

Essentials of Sports Injury Prevention & Rehabilitation

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Lecture – 6

Flexibility

Good morning students, myself Dr. Atul Sharma. I am your faculty for Injury Prevention and Rehabilitation. Today is our week 2 and lecture 3. Till now we have discussed about the role of medical examination, types of medical examination and the warming up, the significance of warm up and what are the benefits of warming up, and the science behind the warm up sessions. Details about the warm up and how to make a program of warming up will be in the strength and conditioning portion of this course.

I have taught you about the science behind the, what is the basic science behind the warming up. Now we are going to another portion of the up, that is flexibility. What is flexibility and the various components or types of flexibility? Flexibility is the measure of range of motion of any joint. Like a person who is able to extend his hand completely up to 180 degree at the elbow level, his hand is fully flexible.

If you put a little bit more pressure, then a little bit of hyper extension will be there up to 3 degree to 5 degree. If there is more than that, it is a hyper flexibility. It might be injurious for his health, or a person who is not able to open his elbow completely up to 180 degree, his flexibility is restricted, and he might be prone for some kind of injuries. So, flexibility is the measure of range of motion of the joints. And by using these exercises, a little bit of flexibility of an individual is increased, and it depends on the type of joint and the various parts, that we will discuss during this, today's lecture.

So, flexibility is measurement or measure of range of motion, and it is of two types: static flexibility and dynamic flexibility. So, in static flexibility, the gravity or the external force comes into play and they do the range of motion activity. Under this, there is no voluntary muscle activation. Like you open your hand or somebody is passively moving your hand. So, in the static activity, there is no voluntary muscle contraction, not in agonist muscles and not the antagonist muscles. For this, external force is required and it is a kind of a passive movement.

While in dynamic flexibility or dynamic, it is active and voluntary movement is required and generally the dynamic flexibility is greater than the static flexibility and requires voluntary

muscle contractions. Like you might have been doing the tricep stretch or the bicep stretch for stretch of the quadriceps. You just lift your head, and stretch your thighs. So, this is a static stability or a cobra pose is a static flexibility exercise for your arms and your lower back and your chest.

And while you are walking and lifting your one leg above chest level, up to chest level is some sort of dynamic flexibility exercise. So, the major question appears is which flexibility exercise has to be chosen for the athlete. Either static, some say static exercise or static flexibility exercises are not good, and some say dynamics are very good. So, it is not like that. It depends on which type of sports you are playing or which training conditions, which training part you are.

Accordingly, those static exercises or dynamic flexibility exercises, one has to choose. Like you are beginning with the, you are just starting your session or you are just choosing your game. So, best is, you start with static stretch exercise, just hold for 15, 10, 15 to 30 seconds and then progress. As you achieve a particular level of your range of motion, then you can progress to dynamic exercises. So, there are various factors which affect the flexibility of the body.

Age, as you grow older, your flexibility reduces. Male or female: females are more flexible than the male. So, it depends on your gender also. Joint structures: major joints like shoulder joint, the range of motion is more, their flexibility is more; and while your wrist joint or your knee joint or your hip joint or your elbow joint has restricted flexibilities. Then the muscle mass: if you have bulky muscles or you are doing bodybuilding, then your flexibility might be compromised.

So, resistance training also affects the flexibility of that particular joint. Like you have seen so many bodybuilders, they do not, they are not able to fully extend their elbows just because they are doing flexion exercises more rather than doing the extensor exercises also. So, their elbow is always in the little bit of flexion. Activity level: If you are doing regular activity, your flexibility will be more. And if you have just started, your flexibility is low or you are occasionally doing some sort of exercise or you are not doing exercises, so your flexibility will be less.

So, all these factors affect your flexibility. Apart from this, your genetics also play a part. Few people are hyper-flexible from the beginning only. So, now the question comes, how many times one has to do flexibility exercise, static exercise, how long he can hold or the dynamic exercises. So, it depends on the various factors which I had just mentioned like age, sex, the types of your exercise, your level of activity, the frequency.

And in general, the static exercise or static stretching exercises or a static flexibility exercise one can hold for 15 to 30 seconds, not more than or beyond that. After that, the benefit is not much, rather sometimes it harms the body. And holding more than 30 seconds, sometimes it negatively affects that joint, or sometimes that particular tendon or ligament gets broken or

weakened also. So, these are the flexibility exercises, their significance and the intensity. Now, in the next part, we will study about, or discuss about the conditioning.

What is strength and conditioning of the body or the conditioning? Conditioning is a part of periodization, under which we prepare our body for the upcoming or the particular sports. So, our performance or our body can resist, our body can be prepared for that sporting activity or that competition. As we are aware, every aspect of sports is completely scientifically designed and this phase of periodization prepares athletes to prepare for upcoming seasons. During this phase, he trains different aspects of sports like endurance, speed, strength, agility, flexibility. So, all these aspects are a part of the conditioning event.

So, today we have discussed about the flexibility, what is flexibility, how many types of flexibility and what is the benefit of flexibility and conditioning, and what is the significance of conditioning and it is a part of your periodization cycle only.