The object of this procedure was to determine if there was a significant difference between the strains of the circumference in the main pulmonary artery (MPA) during systole and diastole between a normal patient and a patient who has pulmonary hypertension (PHT). There will be a measurable difference in the circumference of the systolic and diastolic stages in normal patients and PHT patients in the MPA. A custom Matlab program was created to interpret magnetic resonance imaging (MRI) of the MPA at systole and diastole at different time points and to apply a mathematical equation using the centroid. The program will also use a mathematical equation to find the average strain between systole and diastole in the two sets of patients. It was found that there was a .10 level of significance between the average strain between systole and diastole in normal patients and patients that have pulmonary hypertension. This value is quite high for the medical world and would require professional attention to develop a pump that increases blood flow with those who have pulmonary hypertension. The level of significance could have been more exact by using the same number of patients, as I had three normal and seven PHT patients.