

Essentials of Sports Injury Prevention & Rehabilitation

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Lecture - 25

Sport-Specific Rehabilitation, Principles and Techniques - I

Good afternoon friends, myself Dr. Atul. I am your faculty for the Essentials of Sports Injury Prevention and Rehabilitation Medicine. So, it is week 6 now, lecture 1st. So, this week we are going to learn about the sports injuries, how many types and what are the principles of rehabilitation and we will also discuss about the common injuries, and their management. So, now let us start with the sports injuries.

I just want to ask are these injuries are different from the normal injuries? No, these injuries are similar to what we face day to day, or either any common man suffers. The only difference between the common injuries which another person suffers, sports persons are more prone to these injuries. As per their specific requirements.

So, we can divide these sports injuries into two types: acute injuries and overuse injuries. Acute injuries, like when there is a single episode of trauma/any overloading or single exposure and that is we say acute. and when we say chronic there is a continuous overloading or continuous minor trauma which leads to the injuries which we say overuse. Overuse injuries are more prone in sportsmen, and acute injuries are common in the normal person, any civilian or any other person. Sportsmen also suffer these injuries, in the sports are more common. So, what are the common acute injuries? You might have heard hamstring sprain, abrasions or fractures are quite common during playing and they all occur with a single episode of trauma; and overuse injuries when minor trauma is overloading is due to faulty.

Overuse injury generally occurs due to prolonged overdose of overloading or due to faulty intrinsic or extrinsic factors. Intrinsic factors like his malalignment of joints, his weak musculatures, his deficiency of vitamin D, calcium; and extrinsic factors like running on hard surface, using inappropriate gears/equipment or wear and teared shoes, they all are extrinsic factors and when the these micro trauma increases and simultaneously remodeling of the body is ongoing process and when overloading is too much then these injuries occurs. So, like medial tibial stress syndrome, tendinopathies, callous formation they all are examples of overuse injuries. So, first we study the common injuries, in this table you can see in the bones acute injuries are fracture, periosteal contusion. What is periosteal contusion? Those superficial bone

and you got a stuck or something hit on the bone there will be a small swelling that is a periosteal reaction. It is some sort of contusion over the periosteum or the superficial bone and the overuse injuries of bones is stress injuries like stress reactions, stress fracture, the osteitis, periostitis, apophysitis and enthesopathy, osteophytes and bone spurs. So, these are the common bone injuries acute simultaneously overuse injuries. At the joint commonly dislocation or subluxation and the overuse is instability or synovitis, osteoarthritis because of joint recurrent dislocation or subluxations. So, if dislocation occurs once and the person strengthens up the dynamic and static stabilizers of that particular joint. So, the dislocation does not occur or reoccur then it is an acute injury and chances of any further trauma or overuse injuries are less.

But, if recurrence of dislocations keep occurring then chances of overuse injuries like instability and osteoarthritis at later age can be developed. So, stress over the tendon increases too much and it cannot hold it longer than that tendon got rupture, and if it is complete then we say complete tear and if few fibers has broken then we say grade 1, grade 2 and grade 3 that is complete tear; and some and the chronic injury of the tendon is tendinopathy like golfer's elbow, tennis elbow or like that. In the muscles the acute injuries are strain, tear or contusion. When some extensive acutely damaged muscles like some ball hit our thigh muscles and a contusion occurs or a collection of blood occurs on the thigh muscles it is called contusion. It is a single episode. When there is a chronic injury is there, regular trauma or regular insult to that body part is going on and that remodeling, or tissue healing is not occurring that causes the overuse injuries like chronic compartment syndrome and DOMS.

DOMS though it appears after a single episode, but it is a kind of overuse. Why overuse? we have crossed the limit of the muscle in a single episode. So, the pain that is delayed onset muscle soreness appears after 24 hours to 48 hours. So, it also comes in the overuse injury though it generally it appears at the beginning of when we change some exercise or we change some of our exercise pattern or we include some new exercise that uses a different fibres of muscles; or a person who is less in musculature he start doing some sort of exercise. So, this DOMS that is delayed onset muscle soreness occurs, and for the skin acute injuries any kind of blisters, abrasions or lacerations, or in the overuse injuries then chronic irritation is there like when your shoes are not fit to your size and you keep wearing that. So, it makes a blister. Callous formation; thickening of the soft skin becomes soft skin is known as callous.

So, these are the common sports injuries which you might have heard quite commonly. Now we will discuss one by one why these acute injuries occur and what is the initial treatment and how one can prevent those injuries. So, how we can prevent the acute injuries ? We can prevent acute injuries by following the rules of that particular sports; that is the guideline which is given. Do not foul play the game, sometimes while playing we silently hit our opponent that is some sort of cheating or some sort of not a good thing, and by bargaining this that your fellow sportsman got injured or you have you have might have seen so many examples when in the football or any

other competitive games where two teams are participating like football, hockey they hit their fellow player intentionally and the other person got injured, after that referee put a red card or yellow card or some sort of penalty he gives but the injuries to the other sportsman has already occurred. So, if you follow the rules the chances of injuries on the ground will be less. So, when we do proper warm up the chances of injuries are very less, and performance of particular sportsmen gets enhanced. As we have seen in the previous lectures.

So, warm up at least for 5 to 10 minutes or in the competition it depends on the competition or a normal training; and warm up is also planned accordingly. For normal training it is different, for the pre competition it is different, for the competition it is totally different. So, during competition you are not going to exhaust yourself completely, you have to save your energy and your "josh" for the competition. So, the warm up for the competition phase will be different. So, another way we can protect ourselves is by wearing protective gear like a kneecap or helmet or a proper size of your gloves, your knee pads, your genital guards.

So, all these equipment are to prevent you from the injuries; that is acute injuries. They also cause some injuries if these equipment are not properly fit, like if you are using tightly fit shoes. So it might give you a blister or it might affect your performance. So, selection of gear and wearing proper gear is also important. As I have mentioned, you respect your fellow player. So, it is very much required and important to reduce the injury rate on the playgrounds. Timely replace your gears as every shoe or every racket comes with a life and the wear tear part is also there. So, you have to change your sportswear and sports gear or equipment time to time, otherwise if you are playing with the faulty equipment you will be landing in the some sort of injuries, like a person or an athlete who is running for almost a year or plus with the same shoes and he is not changing his shoes.

So, he is prone for injuries because every shoes comes with a particular life, that is, this much of kilometer he has to run and that much of six month is the gel will remain a normal other after that that gel cushion will be dry and it will not give that much cushion or that much absorption of the stress or from the ground reaction force. So, these things athletes have to keep in mind and he can prevent acute injuries as well as overuse injuries also. While you are practicing or you are doing training, you must include your plyometric and proprioceptive exercise at least twice in your training schedule. These exercises coordinate your mind and body, and prepare to increase your agility and your perception or your awareness about your body. So, while you suddenly fall, these plyometric and proprioceptive exercises make you aware, and so you can save yourself while falling down and the less your reaction time will be so fast so you can save yourself from injuries. Hydration and nutrition is also a part of your injury prevention. If you are dehydrated, your performance will be down, your decision-making power will be less; so you have to make yourself hydrated. How can you check if you are well hydrated or not? You just see the color of your urine; if it is clear water like it means you are properly hydrated, or if color of urine is dark lemon yellow, it means you are dehydrated; so you have to keep checking yourself

regularly, and the slightest amount of thirst gives you the indication that you are already dehydrated.

So, keep taking water intake or a fluid regularly, it makes you hydrated and your decision power during the game remains at topmost. Nutrition: also if you are exerting more and taking a less amount, your muscles and body are prone for injuries because your repair part is not working properly. So, when we are not taking nutrition properly, then the protein required to replenish the damaged muscle or for the repairing of the muscles is not supplied properly. So, the wear tear will be more and the remodeling part or replenishment of the or the repairing of muscles will be affected. So, you will be prone to injuries. If you are not taking a proper calcium or a proper minor element then your performance will be affected. As I mentioned to you during your previous slide, follow the rules and do respect your fellow players and play intelligently.

So, you play intelligently means, just before some very important competition and you injure yourself while doing your training. So, you have not planned your activity or you have not intelligently done your preparation. So, you got injured. So, when some serious or important tournament is there, do training in a manner that your competitive phase or your competitive fitness remain a hundred percent.

You cannot take chances. So, you do more or more skill training rather than strengthening training and you can do some sort of psychological training also under which you can mentally prepare yourself and after so much training you require relaxation also, and so your body gets time for recovery and your brain gets relaxed. So, your recovery will be fast and these relaxation exercises give you time to plan your activity also.