

# **Essentials of Sports Injury Prevention & Rehabilitation**

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**Lecture – 6**

## **Pre Medical Examination**

Good morning friends, I am your faculty Dr. Atul Sharma. During this week, we will first study about the pre-medical examination of athletes, about the warm up, about the cool down, and conditioning of the athlete. So, they all are interrelated and in our lecture first, we will discuss their examination, the importance of the examination, and the various parts of the examination. So, first let us start with the pre-participation examination of the athletes. We will discuss under following headings: significance of physical examination, types of physical examinations, importance of physical examination, and drawbacks of the physical examinations. So, everything has a plus point also, so there are some negative points also.

So, we will discuss all these things during these lectures. So, what is the significance of the medical examination of the athletes? So, first and foremost, the injury prevention or early detection of injuries, and make the sports safer. There are lots of people who are scared about so many games, and when they come to know that they are not so serious, and there are no serious injuries and if serious injuries occur, it is very minimal or very rare in few of the games like face will be damaged and so many other things.

But, as you go through the injury portion of boxing or some other games, you see there are very less serious injuries, very less; like concussion, loss of life, loss of limb. These injuries are generally not very serious and very rare. So, from where we come to know about these data, this data comes from our regular medical examination, through regular medical examination, and with the help of these examinations, we can diagnose things early and we can save that athlete also. And the second thing is to monitor the injury patterns. While during medical examination, either whatever type of medical examination, we come to know the injury patterns of that particular game. Like soccer, we come to know which part or which type of injury is more common.

In the sprinting activities, hamstring injuries are more common; or in the combat games, which kind of injuries are more common. It is during the competition or during the conditioning time. So, we also know about their injury patterns. And with the help of these, we can do research work for the betterment of that particular sport, for the betterment of the athlete, we can do research on how to enhance the performance of that athlete or that particular sport. And

simultaneously, we also come to know the risk factors of the games and where we can save, if we put some safeguard, so we can avoid those injuries.

So, medical examination is very crucial and very, very important for any game. So, there are three types of medical examinations. First is the periodic medical examination, second is pre-participation medical examination, and the third one is post-participation examination. As the name automatically signifies periodic; after a period. Generally, it is once in a year or twice a year.

Pre-participation: just before any major competition, and post-participation after every competition. So, periodic medical examinations. Periodic medical examination is a kind of a thorough medical examination, and it generally occurs during the off seasons. And there is an off season and every sporting body has its own format, its own format and there is no common consensus about the medical examination pattern of the periodic medical examination. These medical examinations or format depends upon the country, clubs and the types of sports.

Like in European countries, ECG is a mandatory part of every medical examination. They do not want to do cardiothoracic examination or cardiovascular examination, the basic thing is ECG. And in the Southeast Asian countries where the cost factor is quite high, so they do selective electrocardiography or ECG. So, it depends on the country, it depends on how rich that governing sports body is. So, the periodic medical examination is generally conducted during the off seasons, when the season is finished and the new season is about to come.

So, the pre-participation generally starts with the beginning of the season to rule out injuries in the athlete or to monitor injury. If the athlete is suffering from some injury, whether how is he progressing, how is the injury, whether at what time he will be able to participate in his next tournament; and for the research purposes. For the post-participation, post-participation if some competition has just finished, so if that athlete or that part of the team has suffered from some injury, so their initial screening and their monitoring has to be done. So, what are the procedures for medical examination, and what are the parts of medical examination? Generally, various sports bodies have different-different patterns, but in general the common sequences remain like which they follow is history of athlete, the general physical examination, musculoskeletal examination, cardiac assessment, then the physiological test and the lab investigation. Lab investigation and physiological test comes under human performance lab, and the cardiac, general and the history it will be done by the medical setup. Both these are located in the medical area, or the medical examination setup, or the health facilities of that particular club or the hospital.

So, what do you understand about the history of the athlete? History is not about the illnesses, it starts with at what age he has started playing, at what age he became an amateur or he became

a professional athlete, and when he started taking his game seriously; whether earlier he was playing some other game and now he has shifted. So, there are so many things which have to be recorded. So, his training history, his current sports history and how many tournaments and what was his earlier performance will be noted. According to that, the level of the athlete and training and the physical fitness of that athlete can be monitored. Then about the acute illnesses which he has suffered during last one year or during that period, the previous medical examination, previous periodic medical examination or previous prior participation medical examination and this current medical examination like fever, diarrhea or any other illnesses or any if he had some trauma during last game; whether it is a very minor trauma or it is a major trauma.

So, whether he has recovered from that, or he is still having some issue while practicing. So, if there is any recent history of travel which can be monitored. He can be monitored for the acute illnesses, like the infectious jaundice or the infectious hepatitis or infectious diarrhea or gastroenteritis or whether he has taken some vaccine or not. So, all these things have to be recorded, plus if he has suffered some close ones loss or he has suffered some monetary loss or, it comes under the psychological trauma or a major setback, or he has lost his last game with a novice. So, that is a major setback for an elite athlete or whether he has undergone some major surgery. So, these things come under recent history.

So, first is training history about himself whether he is a vegetarian, non-vegetarian, he is a teetotaler or occasional alcohol or whether he consumes smoking or for how many years he is playing for how earlier he was playing kushti, now he is shifted to judo or earlier he was playing boxing or earlier he was playing field hockey and now he is shifted to football. Then any injury, acute illness, any psychological trauma, loss of near and dear ones or any recent surgery like hernia, hydrocele or fracture. So, under this topic we record each and every part of his illnesses or training part. So, under general physical examination, we do the general physical examination of that particular athlete. We start with the height of the athlete, weight of athlete and then the temperature whether he is having fever or not, how much is his resting pulse, his current pulse all in the standing position, in the lying position. Then the respiratory rate and, the blood pressure in the standing and in the lying position. Then we do his other systemic examination.

In the general physical examination, we also do tests to rule out the anemia, jaundice or any clubbing or any deformity. Then we start with systemic examination. Systemic examination starts with the CVS and respiratory system, and in this we do auscultation, resting auscultation and also after a little bit of exertion. With the help of a stethoscope, we listen to the heartbeat, we listen to the respiratory rate and the breathing, whether it is a vesicular breathing or some other kind of breathing, whether it is a normal breathing sound or there are some musical notes that are also audible. So, by this we can rule out that he is not suffering from some kind of asthma or some other lung diseases; and via the heartbeat, we can rule out, we rule out there is

no murmur, there is no clicks, and there is no abnormal sound audible from the heart, especially the murmurs.

Then the systemic examination: we do the palpation also and percussion also, we rule out any organomegaly of the abdomen like hepatomegaly, splenomegaly or some lump of the or inside the abdomen area. We can rule out any kind of hernia, any kind of hydrocele and if there is any, a lump is not there. Then we do the neural and musculoskeletal examination, where we do an examination of all the joints, all the bones, and the range of motion; and we ask him to walk with eye closed and with eye open. By that, we rule out any major neurological deficit or any kind of proprioceptive deficit. Till now we have studied about the significance of medical examination, why it has to be done, what kind of medical examinations are there: periodic, pre-participation and post-participation. When the pre-periodic medical examination is generally conducted during the off-season, there is no common fabric and it depends on the country, clubs and type of sports.

The pre-participation generally has to be done at the beginning of the season to rule out injury, to monitor injury, and for the research purposes, and post-participation, for the injury assessment and research purposes.

Procedure: there is no single format. History: in history we do the training history, sporting history and routine history. The physical examination, cardiac assessment, physiological test and lab investigation. In history we ask about as we discussed, and then the general physical examination where we do height, weight, temperature, pulse, respiration, blood pressure or palpation, percussion, auscultation and the range of motion of the entire joint. So, in the next lecture we will study about the rest of our medical examination. Thank you.