

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

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### **Lecture - 33**

#### **Injury prevention in adolescent athletes & Women athletes - Part 04**

In this lecture, we will discuss about pregnancy and exercise. We will discuss how exercise affects the pregnancy, and doing exercise during pregnancy and what are the beneficial effects of an exercise on a normal housewife or a professional athlete. Pregnancy is a normal physiological phenomena where one sperm and ovum fertilize and they develop into a fetus and grow in the womb of a woman inside the uterus. So, it is a normal physiological phenomena. It is not a disease.

It is a natural phenomenon. So, one should not be considered or one should not treat pregnancy as a disease. A sportswoman who is a high performance athlete. She just conceived. So, two different headings, maternal health and fetal health.

So, first we discuss about the maternal health and pregnancy. As the pregnancy goes for some time, the pregnancy is diagnosed after the first trimester of the pregnancy or as athletes, they are used to delay their menses. Generally, they are because of excessive exercises and I just brief you about their delayed menstrual cycles. They don't know if it's a natural delay, amenorrhea or it's because of pregnancy. Sometimes they are diagnosed as a case of their performance deteriorating, and then a doctor or they themselves have checked up, did a pregnancy test and they are surprised with the pregnancy, or it might be a planned pregnancy.

So, first three months or one has to be extra careful, and as she is a professional athlete, she can continue with her exercises up to the second trimester. But after that, if the pregnancy is non complicated, like there is no discharge, or there is no incompetency of the cervix or issue to the child or any other issue to the fetus which is affecting her or his growth inside. So, one has to periodically check the growth of the fetus, and as the fetus grows in size, the body biomechanics also changes, and the load over the lower back of the lower lumbar vertebra and the sacrum region increases. So there might be chances of lower back ache related issues or lower back pain related issues. And, now we discuss about the fetal health. If the fetus undergoes dehydration, increase in body temperature, the chances of neural tube defects are also there.

So, when an athlete has conceived, she has to be extra careful about her training and her kid also, her fetus. So, she should not be advised to exercise in a hot humid environment where the temperature goes quite high and the chances of dehydration are quite high. So, the athlete has to keep in mind doing training in a cooler or colder environment. So, those damaging effects do not occur on the kid. And she has to maintain her proper diet, she has to take extra 300 to 400 calories, or more as per the advice of the doctor, because that growing fetus also requires some energy apart from whatever energy she requires for her strengthening and her body.

Apart from that, she also requires additional energy or extra calories for the growth of the fetus. And, when we talk about the housewives, those who are not doing any extra athletic activities or like that, in those ladies doing exercise during pregnancy is quite beneficial, and doing exercise at that particular time it improves their gestational health also, and it relieves from certain disorders which are generally encountered like gestational diabetes, preeclampsia or lower back ache. Doing these exercises during pregnancy improves their musculoskeletal strength, and the water retention also reduces and they have less chances of gaining extra weight as compared to the females who are not doing exercise during the pregnancy. And, the health of a kid can also be improved, like if they do exercise, the circulation of the body is well regulated, their energy intake will also increase and the child will also get good nutrition. I just told you about these fetal injuries that occur in the female athletes when, if an elite athlete is doing exercise, how it is going to affect the health of a fetus and during this pregnancy? Those who are involved in close combat sports, they should avoid these sports where close combat or close chances of close contact is there, so it might affect the health of a fetus. It may lead to the premature delivery also because of high impact injuries, like I just mentioned intrauterine growth retardation, because if the athlete because of performance anxiety if she is not eating well or if she is continuously doing exercise in a hot and humid environment, the child growth may be retarded and the fetus maybe go under distress, and there might be chances of excessive temperature, the neural tube defects may also be there. So now, we discuss about the advantages of exercise during pregnancy. The advantages I just mentioned are that, in a normal lady who is not an athlete, there are less chances of gaining extra weight, and those who have not done exercise before the pregnancy but they are doing exercise during this period, they are better able to cope with the labor pain and labor issues.

I just mentioned there are less chances of gestational diabetes, and reduced chances of preeclampsia also and there are certain things or certain diseases where the list is quite extended but I have just noted down a few diseases where absolute contraindications are there, and relative contraindications are also there. These are heart diseases, if a lady is suffering from heart disease, exercise should not be done, if placenta previa is diagnosed after 26 weeks of pregnancy, exercise should not be allowed. If a cervix is incompetent, like there is a history of leakage of amniotic fluid or a bleeding in between or during the pregnancy, then the exercise should not be continued. And, in multiple gestation, like when there is a twin pregnancy or

more pregnancy, the exercise is as dangerous as it may induce early labor also. If there is a ruptured membrane, amniotic fluid leakage is there so exercise should not be conducted. Anemia is a relative contraindication, if the anemia is improved then one can do exercise.

Why anemia is a relative? is the time of anemia if already the body demand is quite high and the heart rate is quite high, when the patient remains in anemia and if she again exerts more, the chances of fetal distress may be increased and the ill effects on the heart, chances of heart failure may be increased. Morbid obesity is again a contraindication, but it is a relative, if she starts doing a little bit of exercise and if she is comfortable and later on if she is able to bear her own weight, then it should be allowed and gradually it is to be in a progressive manner. Obesity or morbid obesity and if she conceives, it is already a prize pregnancy and extra care has to be provided during this pregnancy. So, these are the absolute and relative contraindications of a few of the examples. The list is quite long, and it cannot be covered in such a short duration. So, in the next lecture, we will study about the types of exercises and their benefits. Thank you.