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## THE ORGANIZATION AND IMPORTANCE OF A MEDICAL UNIT IN A FOOTBALL CLUB

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**Abstract:** The level of organization of a Medical Unit in a football club depends mainly on the financial situation and understanding of the role of medicine in modern top-level football. Football clubs may leave the entire medical care to one physiotherapist who has minimum equipment and means at his disposal, but they can also establish Medical Units which are excessively equipped and count a great number of people, as is the case in the biggest and richest football clubs. Optimally, a Medical Unit comprises one or two medical doctors and two to four physiotherapists and masseurs, and it is also equipped with all the necessary equipment for prevention and treatment of diseases and injuries, while at the same time it maintains good relationship with the relevant local healthcare institutions that are involved in the treatment should the need arise.

In its daily operations, a Medical Unit encounters a number of difficulties arising from technical and human resources, professional and interpersonal relations, legal and ethical issues and other areas. Being exposed to general public in its operations, and at the same time a part of the many-sided, multidisciplinary and non-medical system, the organization and management of the Medical Unit represent a very complex task and a big challenge.

Keywords: medical unit, football, organization

#### **INTRODUCTION**

Football clubs may be organized in different ways depending on their financial and technical conditions. A Medical Unit of a football club is organized in accordance with its material circumstances, but also in accordance with the

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understanding of the role that medicine can play in today's top-level sport. It is certainly useful that the medical issues are encompassed by the regulations of the Football Association, so that the minimal requirements that clubs have to fulfil in order to compete have been defined. The Football Association of Serbia passed the Guideline on medical (regular and control) examinations of players, coaches, and referees (2007), the Guideline on mandatory pharmaceuticals at the football stadiums (2007), and the Rulebook on the medical protection of the Football Association of Serbia members (2012). These regulations prescribe minimum healthcare protection, equipment, and working conditions for the Medical Team that the clubs are obliged to ensure. Unfortunately, clubs are often let up on precisely when it comes to this field...

The recently adopted Law on Sports (2016) provides the basis for regulating issues that so far were not particularly well defined, such as the healthcare protection of athletes, the insurance of athletes, the licencing of sports experts and experts in sport, work with young athletes, etc. There are quite enough regulations. The problem is that these regulations are not implemented in practice due to the fact that the control systems of both the Football Association of Serbia and the state are rather weak.

During nine years of work in one of the greatest and best organized football clubs, a great effort was made to put in order the whole Medical Unit, as well as to stress its importance in the entire system where it belongs. The ISO 9000 standard served as the basis for regulation and organization (Malićević et. al., 2003).

# THE ORGANIZATION OF A MEDICAL UNIT IN A FOOTBALL CLUB

Over the years, through direct contact, the information on various aspects of organization and operations has been gathered from more than 120 football clubs in Serbia, region, Europe and beyond. The encountered variations are amazing. Based on the huge amount of information, following their systematization, all clubs have been classified into several grades.

- I. In financially weakest clubs and clubs competing in the lowest competition ranks (in which medical issues are not given special attention), all medical activities are performed by one medical technician or a therapist-masseur who is not employed by the club. Working conditions are minimal, as well as the equipment.
- II. At the next level of organization, clubs employ one physiotherapist who uses the basic equipment and is responsible for all medical issues and problems.
- III. The most common type of organization is such that a medical doctor is not employed by the club, but visits the team as a volunteer once or twice a week in addition to being on duty during the matches. It often

happens that the medical doctor is not a specialist in any field, or that he/she is a specialist of the "wrong" branch of medicine, e.g. dentist, vet or pharmacist. It is interesting to note that this is also most frequently encountered in foreign football clubs competing in second or lower ranks of competition. In these clubs, physiotherapist is present during all team activities, so it is their assignment to treat injuries and diseases in addition to providing massages to players. He/she most often has only minimum working conditions and a poor selection of medical equipment, tools, instruments and expendables at their disposal.

- IV. Majority of teams in our highest rank of competition employ one medical doctor and one physiotherapist, and have an equipped dispensary and basic instruments at their disposal including medical equipment and expendables, all in accordance with the above mentioned regulations of Football Association. The employed doctors are most often orthopaedic surgeons, physiatrist, internists, paediatricians, emergency medicine specialists, and, very rarely, sports medicine specialists. These clubs most often also employ two therapists.
- V. In contrast to the above, the level of organization encountered in major European football clubs includes possession of their own medical centres with diagnostic equipment (MRI, CT, ultrasound, x-ray), small operation theatres, hyperbaric oxygen therapy chambers, hydrotherapy pools, countless tools for physical therapy, tools for measuring body composition, the level of functional ability, joints mobility, muscle strength, and so forth. In some clubs, there are 4 to 6 employed medical doctors of various specialties. In addition, clubs hire psychologists, psychotherapists, nutritionists, acupuncturists, chiropractic, and many other medical and non-medical experts. The impression is that this represents unnecessary spending of funds and resources; therefore this level of organization is inadequate.

An optimal level of organization and equipment should include a team medical doctor who is a specialist of sports medicine, orthopaedic surgery, emergency medicine or internal medicine and who is hired based on the labour agreement. Apart from possessing the Medical School degree and a working licence issued by the Medical Chamber, he/she needs to be trained to perform cardiopulmonary resuscitation and to react in other emergency medical conditions, to respect medical ethic code, to be familiar with the rules of playing football and legal regulations including the ones of the Football Association, and finally to be able to competently communicate with media representatives.

The recommendations issued by the International Federation of Sports Medicine are quite different, primarily in view of the fact that they suggest that sports clubs do not need to hire sports medicine specialists, but medical doctors who are through training courses educated about the sports medicine (Stanish et al., 2013). This is understandable due to the fact that in majority of states there is no specialization in sports medicine.

In terms of further specialization, a medical doctor who works in a football club must find a motivation and time for continuous education. They should perform systematization of data gathered in daily practice and present them at professional and scientific conferences in the country and abroad. The formal obligation arising from the working licence issued by the Serbian Medical Chamber is also important.

One or more physiotherapists should also be full-time employed. In addition to the expertise acquired in school, sports physiotherapists should also attend courses for cardiopulmonary resuscitation, massage techniques and new physical procedures, and maintain continuous education in all relevant fields.

Hiring a sports psychologist and a nutritionist has been increasingly recognized as a requirement by clubs.

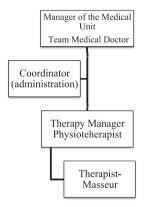
Apart from the regular composition, a club must have a Medical Commission, a voluntary body comprising eminent medical experts of various specialties (orthopaedic surgery, cardiology, general surgery, sports medicine, gastroenterology, pulmonology, neurology, neurosurgery...) and coming from various healthcare institutions. The task of this body is to ensure logistics support in providing care to injured or ill players, to assist in organizing diagnostic procedures, and, upon request of the team medical doctor, to consider complex cases and assist in the process of deciding about the therapeutic procedures.

The Medical Unit of football club must have close ties with healthcare institutions that are regulated and defined by the agreements on cooperation. It is very important to note that, in the well-organized clubs, all players are encompassed by the state healthcare protection, which means that they have health cards, chosen medical doctors and opened healthcare files in the local general healthcare centres. This is prescribed as a mandatory provision of the new Sports Law.

In terms of the level of equipment, there are no clear recommendations. It is necessary to have the room equipped with the adequate number of tables for therapy and massage depending on the number of physiotherapists and all the necessary tools for physical therapy (electrotherapy, magnet therapy, thermotherapy, ultrasound, and laser) and kinesitherapy. Also, there should be available sufficient quantities of expendables, medical items, instrumentarium and materials for hygienic procedure and injuries treatment, sterilisation equipment, an ice machine, a fridge, a medicine cabinet etc. The clubs of a better financial standing may also have a pool with therapeutic elements. Some can afford, and it is certainly useful, to have their own ultrasound machine for diagnosing soft tissue injuries. In addition to the above, medical team must be equipped with anti-shock kit, an automatic defibrillator, oxygen bottle, kit for immobilization of neck and extremities, spine-board and the set of medicaments for cardiology (Guideline on medical examinations..., 2007). Apart from possessing the above equipment, the medical team must be trained to use it.

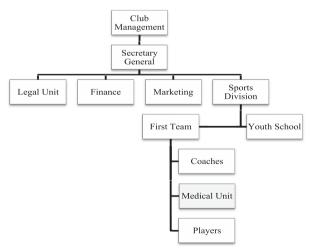
In terms of management and administration, a Medical Unit, beside the medical doctor who is also the manager responsible for the operation of the unit, should comprise the unit coordinator who is in charge of relations with the healthcare institutions and the Medical Commission, and also performs the correspondence activities and documents administration (Picture 1).

Picture 1. The organization scheme of an optimal Medical Unit in a football club



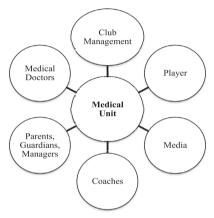
The organizational structure of a football club is very complex. The closest definition of the position of a Medical Unit is present in the Picture 2, i.e. next to the team, but it must be noted that majority of health issues of all club employees (therefore not only the football players) are examined or treated by the Medical Unit. The potentially biggest group of patients is the Youth School in the club, which usually counts around 250 children of the age 9 to 18.

Picture 2. The organization of a football club and the position of the Medical Unit



The Medical Unit is obliged to maintain the continuous communication with all the structures of a club, players, coaches, media representatives, parents and players' managers, colleagues from the healthcare field etc. (Picture 3). Some of them ask for information, some are making various pressures, some are setting achievable or unreal tasks and objectives, some are requesting actions which are opposite to what you know and believe in. In that mess, it is necessary that the team medical doctor maintains integrity, both professional and personal, avoids incidents, preserves good manners and serves as a role model to everyone, works in accordance with his knowledge and never breaches Hippocratic Oath.

**Picture 3.** The relationships between the Medical Unit and the elements inside and outside a football club



#### MEDICAL UNIT'S TASKS

The tasks performed by the Medical Unit can be divided into following groups:

- The prevention of injuries and diseases,
- The treatment of injuries and diseases, and
- Other activities.

#### I. The prevention of injuries and diseases

This group of tasks and activities encompasses several activities implemented throughout the year (Micheli, 2013) including the following:

- *Pre-season specific program*. Observing or diagnosing anomalies in growth or development, or consequences of previous injuries or illnesses requires planning of a specific program whose aim is to remove the observed deficiencies and in the best possible manner prepare the player for full effort when the training program starts during the season. Issues

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with the body position, anomalies in growth or development, visible asymmetries and unbalanced muscles require generating of special programs for the correction of position by the exercises for strengthening of specific muscles or muscle groups and stretching exercises. These activities are implemented by a medical doctor together with coaches and physiotherapist.

- The control of the use of items for injury prevention. Even if it is not popular among players, members of Medical Unit should continuously remind them of the importance of using the protection items for injuries prevention. In some clubs, it is mandatory to wear protection items (bone protector, suspensors, tooth protector, shoe insoles, bandages) and any non-compliance is penalized by a financial penalty. In addition, it is necessary to remove all items from the body that may cause injuries to players (rings, strings and necklaces, earrings, piercing, glasses etc.) and the Medical Unit members must always remind players about it.
- *Proper warm up and cool down*. Even though football experts have learnt through various courses how important proper warm up and preparation for training are, the medical team should control whether the process is appropriately implemented in order to prevent injuries. It is equally important to finish the training with the proper cool down activities, i.e. not suddenly, but rather gradually with the muscles stretching and slow jogging or walking.
- *Environment control.* The onus is on the doctor to determine whether there is anything at the location where the training is carried out that can jeopardize the players' health. Metal objects or rocks, glass etc. on the field or in the immediate environment, the presence of larger quantities of snow or ice, as well as water or mud pose danger, so the doctor should recommend that no training is held in such conditions. Also, in case of smoke or any evaporating chemical substance in the air or on the field, the training should be terminated or postponed. The same applies to thunders, too high or too low air temperature. The stay and training at the locations high above the sea level also represent a special problem.
- The prevention of diseases. Prevention of diseases is equally important activity, as one third of absences from the training program is caused by the player's illnesses. The doctor is obliged to continuously indicate the importance of adequate clothes for training sessions and free time. The attention should also be drawn to the effects of staying in smoking or stuffy premises, but also to the advantages and disadvantages of spending time outside. The action organized every autumn is the regular vaccination against the seasonal flu. The team medical doctor occasionally speaks to and advises individual players if the risk of sexually transmitted diseases is observed. In better organized clubs, the reaction to pandemic threats

(bird flu, swine flu, virus zika etc.) must be decisive and include the measures of increased hygiene of persons and premises in which they stay and eat, restriction of movement (quarantine) and special medical measures (adequate hydration, vitamins, various food etc.). Medical staff, the personnel preparing food and football players should be vaccinated against hepatitis B. For the purpose of early diagnosing and preventing diseases, regular medical systematic check-ups should be carried out comprising complete biochemical and hematologic laboratory check-ups, complete internist, ophthalmology, otorhinolaryngology and dentist examination. These examinations, as well as the ergospirometry test should be carried out twice a year, in accordance with the Sports Law (2016) and the regulations of the Football Association (Guideline on medical examinations..., 2007). Some clubs perform two additional control check-ups, i.e. in total, four per year.

The medical doctor should give advice on diet and supplements, prepare individual dietary programs, control body mass, composition and structure of the body. It is often required to prepare programs for increasing body mass in addition to reduction diets.

#### II. Treating injuries and diseases

For treating injuries, which is the most important part of the professional engagement of the team doctor, it is of key importance that the doctor is present during all team activities in order to be able to see the mechanism that caused the injury. Upon observing the occurrence of injury, the medical doctor is in the position to promptly provide adequate assessment of the situation and provide first aid which, if carried out in a satisfactory manner, shortens the treating period and the time until return to training program to a great extent. In case of a disease, it is important to maintain daily contact with the player to be able to more easily notice the possible changes in health condition and to enable early reaction to the disease in order to achieve faster recovery.

After providing first aid or potential initial medicament therapy, the doctor decides if the injured/ill player should be treated in the healthcare institution, in the club or at home.

In order to prevent complications and legal consequences, the medical doctor must possess the documents based on which he/she made the decisions, make entries in his/her journal and prepare reports on specific procedures. In many clubs, there are standardized procedures that are performed in a predefined order and ensure the required quantity of documents that serve as an evidence of realized steps (Picture 4). It is required to develop standardized procedures for every condition that a football player can get in (e.g. the procedure in case of a sprained ankle, muscular distension etc.), and every disease that a football

player can suffer from (it is particularly important to know the procedure in case of contagious diseases – measles, malaria, hepatitis, flu), anti-shock procedure, protocol for systematic sports-medical examinations, vaccinations, team trips, and the procedure for procurement and usage of medical funds and equipment.

The course of activities in the process	Completion of activities	Responsible for carrying out the activities
The player's injury		
The assessment of injury	- entry in doctor's journal	Doctor
First aid/Organizing hospitalization in the relevant healthcare institution	- specialist's finding/discharge form - entry in doctor's journal	Doctor and physiotherapist
Diagnosis Verification	<ul> <li>specialist's finding</li> <li>entry in doctor's journal</li> <li>entry in player's healthcare file</li> <li>entry into the injured players' list</li> </ul>	Consultant / Doctor
Identification of medicament therapy	- entry in doctor's journal	Doctor
Identification of Physical therapy	- entry in physical therapy journal	Doctor and physiotherapist
Assessment of treatment adequacy	- entry in doctor's journal	Doctor and physiotherapist
Control of general condition	- entry in doctor's journal	Doctor
Beginning of mmobilization	- entry in doctor's journal - entry in fitness trainer's journal	Doctor, physiotherapist, and fitness trainer
Training for maintaining general condition	<ul> <li>entry in doctor's journal</li> <li>entry in fitness trainer's journal</li> </ul>	Doctor and fitness trainer
Specific training	- entry in doctor's journal - entry in fitness trainer's journal	Doctor, fitness trainer, and physiotherapist
Functionality test	<ul> <li>entry in doctor's journal</li> <li>entry in fitness trainer's journal</li> </ul>	Fitness trainer
Return to training activities	<ul> <li>removal from the list of injured</li> <li>players entry in doctor's journal</li> <li>entry in fitness trainer's journal</li> </ul>	Doctor

#### Picture 4. Protocol in case of an injury of a football player

#### **III Other activities**

In addition to the prevention and treatment of injuries and diseases, the team medical doctor also performs activities that are not essentially a part of the medical expertise:

- *Nutrition and supplements* – The medical doctor most often defines menu and program for taking supplements for the team or individual player. This is particularly important when the team is staying outside the training camp, when playing as a guest or during the preparation period. The medical doctor is then responsible for determining the complete several-day program for nutrition and supplements with the exact hourly schedule. In the course of the preparation period, it is often required to prepare individual additional program for supplementation in order to gain muscle mass.

- *Psychology-related activities* Even though it is not his/her field of expertise, the medical doctor tries, by special approach and through series of talks, to remove some small-scale psychological disorders, and if he/she is not capable of it, the medical doctor shall organize a visit to the sports psychologist.
- *Medical documentation* The tedious work related to keeping and organizing the medical documentation, even though not legally defined as mandatory, represents a requirement for each football club. Organized medical documentation can serve for various analysis and the preparation of expert and scientific papers by the medical doctor.
- Education of football players, coaches, medical staff and others - The medical doctor is obliged to continuously educate players, coaches, medical and non-medical staff in a football club about the healthcare issues of importance and interest. In specific situations, such as epidemics and pandemics, he/she makes additional efforts and ensures the required conditions for prevention or control of the problem.
- *Anti-doping activities* The continuous additional education in the anti-doping area is the obligation of every team medical doctor. Even though doping in football is very rarely encountered, the medical doctor is obliged to work hand in hand with international football associations, the Football Association of Serbia, and the Serbian Anti-Doping Agency, in order to organize lectures on doping with the aim of informing the players, coaches and medical staff about these regulations.
- *Communication* with the club management, first coach and other members of the professional team, parents/guardians/managers, colleagues of medical profession, the media. It has already been mentioned that it is hard to communicate with people of various levels of education and different social positions, media, persons led by emotions, fears, greed or interests. The medical doctor needs to show skills in communication with each of them at the same time maintaining the required level of communication and never breaching medical code of ethics.

In addition to all the above mentioned, the medical doctor is also a pedagogue, andragogy expert, psychotherapist, marriage advisor, lawyer, friend...

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# PROBLEMS IN THE OPERATION OF A MEDICAL UNIT IN A FOOTBALL CLUB

Problems may originate from technical and human resources, professional and interpersonal relations, legal and ethical issues and other areas. These problems may be general, but they will not be subject of this paper, but rather the ones specific for the operations of the Medical Unit in a football club.

- The problem of available medical equipment and tools Clubs are not very interested in investing into medical equipment and tools because they believe that it is unnecessary money spending. On the other hand, each club wishes to reduce the number of hours of players' absence from training and competition program to a minimum. It is clear that adequate organization and equipment of the Medical Unit is a precondition for reducing the absences.
- *The issue of performing healthcare activities* Most often, clubs are not registered for performing healthcare activities, so there cannot be performed some procedures that are required to be done in healthcare institutions. Also, some equipment cannot be acquired despite the wishes and abilities.
- *The issue of storing medical equipment and tools* Majority of clubs do not have the adequate space for storing instruments and medical tools, either due to the issue of availability, or because of maintaining sterile and clean conditions.
- *The issue of medical waste disposal* In a football club, there is a specific quantity of medical waste produced every day; however it is not disposed of in compliance with special procedures, but rather treated like municipal waste.
- *The problem related to the obligation of reporting illnesses* The question is how the Medical Unit of a football club should act in relation to the obligation of reporting certain illnesses and medical condition to the Institutes for Public Health since it is not a healthcare institution.
- *Healthcare protection of football players* There are many clubs that have not resolved the issue of the healthcare protection of players even though this is obligatory as per the latest version of the Sports Law. The clubs that employ professional players for a specific period of time do open and regularly certify healthcare cards and ensure that there are chosen medical doctors and healthcare files in the local Healthcare Centres.
- The problem of performing regular medical examinations, vaccinations and medical hospitalization - The performance of regular medical examinations, vaccinations and medical hospitalization in state healthcare institutions represents a huge organizational or financial problem for many clubs. This is particularly visible in the areas that lack

sports-medical institutions, so they have to organize regular medical examinations in local healthcare institutions for general medical practice. A possible lack of health insurance may pose an additional problem as in that case clubs have to pay for all medical procedures. A surgery treatment with hospitalization and possible rehabilitation program is a long-term and very expensive process, so it is a great problem, especially for small clubs with lower budget.

- The problem of licencing medical doctors and physiotherapists There is a problem of licencing medical doctors and physiotherapists and their membership in professional Chambers, as some clubs are not registered as legal entities that employ medical experts i.e. do not have the position of a medical doctor or/and physiotherapists in their systematisation of job positions.
- *The problem of continuous education* The lack of possibility for carrying out continuous education of medical doctors and physiotherapists is most often the consequence of clubs' lack of interest to pay the registration fees for medical doctors and physiotherapists and give them free time to attend the courses.
- *The problem of rights based on the working arrangement* For members of the Medical Unit of a football club, the issue of membership in labour union organisations and realizing the rights based on the working arrangement (number of working hours, working on weekends, holidays, night shift, using annual leave, frequent trips outside the town of residence, using of personal items for job performance etc.) is an important question.
- The problem of taking medical equipment and tools abroad There is a problem of travelling abroad with the medical equipment, instruments and medical tools. Namely, a large number of instruments, equipment and medical tools are taken abroad, and there are specific procedures that are very complicated and often turn into serious troubles with the customs officers.
- *The problem of medical documentation* Keeping and managing medical documentation represents a problem primarily due to the fact that there is no clear idea why and for whom the documentation should be kept.
- The evaluation of job performance of the team medical doctor One of the biggest problems is the team medical doctor's job performance evaluation performed by the members of management, players, coaches, media, supporters, parents (...) i.e. medically incompetent persons. Such evaluations are most often inaccurate and always extreme. It is of great importance that the medical commission of the club stands by the team medical doctor and be the body that will criticize the team medical doctor in case of professional errors. The acknowledgements coming from

expert and scientific circles are significant for team medical doctors as a motivation.

- The pressures that the medical doctor suffers Requesting speeding up and shortening of treatment often creates tension and the exact opposite effect, i.e. complications and prolonged treatment. The most frequent mistake made by the Medical Unit in this case is polypragmasia, i.e. non-critical usage of several physical agents or using drugs and auxiliary substances at the same time. In addition, the medical doctor is sometimes requested to change the decision on temporary or permanent inability of a player for practicing sport, to take out or include/exclude someone from the anti-doping procedure, even to offer the medicaments from the list of forbidden substances to players, etc.
- *Ethical issues* The issue of revealing details re healthcare condition of players to the public is not simple at all. It is clear that there is an obligation of treating as confidential the details re someone's health condition, but there is also a need for revealing some information due to the fact that players are public persons and general public insists on knowing everything about them including their health condition.
- *Communication with the team coach* Communicating with the first coach can be very difficult, as he/she may request the activities that are in contrast with the good medical practice. Coaches often consult other doctors, but not in order to get a second opinion, but to get the one that suit them better.
- *Communication with football players* In terms of communication and interpersonal relations, the major problem occurs with the plyers that can be famous and rich, and think than everything can be bought. They often think that they know everything and act gullibly, being ready to listen to anyone else, but people from their closes surroundings. On the other hand, the interpersonal relations in the Medical Unit should serve as an example to everyone in the club.
- *Feeling content and happy at work* It is often difficult for the medical doctor and physiotherapist to feel happy at work as there is no option for promotion, professional or scientific personal development, but also there are frequent absences from home and family, big workload, pressures from the management, coaches, public etc.

### CONCLUSION

All the above mentioned shows that the organization of daily operations in the Medical Unit in a football club is a complex and very demanding job. The activities of the Medical Unit are performed with a number of difficulties that often seem unsolvable at a first glance, but can also serve as challenges, producing a great feeling of satisfaction when overcome.

Working at a football club also brings sports excitement and the desire to win. The explosion of joy that follows immediately after a sports success and win does not exclude the members of the Medical Unit, who are very well aware that they are part of the sports wins.

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