1106-05-72 **Nathan Cahill**, School of Mathematical Sciences, Rochester Institute of Technology, Rochester, NY 14623, **Anthony Harkin**, School of Mathematical Sciences, Rochester Institute of Technology, Rochester, NY 14623, and **Darren A Narayan*** (dansma@rit.edu), University of Rochester, Rochester, 14627. *Modeling functional connectivity of the brains of athletes.* Preliminary report.

Over the past year the effects of concussions on athletes has gained a greater awareness. Our focus will be on using graph theory to analyze resting state functional MRI scans. In these scans the patient is at rest but the brain is still very active. When regions of the brain are stimulated there is a local influx of blood and oxygen. By monitoring these changes in oxygen levels, we can construct a model of the brain network. In our model two regions of the brain are linked if there is significant correlation in the changes in oxygen levels in the respective regions. We will show how metrics from graph theory, such as clustering coefficients, betweenness centrality, and modularity are used to analyze data from functional MRI scans of football players. (Received June 27, 2014)