Alternative Designs

Assistive Jumping Device

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Design 1: Trampoline Full Housing Unit

This assistive jumping device will enable a full housing unit around the trampoline to aid the user in trampoline jumping. A system of bungee cords will assist in the control and support of the user’s jump as well as a harness around the user’s torso.

The housing unit will consist of a framework housed around the trampoline. It will be a cubed shaped frame with the six open sides outlined by metal poles. The size of the system will encompass the entire trampoline unit with additional space between the frame of the trampoline and the frame of the housing unit. Since the size of the system is large, the base itself will provide for the stability of the unit. Furthermore, the support beams on the base of the system (the bottom of the cube) will provide additional stability to the unit. Since the system is around the entire trampoline, the user will be able to have full access to jump on all sections of the trampoline. The sides of the structure will enable telescoping poles to accommodate the growth of the user. The telescoping feature must be on all four sides of the structure to ensure the system is leveled. The telescoping pole will utilize a pin and lock system to safely lock the height of the poles in place. The pin will easily allow the user to remove and lock while changing the height of the structure.

The frame will be constructed of rounded metal poles preferably of steel. The material will be coated to protect the frame from the outdoor weather elements it will encounter. In addition, the rounded poles will provide for an additional measure of safety to the user in case of contact. In addition, foam padding will be added to the sides of the structure where contact would be most common. This would soften the force of contact if the beams were hit during jumping.

A system of bungee cords will be used to support and control the jumping of the user. A series of four bungee cords will be attached to the upper four corners of the framework above the trampoline on one end and the user’s harness on the other. The four cords will have enough length to reach above the user’s torso to allow for proper increase height while jumping.

To maintain the support of the user, a harness will be attached to the bungee cords. The harness will cover the torso to keep the user in an upright position. It will look similar to a life jacket but with an additional lower portion to support the lower back. The lower portion will also have openings underneath for the user’s legs to allow for normal propelling of the legs during jumping.

Since the harness will be removable from the system, carabineers will be used. The carabineers will allow the user to put the harness on before being placed onto the trampoline. From there, the user, already wearing the harness, is able to attach the clips from the bungee cords to the harness to begin usage. This allows for easy attachment and detachment to the device.
Figure 1: Trampoline Full Housing Unit