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2.4 MEDICAL



WHY YOU SHOULD READ THIS CHAPTER?

Let's Adapt to the Physical Challenges of Modern Basketball

Basketball is getting more and more demanding. More matches are being played more often, and the physical implications of this on the player's health requires increased monitoring.

The objective of this chapter is not to make medical experts of all of us. It is designed to point out the reasons why it is strongly recommended for each Member Federation to have its own Medical program. It features general checklists, explanations on how to create national health programs, how to collect data, and introduces prevention and education tools.

Last but not least, it talks about doping. Basketball has to remain a clean sport. While you will find here a list of prohibited substances, you will also find a description of the athlete's rights and responsibilities that all Federations need to be aware of.



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1. Introduction

One of FIBA's main concerns has always been to safeguard the athletes' health. The number of games and high demands in the professional sport is on the increase, and this increased pressure lands on the main actors of the game – the players. The competition schedule for high-level players is becoming increasingly loaded. Playing twice a week for an entire year (for clubs and for the national teams) is a heavy burden and players need to undergo regular physiological check-ups in order to be able to sustain a high level of health. Whilst on the one hand being wary of overtraining, athletes must still cope with the fatigue of traveling, working-out and mental fatigue, particularly towards the end of the season.

Knowing all this there is an obvious need to have people responsible for medical matters within each National Federation. Medical matters also tend to occupy an important place in the pragmatic set-up of high-performing clubs. Statistics prove that the percentage of those unable to play due to injury is on the increase, and it is the responsibility of all of us is to prevent this happening as much as possible.

Each NF should have an efficient medical team which should safeguard the health of the athletes, reduce the frequency of injuries, reduce the convalescence period before resuming activity, avoid mistakes when taking on players for the national team and reduce the risks of disqualification due to doping. By contributing towards finding solutions which will minimize the dangers mentioned above, a sensible medical check-up will avoid unforeseen expenses, troubles, and failures.

2. Organization of Medical Service for National Teams

The National Federation should have a medical department responsible for all medical aspects, including doping, and who should be ready to assist with all National Selections. The medical department should have specialists in the following areas of medicine: surgery, orthopaedics, neurosurgery, internal medicine, physical medicine, sports medicine, dentists, physiotherapist, and specialists for eyes and skin.

An experienced surgeon is of high priority because he may be able to identify many types and degrees of injuries in the field, without x-ray and other examinations (during training, match or traveling). A physician must have clinical experience of least 5 to 10 years. The physician must communicate with other specialists, when and if needed, and must be ready to organize a consulting body, which can react quickly.

The "traumatology" department is also of high priority and in addition most National Federations should have several full time physiotherapists on hand. The good relationship between doctor and surgeon is crucial, as is access to rehabilitation facilities in the club or in a specialized centre. The National team doctor may sometimes have to refer the injured player to a specialist when it concerns operating on backs, hands, feet or face.

3. Medical Check of a Player

Players must undergo a medical check-up every 6 or 12 months and the results must be entered in the medical records of each player. This obligatory check-up should be repeated at the beginning of each season. The medical check-up must include:



1. Laboratory analyses:
 - cell count, Fe, sedimentation, blood type
 - electrolytes (sodium, potassium, chlorides, bicarbonates)
 - hepatogram (condition of liver and pancreas)
 - urea and creatinine (condition of kidneys)
 - proteins and albumins (condition of tissues)
 - calcium and magnesium (condition of bones and connective tissues)
 - iron titration
 - CPK (creatine, phospho, kinase)
 - level of lactate
2. EKG, X-ray (condition of heart and lungs and risk of Sudden Cardiac Death - Marfan syndrom)
3. ERGOTest (condition of heart and lungs under physical strain)
4. Echography (ultrasonoscopy)
5. Dental examination (condition of teeth)
6. Otorhinolaryngological examination (ear, nose and throat)
7. Ophthalmologic examination (condition of eyes)
8. Orthopaedic examination (condition of joints, feet, ligaments and muscles)
9. Height and weight measuring (rib cage, upper arm, thigh, arms spread)
10. Family medical history

The doctor, if it is felt to be necessary, may prescribe vaccinations for the entire team (influenza, hepatitis A + B). Progressive weight gain, physical condition (endurance, muscular strength, flexibility), etc. must be subject to medical surveillance. If, during a competition, a player experiences a rapid decline in their physical condition which is not seen to be associated with exhaustion, blood tests should be done in order to detect viruses. Special attention should be paid to coxackievirus that may damage the heart, and leukocyte formula that may indicate viral infections (colds). In that case nose and throat culture should be examined. Viral or bacteriological infections that are not properly treated may cause general weakness and many complications for the heart and lungs. In case of frequent sickness, a urea test should be done in order to detect helicobacter pylori that may be responsible for stomach diseases and, if not treated, may even cause cancer. Viruses and bacteria should be identified and eliminated as quickly and efficiently as possible.





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4. Data Collecting

All work carried out by the medical team must be recorded, including inventories for pharmaceutical products and storage of material. Details of an athlete's illnesses and injuries must also be recorded (date, diagnosis, examination, treatment, convalescence period), firstly for insurance reasons and subsequently for epidemiological reasons. Statistical records of trauma cases, reported season after season, may reveal certain health risks or propensities and allow therapeutic treatment to be modified. The data collected and recorded at the national and international level, could also be of scientific interest. For this reason reliable data-processing tools are indispensable nowadays.

5. The Medical Department of the National Federations

The National Federation's medical department should have a first-aid station which should include analgesic drugs, antirheumatic drugs, antibiotics (allergy symptoms should be observed) and anti-shock therapy, medication for stomach ache and discomfort, creams and injections in case of skin allergy, eye, nose and ear drops, as well as other necessary medical drugs. The NFs First Aid station should also have the equipment for immobilization of legs (crutches), arms and neck, stretchers, bandages, needles and threads for suturing as well as alcohol, iodine and hydrogen. There is a need to have a decent number of physical therapists, masseurs and necessary equipment for physical therapy available on the premises (tables for taping and massage, ice machine, cold packs, sprays, orthotic devices, rehabilitation devices for electro, hydro and cryo therapy). In case of cardio vascular emergency it is recommended to have a defibrillator and it is important to know how to use it.

6. National Team Doctor and Physiotherapist

The doctor and the physiotherapist must accompany the team as often as possible, both during training and competitions. They should also be aware of the medical and nutritional problems that occur from long trips, time difference, weather conditions and variety in food intake. All measures must be taken to ensure that First Aid can be applied without delay and injured players can be taken away from the court once the injury has been diagnosed. Athletes should not give into the temptation to get back on their feet too soon once they have sustained an injury. The club doctor should be contactable at all

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times. Caution should be taken when talking to the media regarding medical matters and professional secrecy should be given utmost respect.

The team of physiotherapist and doctor, who travel and work closely with the athletes can often assume the role of a psychological buffer between the coach and the team members. Whatever the circumstances, the relations between the coach, his assistants, the assistant physician and the "doctor" must be well-established, straightforward and clear, with a view to ensuring reciprocal trust.

7. Preventive Aspects

The prevention of injuries and relapses is one of the main factors in safeguarding an athlete's health. An athlete in perfect physical condition is less prone to injury. A fatigued athlete who does not recuper-



ate after games, who is psychologically un-balanced, is more prone to injury and may find himself prevented from playing. Technicians and doctors are well aware of the importance of preparation, warming-up, and stretching before training sessions and games.

The number one injury in basketball is a sprained ankle and proprioceptive re-education is practiced regularly during the course of treatment. Proprioceptive education of the tibio-tarsal should not be neglected. This joint, very much in use, is often supported prophylactically using bandages (taping) or supports (laced braces, AIRCAST). Other frequent injuries are face and nose injuries. Gum-shields, special glasses, protective pads made of sponge, neoprene sleeves and masks after a nose fracture are frequently used. As far as equipment is concerned, accident prevention requires all potential causes of serious accidents to be removed from the court. This includes advertising around the court, slippery advertising stickers on the court, basket padding, metal ring holding the net. To avoid the danger of slipping, FIBA strongly recommends that all NFs keep damp areas clean and dry, particularly where advertising has been pasted in the key zone. There must be two people present at each game to clean under the baskets using specially designed brooms.

8. Educational Aspects

The National team doctors must educate their protégés, either by talking to them individually or by holding group lectures. The subject of personal hygiene will be dealt with alongside the topics of sexuality (AIDS, sexually transmitted diseases), diet, sleep and the harm caused by tobacco, alcohol and drugs. The subject of doping must be commented on in detail, particularly with young players. It must be explained that doping is a form of cheating, but, above all, that it is a health risk which can lead to suspension from the game, or sometimes even death.

Naturally, an athlete is free to look after himself as he sees fit and to consult whom he wishes, but he must be warned about the risks involved in self-medication, using medicine recommended by others and miracle recipes from poor advisors, gurus or traffickers. An athlete should not take any medicine without being sure that they do not contain any doping substances. In the event that therapeutic justification is necessary to defend oneself in the face of a positive result, the accused athlete must keep and provide all proof of his illness (laboratory tests, certificates, X-rays, etc.).

9. Recuperation of an Athlete

Modern sports demand high levels of training and physical exertion. Because of that players often train twice a day. These intense conditions can lead to the use of supplementary drugs which are capable of increasing muscle mass and speeding up recuperation after hard work. Recuperation is the process of normalization of the organism, and removal of energetic matters and processes which are left over after muscle activity. These drug supplements do not allow for the proper muscle recuperation but instead contribute to the temporary increase in working capacity. Proportionally to the intensity and amplitude of load, proper recuperation plays a substantial role in increasing the effects of training in sport.

Sport requires the highest level of biological recuperation. The use of supplements that affect the level of recuperation leads to increased strength and an avoidance of rapid fatigue. These supplements need to be monitored closely. The complex used in these supplements are regular sporting nutrients which



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cause the full consumption of energy and supplementary factors which encourage the synthesis of albumen and the normalization of acids-bases and vitamin balance. Athletes can also use diverse physical-therapy treatments to aid in the recuperation of their muscles. The most important thing for athletes to track is that the calories of sport supplements should correspond to the daily consumption of energy (5.500 cal).

For optimal performance, sport supplements balance the relation between natural nutrients: albumen, fats and carbohydrates. This relationship can vary depending on the type of sporting activity undertaken. Full saturation of minerals, especially salts, is also important for proper, quick, recuperation. Vitamin use should also be controlled by the doctor. In elite sport performance, often there is a need for physiologically permitted means of increasing recuperation. These means need to have the following explanation:

1. to strengthen the synthesis of albumen
2. to influence the energetic processes
3. to influence the transfer of nervous muscles and contraction of skeleton muscles and cardiac muscles

The vitamins, which are necessary for sportsmen, are A, B1, B6, B12, B15, C, D, and E. Mineral consumption should include: magnesium, iron, kalium, calcium, sodium-chlorine and phosphor. It is certain that all these matters have a role in the athlete's health and only a doctor should be prescribing their usage and dose. It is becoming more common that pharmacological means are being used to improve athlete performance. In some cases the production of performance enhancers is solely for financial benefits, or for the improvement of private laboratories, rather than for the benefit of the athlete. However, there are physiological means which have been carefully examined and their effects are proven.

10. Doping

Everything that an athlete uses for increased recuperation must be examined and only a doctor can prescribe usage by an athlete. Natural, physiological methods of improving performance sometimes reach a plateau, and so athletes use other artificial methods to improve performance. These artificial means are pharmacological substances which athletes use for improvement of psycho-physical abilities, and are called doping substances. Doping, therefore, is the improvement of sport performance through

Doping is contrary to fair play because all sportsmen should compete under the same circumstances.

unnatural methods. From a biological aspect doping is unnatural and in many circumstances is risky for life. It is contrary to fair play, because all athletes should compete under the same circumstances. Technological advances have aided in the detection of doping methods. But the

threat of punishment still does not prevent athletes from doping. It is important to prove to young people that it is bad to dirty competition with deceit. It is especially hard to convince young people who are trying to play for money of the dangers of doping.

Usage of doping substances is noxious for health. It is not fair towards team mates and coach, towards a doctor who takes care of the health of the athletes, and towards the public who want to watch fair competition with no unnatural superiority of one competitor towards another.



10.1 Definition

Doping is the use of substances and methods intended to improve the performance of a player. Doping poses a risk to health and it goes against sporting ethics. Doping also concerns any person who incites or encourages this practice. For the World Anti-Doping Agency (WADA), doping is defined as one or more violations of the anti-doping regulations:

- The presence of a prohibited substance or its metabolites or markers in a player's bodily specimen.
- Use or attempted use of a prohibited substance or a prohibited method.
- Refusing, or failing without compelling justification, to submit to an anti-doping control.
- Failing to respect the obligation to give information on whereabouts.
- Tampering, or attempting to tamper, with any part of the doping control.
- Possession, administration or trafficking of any prohibited substance or prohibited method.
- Assisting, encouraging, aiding, abetting, covering up or any other type of complicity.

10.2 The Controls

Announced or unannounced doping controls can be carried out during the competitions such as the main official competitions of FIBA for national teams e.g.: Olympic Games, World Championships, Continental Championships, or official FIBA cups, tournaments, and club competitions organized by national federations, and international tournaments officially recognized by FIBA, for clubs and national teams. Doping controls can also be done outside of competitions by WADA, national Anti-doping agencies, FIBA or national federations during training, camps, scrimmages, practices, etc. or at any time during the year. The NF doctor must be aware of the FIBA Internal Regulations governing Doping Control and have the latest WADA list of prohibited substances and methods and inform players in advance about procedure and consequences.

10.3 Traps

Players should be aware of the traps especially in the cases of using medicaments against asthma and colds and using "Recreational" drugs and nutritional supplements. Medication against asthma and colds may contain prohibited substances. The use of certain medications to treat asthma is permitted but requires a Therapeutic Use Exemption (TUE). The majority of recreational drugs can lead to positive test results. The use of nutritional supplements can also lead to positive test results. These products can contain prohibited substances (Nandrolone, Ephedra), which are not mentioned on the packaging.

10.4 General Procedure

After the player has been selected for a doping control and undergoes the test, samples collected are packed and sealed into a secured transport bag which is transported to the laboratory, where sample A is analyzed and sample B is stored securely. If the test of sample A is positive FIBA notifies the player that an anti-doping rule has been violated and the player will be immediately suspended. He shall have the right to request an analysis of the B sample, in the same laboratory and to be present at such an analysis.

If the test of sample B is positive, the player is informed about the application of sanctions.



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The player has the right to be heard by the Anti-Doping body of FIBA and can appeal against the judgment (Appeals Commission of FIBA - Court of Arbitration for Sport, Lausanne). If the result of the test of sample B does not confirm the positive test, the anti-doping violation is void. Sanctions will be applied depending on the nature of the anti-doping violation. The initial sanction for a first doping offence is a 2-year period of ineligibility. For a second offence, the player would be banned for life. Sanctions may be reduced if the player can prove that exceptional circumstances exist or in the case of the presence of certain specified substances.

It is important to know that the use of cannabinoids (marijuana, hashish) is subject to sanctions and that the sanctions for trafficking, prescription, possession and other anti-doping rule violations are more severe.

10.5 Players' Responsibilities and Rights

The player must respect sporting ethics and must be sensitive to and informed about doping, its consequences and its damaging effects. The more famous the player is, the more he is a "role model" for young people. His commitment against doping is an example to others.

It is the responsibility of the athlete:

- To understand and respect the anti-doping regulations of FIBA.
- To know the list of banned substances and methods, to be aware of all substances taken into his body orally, anally, through the skin, by injection or inhaled that might contain prohibited substances.
- To be certain that anything which he consumes (or which he is advised to consume) is permitted.
- To be particularly careful with nutritional supplements and herbal preparations which can contain prohibited substances.

It is the right of the athlete:

- To be informed in writing of his selection for an anti-doping control.
- To be informed of the compulsory nature of an anti-doping control and the risk of sanction in the case of a refusal to submit to the test.
- To provide explanations for his absence.
- To be accompanied (by the team doctor and, if necessary, by an interpreter).
- To be supervised, during the collection of urine, by a person of the same sex.
- To verify the code numbers, the seal and the impregnability of the bottles as well as to assure himself that his identity is not reproduced on the document intended for the laboratory (pink copy).
- To participate in the official medal ceremonies.
- To speak to the media on condition that he arrives at the Doping Control Station within the given time (maximum 15 minutes).
- To receive (via the team doctor) a copy of the anti-doping control report (green copy).
- To comment on the anti-doping control report.
- To be informed of a positive result of sample A and to request the analysis of sample B.



- To attend the opening and analysis of sample B.
- To have a hearing, a fair judgment and to be informed of any consequent sanctions.
- To appeal any decisions to FIBA and ultimately to the Court of Arbitration for Sport.

10.6 Prohibited List in the Framework of FIBA Competitions (National Teams and clubs)

Prohibited substances:

1. Stimulants (e.g. amphetamine – ephedrine)
2. Narcotics (e.g. morphine – heroin)
3. Cannabinoids (e.g. hashish – marijuana)
4. Anabolic agents (Anabolic androgenic steroids - e.g. nandrolone, testosterone (except if the concentration is attributable to a pathological or physiological condition and other anabolic agents e.g. clenbuterol)
5. Peptide hormones (e.g. EPO - growth hormone – insulin)
6. Beta – 2 agonists (Salbutamol, salmeterol, formoterol and terbutaline are permitted by inhalation if a T.U.E. has been granted - e.g. asthma)
7. Agents with anti-estrogenic activity (only in males)
8. Masking agents (e.g. diuretics)
9. Glucocorticosteroids (medication may not be taken, orally, rectally or by intravenous or intramuscular administration, unless a T.U.E has been granted and other administration routes require a medical notification/abbreviated T.U.E.).

Prohibited Methods:

1. Enhancement of oxygen transfer
2. Pharmacological, chemical and physical manipulation
3. Gene doping

T.U.E: Therapeutical Use Exemption

The use of otherwise prohibited medications may be permitted to treat disease or medical conditions (e.g.: asthma – diabetes) following a review of an application for an exemption (TUE). Such applications must be submitted to FIBA using the appropriate forms.

Be careful and keep in mind that this list is regularly amended and it is important that players and doctors refer to the list currently in force. For that purpose, they should consult the web sites of these organizations: WADA (www.wada-ama.org), IOC (www.olympic.org), FIBA (www.fiba.com), or the National Anti-Doping Agencies, the National Olympic Committees or the National Basketball Federations. The above list does not replace the official WADA list of prohibited substances and methods.

Note: For further information, the FIBA Internal Regulations governing Doping Control can be consulted on the FIBA web site: www.fiba.com