

Abstract Submitted  
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**Diffusion Weighted MRI and MRS to Differentiate Radiation Necrosis and Recurrent Disease in Gliomas** LARS EWELL, Medical Physics  
— A difficulty encountered in the diagnosis of patients with gliomas is the differentiation between recurrent disease and Radiation Induced Necrosis (RIN). Both can appear as enhancing lesions on a typical T2 weighted MRI scan. Magnetic Resonance Spectroscopy (MRS) and Diffusion Weighted MRI (DWMRI) have the potential to be helpful regarding this differentiation. MRS has the ability to measure the concentration of brain metabolites, such as Choline, Creatin and N- Acetyl Aspartate, the ratios of which have been shown to discriminate between RIN and recurrent disease. DWMRI has been linked via a rise in the Apparent Diffusion Coefficient (ADC) to successful treatment of disease. Using both of these complementary non-invasive imaging modalities, we intend to initiate an imaging protocol whereby we will study how best to combine metabolite ratios and ADC values to obtain the most useful information in the least amount of scan time. We will look for correlations over time between ADC values, and MRS, among different sized voxels.

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