On Tuesday, we started working on our vertical rail support modifications. We were able to move the aluminum support beam for the vertical rail higher up on the vertical rail in an attempt to stop the bending of the vertical rail. We move the support almost to the top of the rail, but not all the way since this would not fit onto the trolley. We also had to make a new stopper for the bottom of the rail since our old stopper would not work after these modifications. We built a stopper using some spare parts in the senior design lab, but this stopper didn’t work out. Due to this on Wednesday and Thursday a new stopper was made by Kelly and Caitlin. The stopper was made using the same aluminum square rail as was used for the support rail. We extended the stopper to below the vertical rail by using a smaller aluminum square piping to extend below the rail and then attaching the stopper to that. This new stopper will add more useful jumping room on the vertical rail. New bolts had to be purchased as well as some new washers for this modification.

On Friday as a team we went to Dr. Peterson’s lab at the health center to complete our testing of the Assistive Jumping Device. We had to first install the vertical rail back onto the trolley bracket. Then we had to attach the harness system and bungees. We had to modify the support
rail and cut some of the length off of the top of the rail to make it fit, but luckily we were able to use a saw in Dr. Peterson’s lab to do this and were able to go through with our testing. Our aim was to see if the bending of the vertical rail will be counteracted with our new support system. We first used weights to determine if the device was safe for a human subject. Here we used 60 pounds of weight and noticed no bending in the vertical rail and determined the setup was suitable for Kelly to get into. We put Kelly into the device and there was still no bending of the vertical rail. We have successfully overcome the rail bending issue.

![Figure1. AJD installed on Dr. Peterson’s crane with simulated weight](image)
We have also noticed that the trolley sways on the I-beam of the trolley. This issue is attributed to the fact that the load wasn’t centered properly on the trolley and that the trolley wasn’t fully tightened onto the I-beam. These are issues which we have discussed extensively and we will have to work out when installing the device at the Steinglen’s.

Our crane has been ordered now. The expected date of shipping is the 20th of April, which is a major issue due to our deadlines. We are still awaiting the dates for the foundation work from the Steinglen’s. The AJD is almost done but achieving our deadline may be an issue due to delivery dates of the crane. Other than that we only have to bundle the bungee cords to keep them together during use. I worked about 9 hours in total on the project this week.