Quantification of cardiac motion and mechanics is becoming increasingly important in the diagnosis and monitoring of heart disease. We will first discuss a specific application of this field which uses image post-processing techniques to quantify cardiac mechanics in patients with congenital heart disease. The ultimate goal of this work is to try to understand and treat cardiac dysfunction in this growing patient population. The second part of the talk will discuss the use of MRI to better understand cardiac remodeling and function in the setting of pediatric obesity. Finally, the third part of the talk will focus on the improvement of advanced cardiac magnetic resonance image acquisition techniques for quantification of cardiac motion and mechanics.