

Gender & Sport Related Differences in Electrocardiogram & Pre-Participation Exams (PPE) in College Age Athletes

Sarah Fulfer, J. Cvikel, J. Harp, B. Garcia, S. Simpson, J. Priest, P. Rodriguez, Jennifer Blevins-McNaughton

Clinical Exercise Research Facility; Department of Kinesiology; Tarleton State University; Stephenville, TX

Category: Masters

Advisor/ Mentor: Blevins-McNaughton, Jennifer (jblevins@tarleton.edu)

ABSTRACT:

After undergoing the NCAA required pre-participation physical exam, a NCAA Division II Women's basketball player was reported to have abnormalities on her resting 12-Lead ECG. The purpose of further evaluating these abnormalities was to determine what precautions, if any, might be necessary prior to continuing intense physical activity as a collegiate basketball player. The athlete was 19 years old (WT=137 lbs, HT=63 in) her freshman year. The athlete reported being fatigued often during practice although no other symptoms were noted. Her resting ECG showed Second Degree Type I AV block (HR=40 bpm), which led our clinical physiologists to evaluate further. An exercise electrocardiogram was then administered to test the subject's reaction to stress. Second Degree Type 1 AV block was present at HR <80 bpm. At a heart rate range of 80-100 bpm, the rhythm switched to 1st Degree AV block. Once the heart rate exceeded 100 bpm, the athlete's rhythm converted to sinus tachycardia. During the exercise test, first degree AV block resolved during recovery when the heart rate fell below 100 bpm. The athlete was also referred to her cardiologist who cleared her for normal vigorous athletic competition. With coaches claiming the athlete tends to "lag behind" in practice and workouts, it is possible that fatigue may be a result of an irregular rhythm at a heart rate of <100 bpm. However, the athlete's physician assured these abnormalities are likely secondary to "high vagal tone" from being a well-trained athlete.