

ADAPTIVE DEVICES AND RESOURCES

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Therapeutic Concepts, LLC

Resources for Adapted Sports/Devices

- **Re-Creative Resources Inc.:** Re-Creative Resources, Inc. founded by Kimberly Grandal, BA, CTRS, ACC/EDU, is committed to enhancing the lives of the elderly in health-care facilities through the use of therapeutic recreation and activities. We provide a variety of services such as therapeutic recreation and activity webinars, seminars, in-services, resources, program analysis and development, consultation, and support for activity professionals, managers, and recreational therapists. This site is designed to assist recreation professionals and features a large selection of managerial forms, tools and training materials, free downloads, resources, tips, articles, free job posting, and much more.
<http://www.recreativeresources.com/index.htm>
- **Michigan athletes with disabilities resources**
<http://sportsabilities.com/index.php?id=636#MI>
- **Recreation resources in Michigan by category or county**
<http://ucpmichigan.org/resources/recreation-resources>
- **Flag House:** All different adaptations for active play, switches, mobility, positioning, arts and crafts, balls, communication, daily living, feeding, exercise, fine motor, games, sports, language, learning, playground, sensory integration, and toys.
<http://www.flaghouse.com/shop.asp>
- **Disability Information and Research Links**
<http://www.makoa.org/index.htm>
- **United Cerebral Palsy:** Local Resources for adaptive toys, assistive technology, arts, autism, videos, cerebral palsy, disability services, and much more.
<http://www.ucpdetroit.org/resources>
- **Children's Therapy Corner:** Our ultimate goal is to empower families to truly understand their child's needs and to be able to advocate for their child in all situations.
<http://www.childrenstherapycorner.com/news>
- **Devices and gadgets for independent living**
<http://www.atintheup.blogspot.com/http://www.arthritissupplies.com/>
- **Blind Children Resource Center**
http://www.blindchildren.org/sports_games/5_1.html
- **AbleNet:** AbleNet is an international company and industry leader in providing educational and technical solutions to help children and adults with disabilities lead productive and fulfilled lives. This includes a complete line of communication aids for nonverbal individuals; access aids for all ages and situations; and special education classroom curriculum that both enhance and help ensure learning progress. Our products are used in hundreds of thousands of homes, clinics, and classrooms in the United States and across the globe.
<http://www.ablenetinc.com/Assistive-Technology/Switches>

- **Enabling Devices:** Assistive technology and products for people with disabilities
<http://enablingdevices.com/catalog>
- **ILT Source Increasing Quality of Life**
http://www.iltsource.com/Adaptive_Devices_s/28.htm
- **Adapted Devices Special Products for Special People:** Adapted Devices was founded by Aaron and Sarah Miller when their son Evan, who has Cerebral Palsy, needed toys to be adapted in order for him to be able to activate them. They began adapting all of Evan's toys so that he could play with them. Their son enjoyed using the adapted toys along with the custom switches that activated his toys. He was able to play, to communicate, and it also helped him feel included in his classroom with his peers.
<http://adapteddevices.com/>
- **Info Grip:** For over 25 years, Infogrip has been the world leader in assistive technology, ergonomics and special education solutions. Our extensive experience and product knowledge enables us to match you with the best product that fits your needs. We know that every person with a disability requires something unique and that "one size" never fits "all" in our industry.
<http://www.infogrip.com/>
- **Increasing Capabilities Access Network:** Accessible Recreation and Travel. Adaptive Equipment for all sports.
<http://www.ar-ican.org/recreation.html>

Adapted Device: The Buncher

Because of visual impairment and/or motor problems, some children are unable to pick up an object again once they have let go of it. Since it is the repetition of grasping and letting go that lead to the ability of grasping and holding, the user will benefit from holding the object with the use of a buncher. This enables the user to grasp and let go whenever he/she wishes, to repeat the activity as many times as he/she needs, and to experiment with the duration of the grasp as well as the intervals between each repetition. Use of the buncher also permits the user's hand to touch the surfaces of the objects, which allows him/her to experience the tactile qualities of the items. The buncher can be used to hold/grasp a variety of items including spoons, brushes, massagers, toys, or other items.

The Buncher is made from two pieces of buttonhole elastic (average length used is 4 ¾ inches,) once piece of ½ or ¾ inch wide elastic and two buttons. Three buttons can be sewn on the elastic strap if the Buncher is being used in a classroom with various sizes of hands.

The solid elastic without buttonholes should be approximately 3 ½ inches long, spanning across the back of the user's hand. The buttonhole elastic should be long enough that it will loop around whatever object the user wishes to hold. "Fray Check," a liquid seam sealant by Dritz (available at most fabric stores) can be applied to the ends of the elastic to prevent fraying.

References:

Lilli Nielsen, 1993, SIKON: Early Learning – Step by Step.

Suppliers of Buttonhole Elastic

Newark Dressmaker Supply, Inc.

PO Box 20730

Lehigh Valley, PA 18002-0730

1-800-736-6783

Adapted Device: Volleyball “Aud-a-Ball”

Purpose:

Purpose of the audible volleyball is to allow easy tracking for players. The ringing volley ball is also light weight and is vibrant in color. These aspects will slow down the pace of the game and also allow a significant contrast in color between the ball and the court. Although this ball could be used for multiple sports, Aud-a-ball is specifically designed for the inclusion of volleyball.

Diagnostic group:

People with visual impairments

Procedure:

Material

- 1) Inflatable ball
- 2) Small package of mini bells
- 3) Knife or scissors
- 4) Duct tape

Procedure

- 1) Poke small incision into inflated ball
- 2) 2 Push individual bells through incision
- 3) Once finished, cut a piece of duct tape large enough to cover the incision.
- 4) Smooth tape over the incision with pressure
- 5) Blow up the ball until completely inflated

Options for purchase:

Vendors:

FLAGHOUSE P.E and Rec

<http://www.flaghouse.com/FLAGHOUSE-Ringing-Volleyball-item-6240>

Ringing volleyball cost : \$7.50

Manufacturer:

GIANT LEAPS™

- Special Needs Products for Ages 5 to 20

Phone number: 800.332.9410

Homemade Cost: (Cost of ball and bells) Approx. \$6.00

Device variations:

The ball can vary in size, weight, density, and the option of ringing, depending on the specific diagnostic group. Specific groups that tend to benefit from a softer and brighter ball include those with cognitive/emotional impairments, visual impairments, and those with weakened upper extremities’.

Adaptive Device: Hockey Stick

Purpose and Use

The purpose of this device is to assist someone that uses a wheelchair in a field hockey game. It also will help someone that has trouble with fine motor skills in their wrist and hands. This device will make it easier for them grip and hold the hockey stick without putting pressure on their wrist and hands. The handle helps for less bending and twisting of the wrist and more of a firm grip for the hand. This is could also be helpful for amputees, for an example if a person only had one able arm. The handle, Velcro, and strap allow for stable and easy use.

Beneficial Group

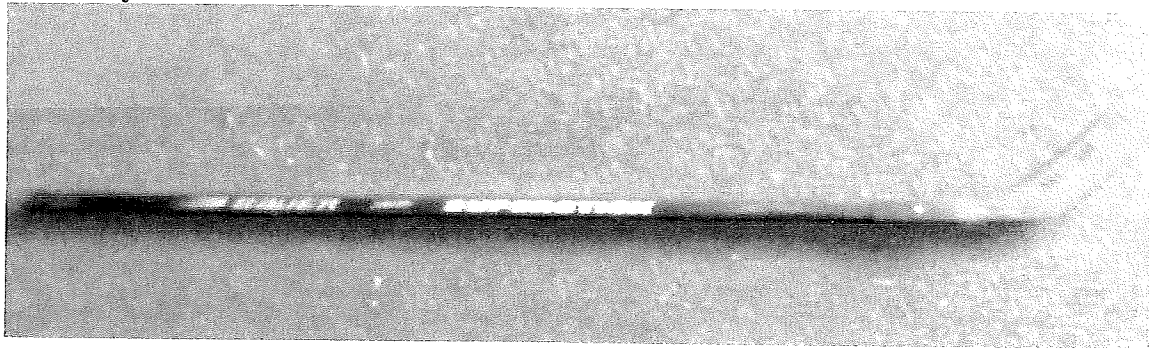
Groups that would benefit most from this device are people who use a wheelchair that have use of their upper extremities such as a spinal cord injury at T2 and below. This will also benefit people with arthritis in their wrist and hands. This might also benefit groups with amputees, Parkinson's, Multiple Scoliosis, Lou Gehrig's disease, Muscular Dystrophy, and other motor skill disorders.

What you need:

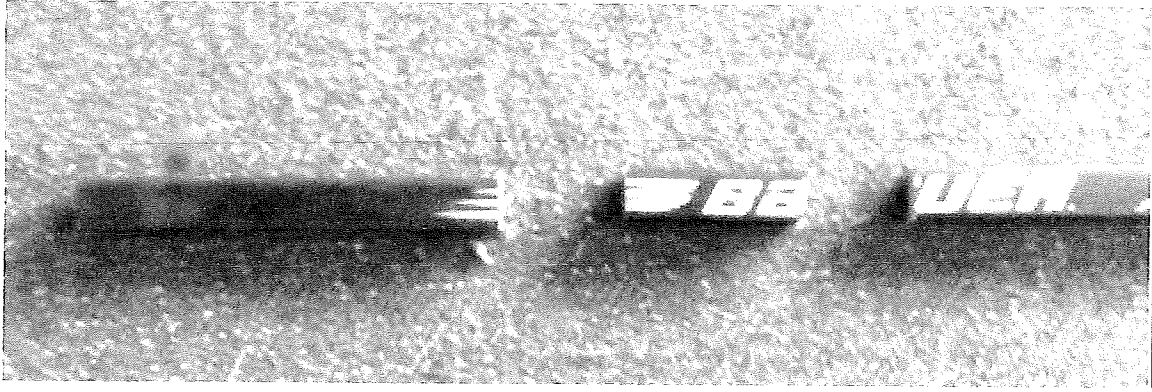
1. Hockey stick (any sporting good store) Cheapest= \$10
2. Any kind of fabric for the strap (anything around the house)
3. Velcro strips (24 inches) (any superstore) Cost= \$3
4. Dowel pin (to attach handle) (any superstore) Cost= \$4
5. Foam (to cushion handle) (optional) Cost= \$1
6. Drill (if handy)
7. Saw (if handy)
8. Super Glue (dollar store or super store Cost= at most \$5
9. Tape Cost= \$2

Total = around \$25-\$30

Assembly



1. Use a saw or some kind of cutting device to cut the hockey stick at a length that suits you. Then cut a small piece about 9 or 10 inches long to use as a handle.



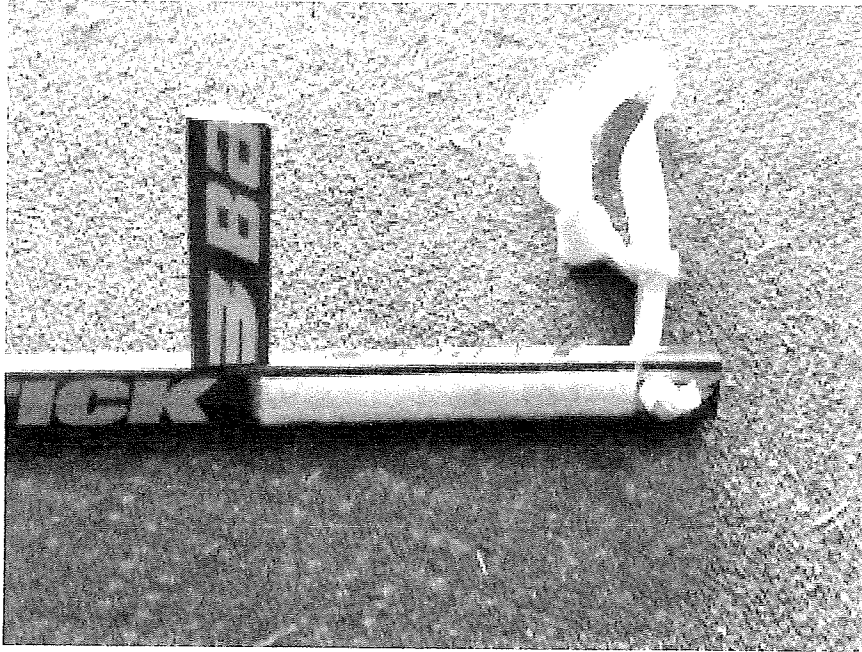
2. Next Drill a hole into the small piece of hockey stick that is the size of the dowel pin that you purchased.



3. Then drill the same size hole into the top of the hockey stick and insert dowel pin into the handle. Then attach handle by pushing down on it or using a hammer to tap it in place.



4. Next drill a hole at the top of the stick big enough to fit your fabric through. Put your fabric through the hole and tie a knot at the end to secure in place. Next make a loop at the other end and tie a knot to make an adjustable loop.
5. Next measure length of Velcro needed and stick one side onto the inside of the hockey stick. Then use other side of Velcro strip and attach.



6. Remember to measure out a longer strip of Velcro needed to make sure it is comfortable around your arm.
7. Tape foam around handle for more comfort on the hand. (Optional)
8. Tape end of stick so there are no sharp ends to add injury.



This device is not available for purchase but can be recreated at home at low cost.

Adaptive Device: Foot-Guide

Activity Used For:

Darts

Who Could Use it:

Individuals who have vision impairments or blindness.

Purpose:

The tip of the foot-guide is to be planted on the floor while directly aligned with the bulls-eye of the dart board standardly placed on a wall. The player will place their dominant foot on the foot-guide. The placement of the tip of their shoes is how they would know where to align their arm to throw the dart.

Materials Used:

Baby Basket
Hot Glue Gun
Wall Hooks
Scissors
Tape

Developing Device:

1. Cut basket in half
2. Glue the wall hooks on the foot placement
3. Use tape to stabilize the base of the Foot-Guide

Final Product:

Cost for Homemade Device:

Baby Basket- \$1.05

Wall Hooks-\$ 3.99

Total: \$5.04

Adaptive Device: Velcro Hand Weight

Purpose:

I designed this device to be used by people with low motor skills so that they are able to get some type of strength conditioning in just like someone with high motor skills could. By strapping the device to their hand, the participant can basically just rest their fingers on the hand weight and let the velcro hold the hand weight up while they are able to grasp the strength of using the weight. This device is mainly made for an exercise or a fitness type of activity, and could also be used during therapy as well.

This device would benefit a variety of diagnostic groups. Such as Paraplegia, Rheumatoid Arthritis, Muscular Dystrophy, Parkinson's, Cerebral Palsy. With these, it can be difficult to grasp onto something and hold it in place, especially something with a little heavier weight. Which is why this device not only trains and strengthens the body for some light lifting, but it also can give them a small exercise they could do every day.

Making the Device:

Purchase

- A small hand weight (weighing between one and two pounds)
- Velcro
- Hot glue gun
- Scissors

Steps

- Take the hand weight and the hot glue gun (or super glue) and begin to wrap it around the weight where one would put their hands at to lift it.
- Glue underneath the entire piece of velcro to ensure it will stay put. When that is finished cut the access velcro off of the end.
- Next, take the other side of the of the velcro and stick it onto the velcro that was just glued onto the weight. Apply a small piece of the extra opposite piece of velcro to the inside of the piece stuck to on top of the weight. This will help with connecting the weight to the participants hand
- Depending on the users hand, measure it down and cut the access velcro off with scissors. If the glue is dry, and the band around the users hand it adjusted to their own size, they should have no problem picking it up to use, with little effort of actually holding the weight!

Options for Purchase:

If one were to buy the materials for this device, they could get the material from Wal-Mart or any type of store that would sell sporting goods to buy the hand weight, along with some type of store with craft accessories to buy the velcro. Glue can be purchased at a variety of stores as well. The total to make was eight dollars. It is very cheap, and easy and fun to make!

Adaptive Silverware

Purpose:

To allow individuals with arthritis or muscular dystrophy or other individuals with fine motor deficits to be able to hold the spoon themselves.

Diagnostic Groups:

Individuals with arthritis would probably get the most use out of this device but individuals with cerebral palsy or muscular dystrophy or other people with fine motor skills deficits.

Procedure for making the device:

- 1) Buy a piece of wood that is at least 4 inches long and 2 inches wide but only a quarter inch, a Velcro strap that is 32 inches long (to make sure that you have enough), a hot glue gun and some hot glue. This should run no more than \$26 only about \$10 if you already have or borrow a hot glue gun.
- 2) If your wood is longer than 4 inches you need to cut it to 4 inches.
- 3) Glue the spoon onto the wood so that there is about an inch of handle sticking out of the wood.
- 4) Glue a 12 inch long strap of Velcro to the bottom right hand corner of the wood, and an inch long piece of Velcro on the right side of the spoon in the middle of the piece of wood where the foot long strap would wrap around to.

Options for Purchase:

This cost about \$10 dollars to make. You can get these materials at Joann's Fabric, Wal-Mart, Home Depot, or Lowes. There is also something you can buy called the hand clip that is \$8.95 that you can order online.

Adaptive Device: Jingle Soccer Ball

Purpose:

The purpose of this soccer ball is to be able to hear its location as it rolls on the field. The jingle bells inside of the soccer ball make a ringing noise that can be heard whenever the ball moves so it is constantly heard.

Diagnostic Groups:

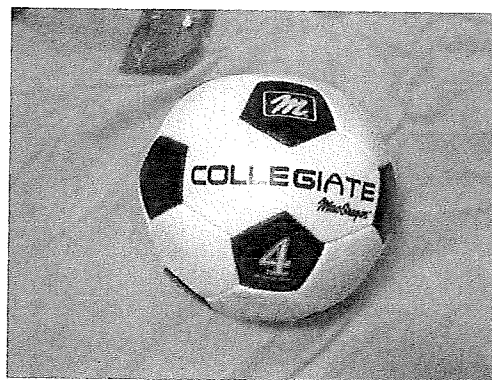
Individuals that are blind or have limited vision would greatly benefit from this adaptive device. They can use their hearing to listen to where the ball is located instead of relying on their sight. This could also be used for any situation where there may be low lighting and the ball cannot be seen well.

Procedure:

First you need all the materials which include: a soccer ball, jingle bells, a small knife, super glue, tape, and an air pump. To start off, you need to make a small incision into the ball using a small knife. This cut needs to be just large enough to fit the jingle bells in. Next, put the jingle bells into the incision that was made. Once you have fit all the bells into the ball, take the super glue and carefully glue the edges of the incision together. You may need to use tape to hold the edges of the ball together. After about 2 hours or when the glue dries, you can then fill up the ball using the air pump.

Options for Purchase:

A game ball with a bell can be purchased online at www.braillebookstore.com for \$16.95 plus shipping and handling. There are also many other soccer balls that use other items for noise that can cost up to \$175. These models make a different kind of noise that is louder making it easier to hear over a crowd. Making the ball yourself costs about \$9.



Adaptive Device Fabrication: GoalBall

Name of device: GoalBall

Purpose and use:

The purpose of Goalball is for each team to roll the ball across the opponent's goal line while the other team attempts to prevent this from happening. The game is played by two teams of three players each on a court 18m x 9m which is divided into two halves by a center line. A rubber or plastic ball with bells inside for auditory tracking is used. Each player must wear a blindfold regardless of the degree of visual impairment.

Diagnostic groups:

Blind and visually impaired.

Procedure for making the device:

1. Use a regular beach ball and blow it up.
2. Cut a small slit on the outside and put five small bells in the ball.
3. Then use white duct tape to seal the ball shut so air would not seep out.
4. For the visual goggles, one can use a bandana if they are not visually impaired in order for the game to be fair.

Options for purchase:

An individual can go to any basic supercenter store to purchase a blow-up ball or beach ball. One can go to Joann Fabrics for the bells, but many dollar stores or craft stores will have bells as well.

Device variations:

This game could be played by motor impaired groups, such as people in wheelchairs. Without using the blindfolds, hearing impaired groups (especially children) could play this game as an icebreaker or recreation activity.

Other resources and support information as appropriate:

Anyone can play Goalball! Because of the choice of using blindfolds, both sighted and visually impaired individuals can play.

Adaptive Equipment: Finger Extension/Supportive Strength

Purpose:

To provide individuals with decrease finger strengthen and range of motion the ability to pull back and release a bow.

Activities:

This device was specifically designed for archery, however other sports using a pull back or trigger method can adapt this device for the desired sport.

Population Served:

Those that will benefit from the use of this product include individuals who suffer from arthritis or any disease limited the ROM of fingers, particularly the index finger.

Developing Device:

Material:

- 1 Black fabric glove
- Package of sticky back Velcro pieces
- 1 L-shape bike anchor hook
- Small amount of tape

Procedure:

1. Place Velcro pieces on both the glove and bike anchor according to the fit of the individual's finger.
 - a. Velcro should be place the length of the index finger as well as the tip of thumb to secure the device in a loose grasp matter.
2. Wrap the metal end of bike hook in tape to eliminate all sharp edges.
3. Test Velcro placement and strength by lightly pulling on the end of the bike hook.
4. Use device in same fashion one would use a bow. The strength of the pull will come from the individual's forearm, biceps, and triceps.

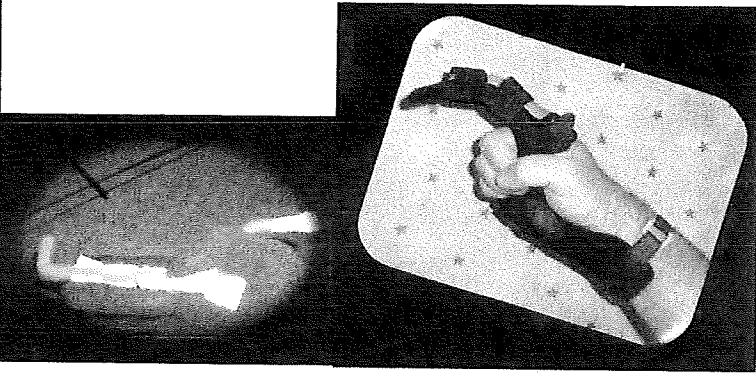
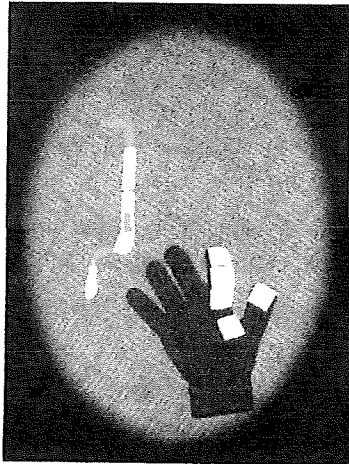
Device Variations:

The only variations needed for this device is dependent upon the sport. For example if an individual would like to shoot a gun this device needs to become for flexible, giving the client the ability to control the pressure applied to the trigger.

Expenses:

Homemade Device: Less than \$10

Retail: Approximately \$65



Adaptive Device: Pool Cue

Name of the device: Cue on wheels

Someone with disability would use the cue on wheels to play billiards.

Population Served:

The cue is modified to have more stability for someone who either has gross motor deficits. Some clients who could use this device could be cerebral palsy, muscular dystrophy, multiple scoliosis, Parkinson's, Lou Gehrig's disease, spinal cord injury, or any other motor deficit disorders.

Procedure for making the device:

1. Lego wheels are attached to the end of the cue that hits the ball (this allows a player to not have to hold that end of the cue).
2. Then take two Velcro strips and attach them to the end of the cue, with extra material to wrap around the players arm (this allows for more stability at this end of the cue).
3. These straps are not permanently attached to the cue which allows a more advance player to remove them.

Options for purchase:

Access to Recreation has a trigger shot pool cue. The cue is \$160.00 each. When using this cue, the person would line up the shot and then push a button that would extent the end of the cue to hit the ball.

Device Variations:

This device can be altered to try and accommodate other individuals. The straps can be removed totally or adjusted to different parts of the stick. Anyone who has fine motor deficits could use these adaptations as well as anyone who has amputations, or lost dexterity.

Adapted Table Tennis Paddle

Purpose:

The purpose of this device is for people with low motor skills to be able to enjoy the game of table tennis like anybody else. Strapping the device to their hand and wrist helps the player(s) hold the paddle without needing to grip the paddle to play, in case they're unable to.

This device is mainly made for one activity in general, table tennis (games, practicing, etc.).

This device would benefit many diagnostic groups. For example: Progressive Muscular Disorders, Rheumatoid Arthritis, or Paraplegia. Most of these can compete in regular table tennis games, but need an adaptive device like this one to help them hold the paddle. They just don't have the strength to maneuver a table tennis paddle if they fall into one of these diagnostic groups.

Steps for making device:

- Purchase a paddle, velcro, and thumbtacks (will also need scissors and Ping-Pong ball).
- Cut the velcro into two different strips
- Take the tacks and tack one strip of velcro down in the middle of the handle, and one down in the middle of the top of the paddle.
- Lastly, make sure the velcro is tacked down in a way that makes it adjustable to the player(s).

Purchase:

- Walmart, sporting goods stores, or hardware stores and cost about \$5 dollars.
- Other device variations would be tacking the velcro the other way on the handle, and no strap at the top of the paddle; if the person has more control, and doesn't need complete assist, but still needs some help holding the paddle.

Adaptive Device: Paintbrush

Purpose:

The purpose of this device is to help someone with a lack of fine motor skills. The device aids the user in allowing them to clutch the paintbrush without having to wrap their hand around the entire brush.

Beneficial Population:

The population that would benefit most from this device would be people with; muscular dystrophy, Parkinson's, spinal cord injury, cerebral palsy, and other motor skill disorders. This device will allow this population to paint without pain by having the paint brush strapped to their hand. The painter will only need to lightly hold onto the handle of the paintbrush. The painter does not even have to grip onto the handle of the brush if they are not able.

What you need:

- Paintbrush
- Glue gun
- Velcro strips

How it works:

1. Measure Velcro strip so that it will fit comfortably around the painters hand
2. Attach the Velcro strip to the paintbrush with the hot glue

Name of device: Adaptive grip-n-slip reins

Purpose and use:

Horseback riding for people who are unable to grasp with their hands

Diagnostic groups that would most likely use:

- cerebral palsy
- upper extremity amputees

Procedure for making:

- Slide on the horse clip
- Fold the material in half
- Loop the material through the D-ring
- Attach the Velcro (I used iron-on, but you can sew or use a hot glue gun)
- Sew material under the D-ring

Device variations (for other diagnostic groups):

- Different types of fabric (wider, thinner, softer, thicker,
- Multi-colored for youth and/or cognitive).
- Snaps instead of Velcro for increased flexibility.

Other resources and support info:

- JoAnne fabrics
- Walmart
- Horse.com (buy in bulk = less expensive!!!)
- See freedomrider.com
- Adaptive reins (adjustable handle \$60; rein loops \$40) Ladder reins \$50-60

Adaptive Foam Tubing Items

Purpose and use in what activities:

This item is most commonly used on items such as writing and eating utensils. There is an adapted foam tubing for sporting equipment that requires a stick such as: hockey, pool, fishing, golf, and tennis.

Diagnostic groups

People most likely to use this device will have a deficit in fine motor skills. Some of the people who will benefit are those with: cerebral palsy, muscular dystrophy, multiple scoliosis, Parkinson's, Lou Gehrig's disease, spinal cord injury, and other motor skill disorders.

Procedure for making the device:

1. Find a paint roller that will fit the sporting equipment snugly but a little loose.
2. Carefully cut and glue the rubber if desired for a better grip to the roller.
3. Allow to dry for 24 hours.
4. Carefully put superglue on the outside of the stick you will be using.
5. Allow to dry for 24 hours.
6. You are ready to use the device.

Cost of items & Purchase:

- Wal-Mart will allow for assembly of 2 sticks
- 2-pack paint roller \$6.47
- Rubber mouse pad \$4.45
- Super glue for 1 \$2.99
- Total cost roughly: \$15.00

Variations for other groups:

Other groups that might benefit may be children who haven't developed fine motor skills yet or the elderly who have lost dexterity.

Adaptive Device: Tennis Racquet

Purpose

The Purpose of this device is to help someone who does not have fine motor skills in their hands and is unable to grip the handle of a tennis racquet. This device aids the user in allowing them to have a grip on the racquet without having to wrap their hand the handle or needing to the racquet.

Beneficial Group

Groups that would benefit most from this device are people who have arthritis in their hands. Arthritis is inflammation of the joints. Arthritis in the hands can be very painful and prevent people from doing the activities they love. This device would allow people with arthritis to play tennis by having the racquet strapped to their forearm and wrist, only needing to lightly hold onto the handle with their hand. The user would not even have to have any grip on the handle if they were not able.

What you need:

1. Purchase a tennis racquet (any sporting good store)
2. Purchase a package of Velcro strips (30 inches) (Joann Fabric)
3. Find a flat sturdy piece of wood that is about a foot in length for the support (could use a paint stick or any thin board either purchased or scrap)

Assembly:

1. Attach the support board to the tennis racquet by either using a strong glue or wrapping a strong tape around the handle and the board. Lay the racquet down flat on a surface and place the support board just below the grip wrapping on the racquet. Secure the board with glue or tape: just make sure that it will hold.
2. Next measure out the length of Velcro that will be needed by making sure the Velcro will wrap around the wrist, support board, and racquet handle.
3. Glue one end of each strip the board. Place one strip at the forearm, one at the wrist, and on at the fingers. Make sure to make the strap a little longer so it can be adjusted for different size.
4. Tape off any sharp edge on the support board to prevent discomfort.

This adaptive tennis racquet is not available in stores or online. It needs to be assembled for the user.