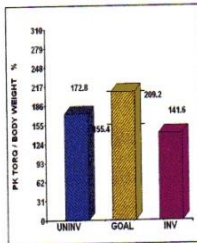
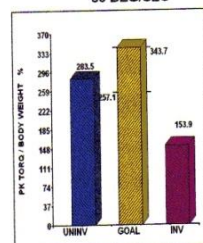
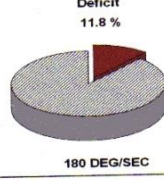
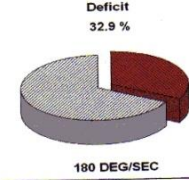
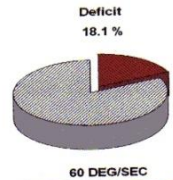
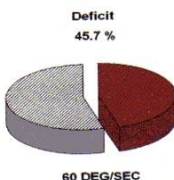
EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC				EXTENSION 180 DEG/SEC				FLEXION 180 DEG/SEC			
# OF REPS (60/60): 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT	
# OF REPS (180/180): 10	LEFT	RIGHT		LEFT	RIGHT			LEFT	RIGHT			LEFT	RIGHT		
PEAK TORQUE	N-M	226.5	122.9	45.7	138.1	113.1	18.1	127.0	85.2	32.9		111.4	98.2	11.8	
PEAK TQ/BW	%	283.5	153.9		172.8	141.6		159.0	106.7			139.4	122.9		
MAX REP TOT WORK	J	249.1	135.6	45.6	177.6	140.1	21.1	180.9	129.8	28.3		169.7	131.0	22.8	
COEFF. OF VAR.	%	59.4	12.2		56.1	8.6		8.9	5.0			21.9	21.7		
AVG. POWER	WATTS	135.1	80.0	40.8	99.2	82.5	16.9	209.1	154.4	25.2		185.2	156.3	15.6	
TOTAL WORK	J	840.5	598.3	28.8	673.7	648.9	3.7	1545.2	1156.3	25.2		1455.5	1173.8	19.4	
ACCELERATION TIME	MSEC	20.0	20.0		30.0	30.0		50.0	40.0			60.0	70.0		
DECELERATION TIME	MSEC	40.0	50.0		40.0	60.0		180.0	170.0			180.0	150.0		
ROM	DEG	100.1	94.3		100.1	94.3		115.5	112.1			115.5	112.1		
AVG PEAK TQ	N-M	163.4	109.5		110.0	107.1		110.5	78.2			99.6	88.4		
AGONIANTAG RATIO	%	61.0	92.0	G: 61.0				87.7	115.2	G: 72.0					

EXTENSION

FLEXION

EXTENSION

FLEXION



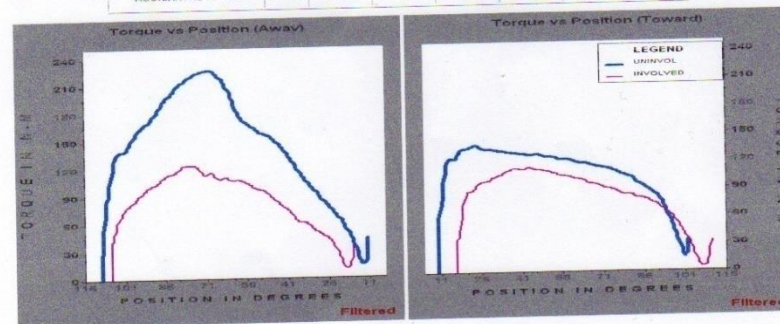
Comments:

PEAK TORQUE: Highest muscular force output at any moment during a repetition. Indicative of a muscle's strength capabilities.
PEAK TQ/BW: Represented as a percentage normalized to bodyweight and compared to an established goal.
MAX REP TOT WORK: Total muscular force output for the repetition with greatest amount of work. Work is indicative of a muscle's capability to produce force throughout the range of motion.
AVG. POWER: Total work divided by time. Power represents how quickly a muscle can produce force.
ACCELERATION TIME: Total time to reach isokinetic speed. Indicative of a muscle's neuromuscular capabilities to move the limb at the beginning of the range of motion.
DECELERATION TIME: Total time to go from isokinetic speed to zero speed. Indicative of a muscle's neuromuscular capability to eccentrically control the limb at the end of the range of motion.
AGONIANTAG RATIO: The Reciprocal muscle group ratio. Excessive imbalances may predispose a joint to injury.
DEFICITS: 1 to 10% No significant difference between extremities.
 11 to 25% Rehabilitation recommended to improve muscle performance balance.
 > 25% Significant Functional Impairment.
 (-) Negative deficit indicates involved extremity performed better than uninvolved

Comprehensive Evaluation

Name: Boban Stamenkovski Session: 11/14/2008 11:50:38 AM Windowing: None
 ID: 100 Involved: Right Protocol: Isokinetic Bilateral
 Birth Date: 2/24/1989 (M/d/yyyy) Clinician: Referral: Pattern: Extension/Flexion
 HT: 182 Mode: Isokinetic
 Wt: 80.0 Joint: Knee Contraction: CON/CON
 Gender: Male Diagnosis: GET: No Gravity Correction

EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC			
# OF REPS: Right 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT	
# OF REPS: Left 5	LEFT	RIGHT		LEFT	RIGHT		
PEAK TORQUE	N-M	226.5	122.9	45.7	136.1	113.1	18.1
PEAK TQ/BW	%	283.5	153.9		172.8	141.6	
TIME TO PK TQ	MSEC	650.0	480.0		240.0	460.0	
ANGLE OF PK TQ	DEG	70.0	78.0		23.0	44.0	
TORQ @ 30.0 DEG	N-M	91.5	49.7	45.7	133.3	101.3	24.0
TORQ @ 9.18 SEC	N-M	149.5	89.9	39.9	134.3	88.3	26.8
COEFF. OF VAR.	%	59.4	12.2		56.1	8.6	
MAX REP TOT WORK	J	249.1	135.6	45.6	177.6	140.1	21.1
MAX WORK REP #	#	3	3		4	4	
WRK/BODYWEIGHT	%	311.8	169.6		222.2	175.4	
TOTAL WORK	J	840.5	598.3	28.8	673.7	648.9	3.7
WORK FIRST THIRD	J	243.2	186.9		171.5	217.8	
WORK LAST THIRD	J	262.9	203.9		224.3	210.8	
WORK FATIGUE	%	-8.1	-9.1		-30.8	3.2	
AVG. POWER	WATTS	135.1	80.0	40.8	99.2	82.5	16.9
ACCELERATION TIME	MSEC	20.0	20.0		30.0	30.0	
DECELERATION TIME	MSEC	40.0	50.0		40.0	60.0	
ROM	DEG	100.1	94.3		100.1	94.3	
AVG PEAK TQ	N-M	163.4	109.5		110.0	107.1	
AGONIANTAG RATIO	%	61.0	92.0	G: 61.0			



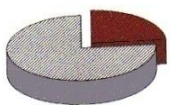
General Evaluation

Name: Boban Stamenkovski Session: 12/6/2008 6:19:18 AM Windowing: None
 ID: 100 Involved: Right Protocol: Isokinetic Bilateral
 Birth Date: 2/24/1989 (M/d/yyyy) Clinician: Pattern: Extension/Flexion
 Ht: 182 Referral: Mode: Isokinetic
 Wt: 80.0 Joint: Knee Contraction: CON/CON
 Gender: Male Diagnosis: GET: No Gravity Correction

EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC				EXTENSION 180 DEG/SEC				FLEXION 180 DEG/SEC			
# OF REPS (60/180): 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT	
# OF REPS (180/180): 10	LEFT	RIGHT		LEFT	RIGHT			LEFT	RIGHT			LEFT	RIGHT		
PEAK TORQUE N-M	228.0	172.9	24.2	155.9	174.3	-11.8		147.4	114.9	22.0		134.3	128.8	4.0	
PEAK TORQUE %	285.4	216.4		195.1	218.1			184.5	143.9			168.0	161.2		
MAX REP TOT WORK J	234.6	168.4	28.2	180.1	305.7	-69.7		180.5	147.2	18.5		183.8	167.1	9.1	
COEFF. OF VAR. %	6.4	4.4		3.0	2.1			15.3	8.3			6.4	2.4		
AVG. POWER WATTS	158.8	124.4	21.7	122.0	129.7	-6.4		243.4	206.1	15.3		1717.3	1620.6	5.6	
TOTAL WORK J	1042.0	650.7	37.6	830.6	987.4	-18.9		1484.8	1313.0	11.6		60.0	50.0		
ACCELERATION TIME MSEC	20.0	20.0		30.0	30.0			50.0	40.0			230.0	120.0		
DECELERATION TIME MSEC	40.0	40.0		40.0	40.0			140.0	140.0			97.6	100.7		
ROM DEG	82.3	77.6		82.3	77.6			97.6	100.7			128.6	125.5		
AVG PEAK TQ N-M	215.0	135.1		149.4	169.7			91.1	112.1	G: 72.0					
AGONIANTAG RATIO %	68.4	100.8	G: 61.0												

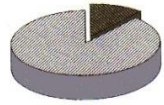
EXTENSION

Deficit
24.2 %



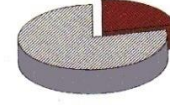
FLEXION

Stronger
11.8 %



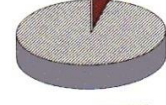
EXTENSION

Deficit
22.0 %

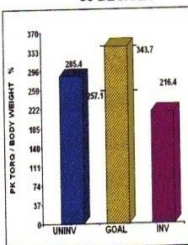


FLEXION

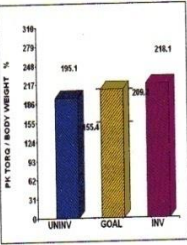
Deficit
4.0 %



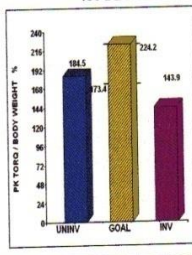
60 DEG/SEC



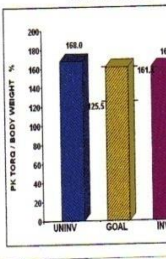
60 DEG/SEC



180 DEG/SEC



180 DEG/SEC



Comments:

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DECELERATION TIME: Total time to go from isokinetic speed to zero speed. Indicative of a muscle's neuromuscular capability to eccentrically control the limb at the end of the range of motion
AGONIANTAG RATIO: The Reciprocal muscle group ratio. Excessive imbalances may predispose a joint to injury
DEFICITS: 1 to 10%: No significant difference between the extremities.
 11 to 25%: Rehabilitation recommended to improve muscle performance balance.
 >25%: Significant Functional Impairment
 (-) Negative deficit indicates involved extremity performed better than uninjured

Comprehensive Evaluation

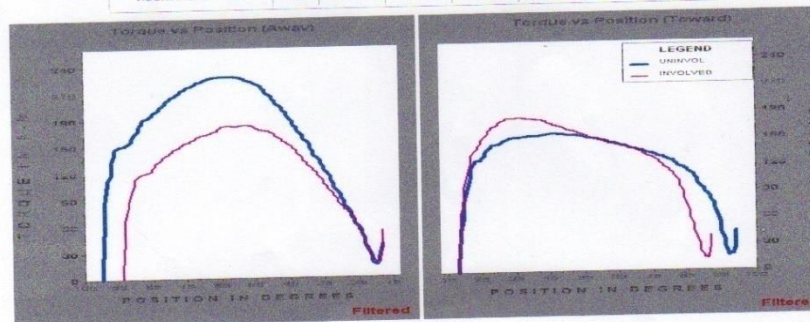
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 ID: 100 Involved: Right Protocol: Isokinetic Bilateral
 Birth Date: 2/24/1989 (M/d/yyyy) Clinician: Pattern: Extension/Flexion
 Ht: 182 Referral: Mode: Isokinetic
 Wt: 80.0 Joint: Knee Contraction: CON/CON
 Gender: Male Diagnosis: GET: No Gravity Correction

Two weeks after individual program with given advice to continue this program, without regular football training process

EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC				EXTENSION 180 DEG/SEC				FLEXION 180 DEG/SEC			
# OF REPS (60/180): 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT	
# OF REPS (180/180): 10	LEFT	RIGHT		LEFT	RIGHT			LEFT	RIGHT			LEFT	RIGHT		
PEAK TORQUE N-M	228.0	172.9	24.2	155.9	174.3	-11.8		147.4	114.9	22.0		134.3	128.8	4.0	
PEAK TORQUE %	285.4	216.4		195.1	218.1			184.5	143.9			168.0	161.2		
MAX REP TOT WORK J	234.6	168.4	28.2	180.1	305.7	-69.7		180.5	147.2	18.5		183.8	167.1	9.1	
COEFF. OF VAR. %	6.4	4.4		3.0	2.1			15.3	8.3			6.4	2.4		
AVG. POWER WATTS	158.8	124.4	21.7	122.0	129.7	-6.4		243.4	206.1	15.3		1717.3	1620.6	5.6	
TOTAL WORK J	1042.0	650.7	37.6	830.6	987.4	-18.9		1484.8	1313.0	11.6		60.0	50.0		
ACCELERATION TIME MSEC	20.0	20.0		30.0	30.0			50.0	40.0			230.0	120.0		
DECELERATION TIME MSEC	40.0	40.0		40.0	40.0			140.0	140.0			97.6	100.7		
ROM DEG	82.3	77.6		82.3	77.6			97.6	100.7			128.6	125.5		
AVG PEAK TQ N-M	215.0	135.1		149.4	169.7			91.1	112.1	G: 72.0					
AGONIANTAG RATIO %	68.4	100.8	G: 61.0												

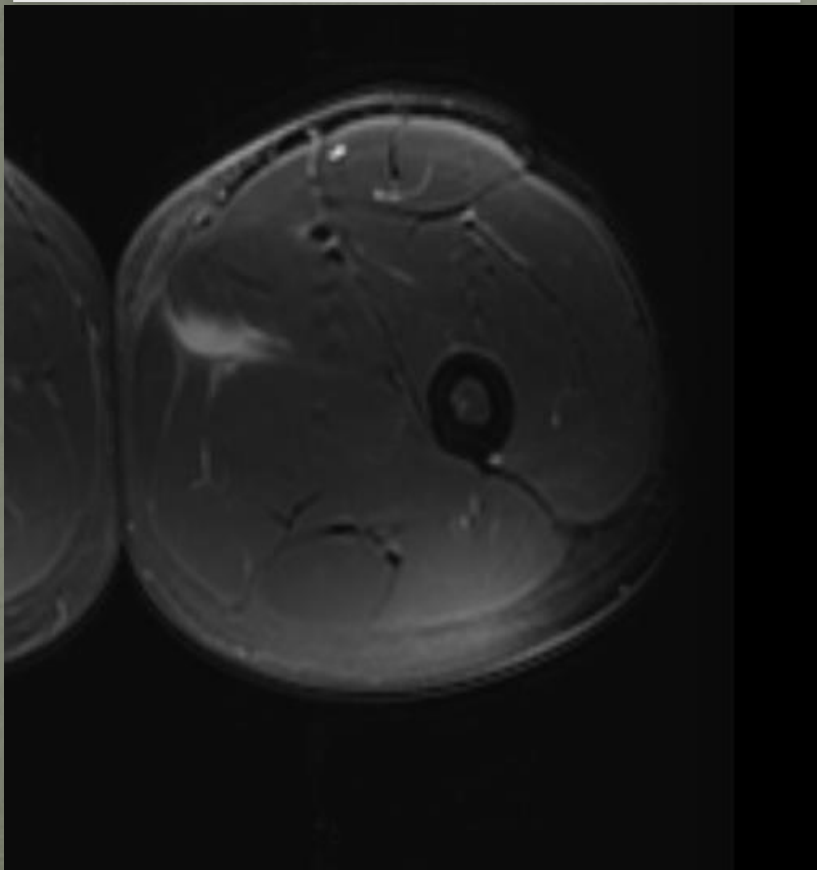
Doctor of the club (general medicine) interrupted this program and told him that he could play

EXTENSION 60 DEG/SEC				FLEXION 60 DEG/SEC				EXTENSION 180 DEG/SEC				FLEXION 180 DEG/SEC			
# OF REPS (60/180): 5	UNINVOL	INVOLVED	DEFICIT	UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT		UNINVOL	INVOLVED	DEFICIT	
# OF REPS (180/180): 10	LEFT	RIGHT		LEFT	RIGHT			LEFT	RIGHT			LEFT	RIGHT		
PEAK TORQUE N-M	228.0	172.9	24.2	155.9	174.3	-11.8		147.4	114.9	22.0		134.3	128.8	4.0	
PEAK TORQUE %	285.4	216.4		195.1	218.1			184.5	143.9			168.0	161.2		
MAX REP TOT WORK J	234.6	168.4	28.2	180.1	305.7	-69.7		180.5	147.2	18.5		183.8	167.1	9.1	
COEFF. OF VAR. %	6.4	4.4		3.0	2.1			15.3	8.3			6.4	2.4		
AVG. POWER WATTS	158.8	124.4	21.7	122.0	129.7	-6.4		243.4	206.1	15.3		1717.3	1620.6	5.6	
TOTAL WORK J	1042.0	650.7	37.6	830.6	987.4	-18.9		1484.8	1313.0	11.6		60.0	50.0		
ACCELERATION TIME MSEC	20.0	20.0		30.0	30.0			50.0	40.0			230.0	120.0		
DECELERATION TIME MSEC	40.0	40.0		40.0	40.0			140.0	140.0			97.6	100.7		
ROM DEG	82.3	77.6		82.3	77.6			97.6	100.7			128.6	125.5		
AVG PEAK TQ N-M	215.0	135.1		149.4	169.7			91.1	112.1	G: 72.0					
AGONIANTAG RATIO %	68.4	100.8	G: 61.0												

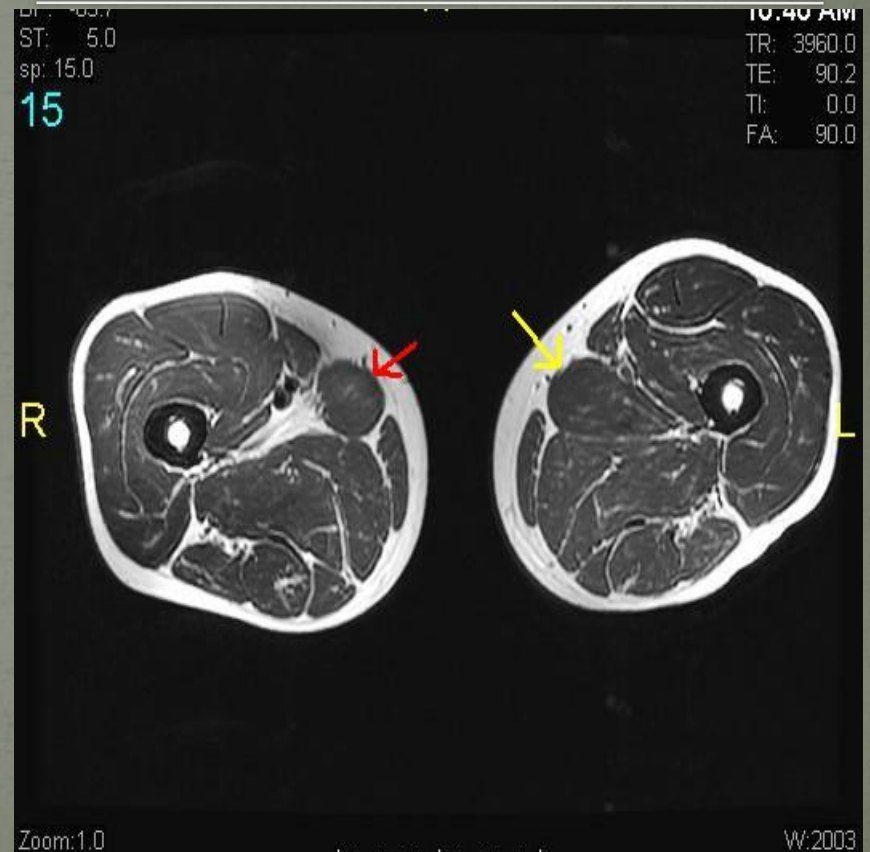


After 10 days of injury the coach forced the player to have a football training a day before the match without a permission from the doctor

Adductor strain



Adductor tear



Changes of body composition of professional soccer players during a competition half-season (5 months divided in 3 periods)

^a $p < 0.05$ – there is a significant differences between I i II period of training process

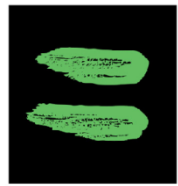
^b $p < 0.05$ – there is a significant differences between I i III period of training process

Period of training process	MM kg	MMP %	MT kg	MTP %
P ₁	42.13	55.19 ±2.04	10.64 ±1.17	13.56 ±0.63
		54.53 ^a ±2.05	10.71 ±1.16	13.92 ±0.69
		54.66 ±2.52	11.03 ^b ±1.03	14.26 ±0.93
	±4.63			
F	0.08	0.46	0.61	1.22
p	0.92			

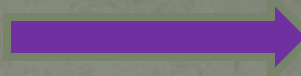
The coach could not accept that a lot of friendly matches in the preparation period and inappropriate strength training was a reason of this decrease of muscle mass

The coach used this data to include penalty to players at the end of the season

ALTHOUGH THERE ARE NO SIGNIFICANT DIFFERENCES IN BODY COMPOSITION BETWEEN THE PERIODS, THE RELATIVE MUSCLE MASS DECREASED SIGNIFICANTLY AFTER THE PREPARATION PERIOD AND ABSOLUTE FAT MASS INCREASED SIGNIFICANTLY AT THE END OF COMPETITION HALF-SEASON



**WORLD
ANTI-DOPING
AGENCY**
play true



Jack 3D was put on the Prohibited list from January 2011 due to methylhexaneamine

During the qualifications for the UEFA Europe League, July 2011, two players of a club were positive on methylhexamine. Doctor (traumatologist) of the club inscribe the Jack 3D as a given supplement in doping control form list

3 physiotherapist worked in club were engaged and responsible for supplementation. The doctor was not interested and informed about supplementationn. The owner of the club could not accept his responsibility.

Print date 22.11.2010, 14:37

Time base 25 mm/sec
Amplitude 10 mm/mV
Filters 0.2 sec, 25 Hz
Heart rate 75 [1/min]

RR	RRp	P	QRS	PQ	QT	QTc	Axis P	Axis T	Axis C
794ms	70%	138ms	124ms	216ms	398ms	446ms	86°	94°	-92°
Abnormal extreme qrs axis deviation									
P - sinistocardiale ?									

28 YEARS OLD FOTBALL PLAYER CAME BACK TO MACEDONIA, SIGNED WITH A FOTBALL CLUB AND AFTER THAT SPORT MANAGER SENT HIM ON PREPARTICIPATION EXAMINATION. THIS FOTBALL PLAYER HAD WHOLE MEDICAL DOCUMANTATION PROVIDED IN OTHER CONUTRY WITH EXPLAINED SITUATION FOR HIM. HIS PROFESIONAL ENGAGMENT AS A FOTBALL PLAYERS IN OTHER COUNTRY WAS NOT ALOWN. THIS WAS THE REASON WHY HE WENT BACK IN MACEDONIA. DOCTOR OF CLUB WAS NOT INFORMEND ABOUT THIS.

MATERIAL AND METHODS

- **EXAMPLE OF 36 PEOPLE** – PROFESSIONAL SOCCER PLAYERS FROM A CLUB OF NATIONAL LEAGUE (AGE,18-32)
- **INCLUSIVE CRITERIA** – ABSENCE OF ANY ACUTE OR CHRONIC ILLNESS AND PARTICIPATION IN WHOLE COMPETITION HALF-SEASON

TYPE OF STUDY AND WORK PROTOCOL

- PROSPECTIVE STUDY - 6 MONTHS; THREE PERIODS IN HALF-SEASON:
 1. PREPARATION
 2. COMPETITION
 3. POSTCOMPETITION
- THREE EXAMINATIONS, ON THE BEGINNING OF EACH OF THREE PERIODS, (P_1 , P_2 i P_3)
- EACH EXAMINATION IS DIVIDED IN TWO PHASES

FRIST PHASE - LABORATORY

1. ANAMNESIS

2. ANTHROPOMETRIC

DETERMINATION OF BODY

COMPOSITION (Mateigka, Frischencko)

MUSCLE COMPONENT (ABSOLUTE AND RELTIVE) - MM; MMR

FAT COMPONENT (ABSOLUTE AND RELATIVE) - MT; MTR

MUSCLE AND FAT SURFACE OF UPPER ARM - MMA; FMA.

BMI

3. LABORATORIC INVESTIGATIONS – BEFORE AND AFTER MAXIMAL ERGOMETRIC TES

HORMONAL (ACTH, TESTOSTERONE, CORTIZOL) - RIA – ACTH_{1,2,odgovor};

Cor_{1,2,answer}; Tes_{1,2,answer} Tes/Cor_{1,2,answer}

BIOCHEMICAL (CREATINE KINAZE, K⁺, FREE RADICALS) - CK_{1,2,answer};

K⁺_{1,2,answer}; FR_{1,2,answer}



4. ERGOMETRIC TREADMILL TEST-
MAXIMAL, PROGRESIVE (8km/h – 3
minutes warm up, 10 km/h to maximal
speed – 3 minutes with 1 minute rest)

$\text{VO}_{2\text{max}}$ (ml/kg/min)

$\text{VO}_{2/\text{kgMM}}$ (ml/kg)

HR_{r_1} HR_1 , HR_2 , HR_3 , HR_4 , HR_{max} , HR_{rec}
(B/min)



5. DETERMINATION OF BLOOD
LACTATES (Lactate Analyzer Acusport)

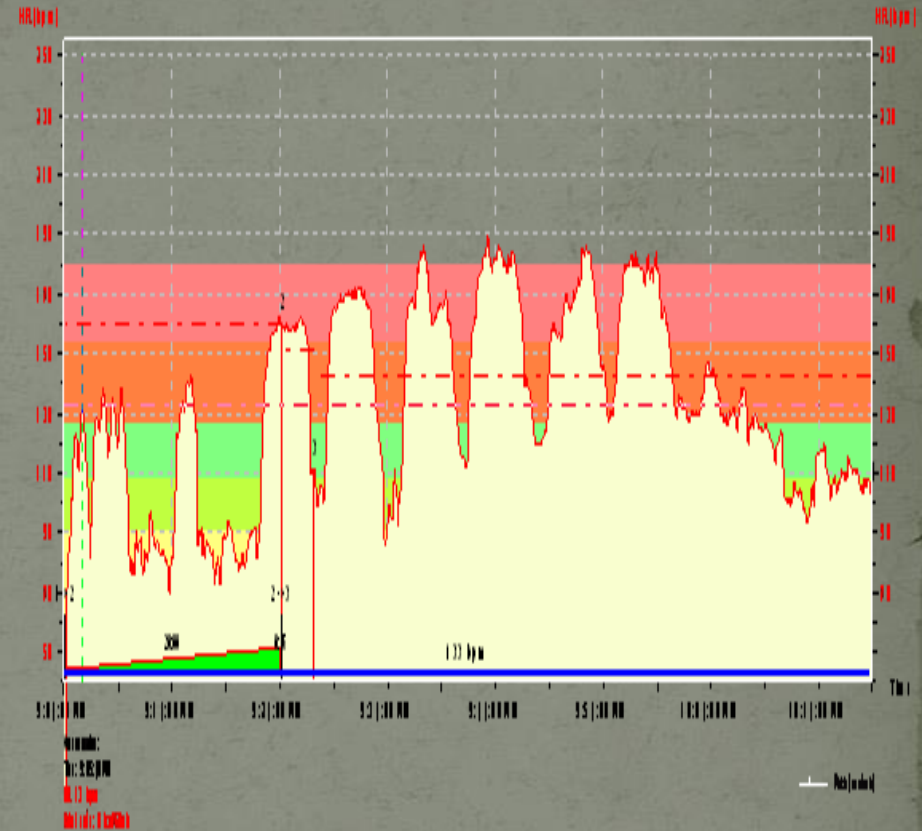
Lac_r (mmol/l), Lac_1 , Lac_2 , Lac_3 , Lac_4 , Lac_{max}
 Lac_{rec}

6. DETERMINATION OF LACTATE
CURVE AND AnT (km/h) and AnT
(b/min)



PHASE – examination on soccer field

- SPECIFIC CONSTRUCTED SOCCER TRAINING
- HIGH PRODICTIVE, AEROBIC - 90-110% OF AnT
- WARMING UP OF 15 MINUTES, 6 SERIES OF HIGH INTESITY ACTIVITY WITH BALL, DURATION OF 4 MINUTES, 2 MINUTES OF REST BETWEEN SERIES, 5 MINUTES OF RECOVERY (50% OF AnT)
- DETERMINATION OF BLOOD LACTATES AT REST - $Lact_r$, AT THE END OF EACH SERIA – $Lac_{1,2,3,4,5,6}$ AND AT THE END OF RECOVERY - Lac_{rec} (Lactate Analyzer – Acusport) (mmol/l)



Primer	Agus Chikawa	Date	6/3/2000	Heart rate average	133 bpm	Unit 1	90-120
Exercise	6/3/2000 (9:00) AM	Time	9:00:00 AM	Heart rate max	139 bpm	Unit 2	90-120
Speed	Running	Position	13:155.2			Unit 3	90-120
Notes				Direction	9:00:00 AM - 10:00:00 AM (9:00:00 AM)		

CONCLUSIONS

- **THERE IS A STAGNATION OF TRAINING PROCESS DURING A COMPETITION HALF-SEASON** - unchanged AnT; there is no decreasing of heart rate; no maximal loadings; there is insignificant change in body mass; no answer.
- **PREPARATION VOLUME AND INTENSITY** Although the coach accepted a lot of criticism for player's fatigue, generally, there was an increased volume of training. The coach started to change the training process, using of different methods. On the other side, there was a change in the training component after this period.
- ***There is a depression of the endocrine systems, dysfunction of hypothalamo-pituitary axis and maybe the signs of overtraining syndrome at the end of season.***
- ***Without specific field test of soccer performance and psychological test of mood, it is difficult to conclude about overtraining syndrome, although physiological parameters go in this direction***

HEALTH ORGANIZATION IN FOOTBALL CLUBS

WHAT IS APPROPRIATE MEDICAL CARE ?

- PREVENTION AND TREATMENT OF INJURIES AND ILLNESSES

- ADEQUATE

- PREVENTION

- EVALUATION

- OPTIMIZATION

- EMERGENCY

- NUTRITION

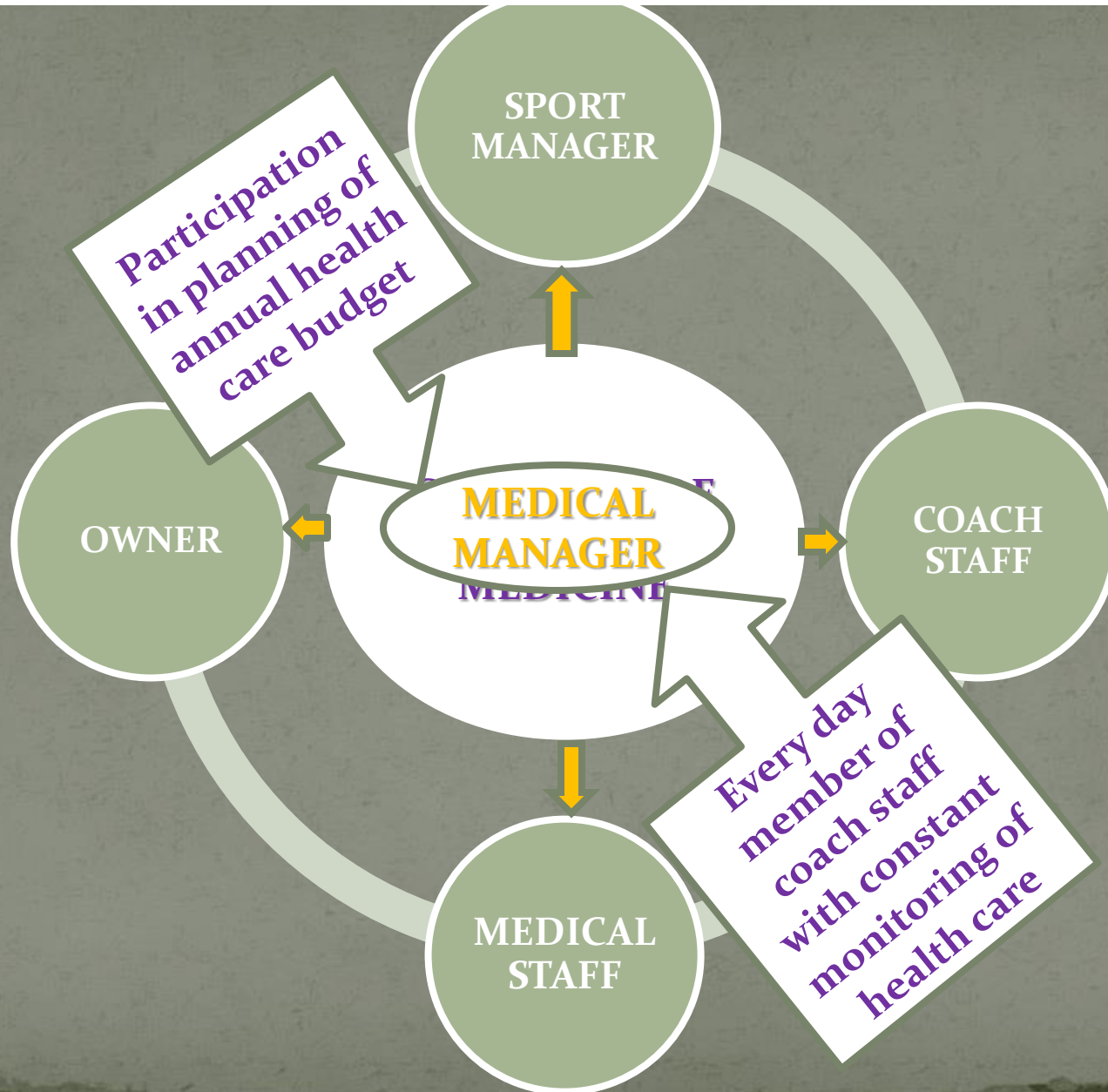
- ANTIDOPING

- PHYSIOTHERAPY AND KINESIOTHERAPY

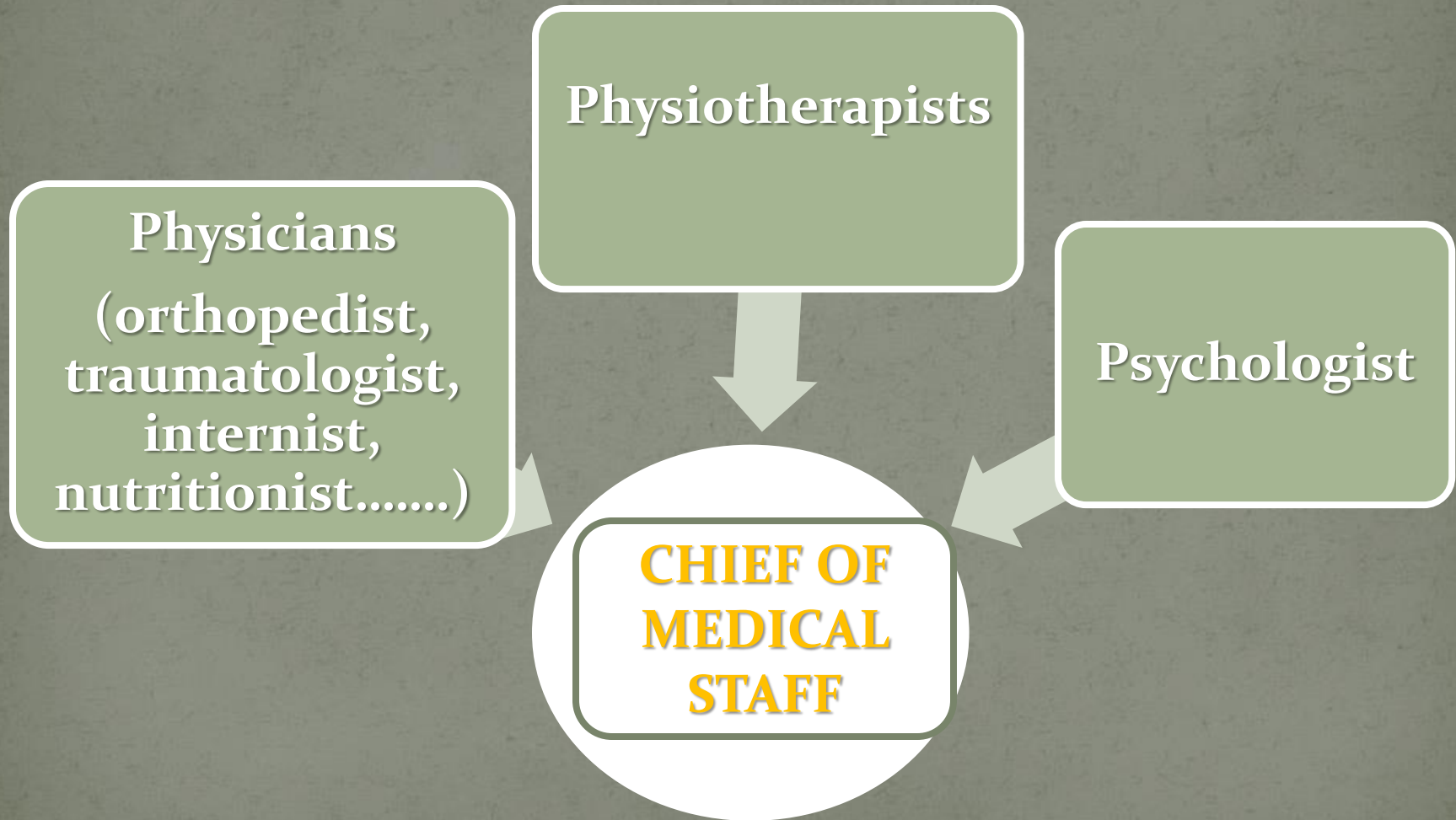
EUROPEAN CURRICULUM OF SPECIALISATION OF SPORT MEDICINE

EFFECTS

EDUCATION



MAIN MEDICAL RESPONSIBILITY



Football player

Succesfull
health
care

coach

**SPECIALIST OF
SPORTS
MEDICINE**



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