Introduction & Background

The closed loop orthotic robotic limbs is a project sponsored by National Science Foundation (NFS) to develop new technologies and machinery to help people with physical diseases and problems in the locomotion system. It consists in design, model and build a structure adapted to the treadmill, capable to hold the patient during his rehab, avoiding any fall and with an actual and comfortable design. The project aim is to provide a stiff and strong structure that will allow to work with the ErgoBrace as it is going to be and important part in the rehab process.

NEEDS:
• Economic and functional structure
• Adaptable to any treadmill
• Comfortable and safe holding system
• Strong and reliable system to hold the ErgoBrace

Final Design

• The final structure was made mostly of steel and divided in three parts, to allow a major maneuverability.
• The ErgoBrace will be adapted to the harness by simple elastic straps to get a complete, reliable and easy-to-use system all incorporated in the patient’s body, avoiding external, uncomfortable and heavy subjection devices.

Conclusions and Results

From the tests, these are the following conclusions that can be stated:
• The system allows the patient to perform the rehabilitation exercises with total freedom.
• If the patient, for whatever reason, falls, the system stays firm and stable. Causing no harm to the patient. The prototype can also be used without the ergobrace, this provides a major exercise spectrum to be performed for different illnesses.