



Holland Bloorview

Kids Rehabilitation Hospital

Constraint and bimanual therapy “hand” book

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Introduction



What is constraint and bimanual therapy?

Children with hemiplegia have one hand that functions better than the other hand. Constraint and bimanual therapy has been shown to improve the motor control and use of the affected hand. The goal of this therapy is to improve the use of the affected hand in two handed activities.

What is the purpose of this handbook?

This handbook provides parents and caregivers with examples of activities that can be completed during the child's home therapy program. The activities encourage use of their affected hand in reaching, grasping and two handed activities.

This handbook includes activities that can be completed while the child is wearing the constraint and also includes bimanual activities that involve the use of both hands together.

This handbook should be used under the guidance of your therapist.

How do I get started?

Your therapist will fit your child with a constraint to be worn on the unaffected hand. The type of constraint and the length of time the constraint will be worn will be determined by your therapist. This constraint prevents the child from using their unaffected hand to encourage use of the affected hand.

Practice log and goal setting

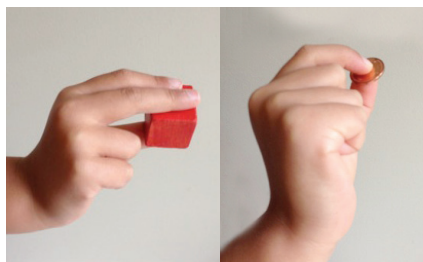
Your therapist may do assessments and set goals with you prior to using the constraint and after using the constraint. Your therapist may have you fill out a practice log to provide necessary feedback.

Before starting the activities, you may want to do 'warm-ups' by stretching your child's arm and hand.

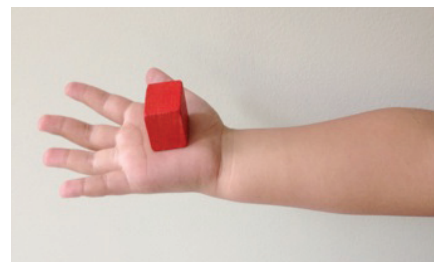
When doing the activities, try to:



Straighten the elbow and if possible bend the wrist and fingers up while keeping the wrist in line with the arm.



Pick up objects using thumb, index and middle finger rather than the whole hand (or it may be easier to have your child pick up the object from your hand instead of from the table top).



Rotate your forearm by turning palm up to face the ceiling.



One-handed activities

- Position objects, toys, game pieces to encourage elbow straight when reaching. Encourage reaching in different directions: above shoulder, out to side, in front with elbow straight.



- Place rings on a post. Move the location and height of the post so your child has to reach in different directions.



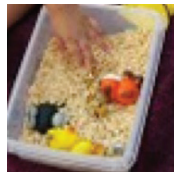
- Pop bubbles. Aim for wrist extension (fingers pointed up). Your child should try to pop bubbles using the pointer finger only and pinch the bubbles with pointer finger and thumb.



- Push down on a switch toy or a toy with a large push button. Place the toy away from your child so s/he has to reach for it.



- Sensory Bin. Fill a container with dried beans, rice, pasta, etc. Hide some of your child's small toys in the box or bag. Let them move their hand around in the box to find their toys. To make this harder, your child can close their eyes or use an eye covering.



- Shaving cream on mirror or bathtub wall. Have your child sit or stand a distance away from the wall so they have to straighten their elbow. Let them draw in the shaving cream (this is also a great opportunity to practice drawing shapes or printing their name).



- Sensory activities with a blindfold can include having your child match different fabrics using their affected hand, identifying letters or numbers that you draw on their affected hand. You can also ask your child to “touch your nose, touch your head” etc.



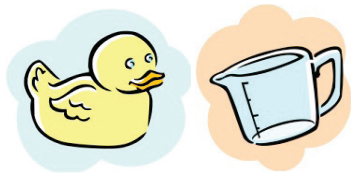
- Play with a toy wand or light saber.



One-handed activities Continued



Water play. In a suitable container (e.g. plastic box or small wading pool) have your child move a toy under the surface of the water (e.g. a boat, small plastic toy, etc.). Scoop water using a cup (something easy to hold) and pour the water into another bucket. The bucket should be placed on the side of your child's weaker arm as this will encourage forearm rotation.



Musical instruments. Play the drum or triangle. Place the instrument a distance away so your child has to straighten their elbow. Practice reaching in different directions.



Wave a large ribbon in the air (it can be attached to a stick) or large bubble wand. Focus on large movements in all directions.



Flashlight designs. In a dark room, have your child wave a flashlight to make pictures on the wall. Encourage a straight elbow.



Knock over bowling pins on the floor or off the table. Put them far away so your child has to reach for them. Have your child push them with the palm of their hand.



Play catch with a "Velcro hand." Your child can help remove the ball from the Velcro and throw the ball.



Throw a small ball and catch it if possible.













Hit a large, light ball off of a stand ("T-ball"). Your child can hit with the front or back of their hand, or use a racquet or bat. This may require HOH (hand over hand) assistance. Racquet sports include tennis, badminton. Encourage elbow extension.



One-handed activities Continued



<p><input type="checkbox"/> Toss bean bags or small ball (that fits into your child's hand) into a basketball net or bucket. Have the net at least at your child's shoulder height. Progress from dropping them in to tossing/throwing. Keep elbow straight.</p> 	<p><input type="checkbox"/> Roll an extra-large ball. Your child should keep it in control with elbows straight, wrist in line with arm, fingers open and thumb out of palm.</p> 
<p><input type="checkbox"/> Have your child sit on a towel and use only their hands and arms to push themselves backwards for a distance.</p> 	<p><input type="checkbox"/> Push a filled large box or laundry basket. Try to keep elbow straight.</p> 
<p><input type="checkbox"/> Pull a rolling cart/suitcase or push a filled grocery cart (your child may need assistance with steering).</p> 	<p><input type="checkbox"/> Help out with chores around the house such as wiping tables, cleaning windows, dusting, washing the car, etc. Any chore that encourages your child to keep their elbow straight</p> 
<p><input type="checkbox"/> Everyday activities such as opening a door, turning the tap on/off, turning on/off light switches, opening/closing cupboard doors.</p> 	<p><input type="checkbox"/> Play cards. Position the cards a distance away to encourage your child to reach with a straight elbow. Play games that encourage your child to turn the cards up so their palm faces the ceiling.</p> 
<p><input type="checkbox"/> Video games that involve reaching such as Wii and Kinect, as well as using a keyboard or tablet.</p> 	<p><input type="checkbox"/> Gym equipment. Resistive exercises, lifting weights, pushing weighted objects. Supervision suggested.</p> 

One-handed activities Continued



Using an exercise band, have your child hold the band and hold the other end securely in their weaker hand. Try to stretch the band with their elbow straight. You can also tie one end to a doorknob and have your child hold the other end with his/her weaker hand to stretch the band while keeping the elbow straight.



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Wall pushups. Stand in front of a wall an arm's length away. Place arms (both or only the affected arm) on the wall with:

- elbow straight
- wrist in line with arm
- fingers pointing to ceiling
- thumbs out of palm

Do wall pushups by bending and straightening the elbow. Do not move the feet. Repeat.



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Stack blocks.



Stack cones or nesting boxes



Place large wooden beads on a post. Adult may have to help steady the post.



Place pegs into pegboard. Begin with large pegs and then decrease the size as accuracy and grasp develop.



Self-feed. Finger foods or use of utensils.



Carry a bag or purse using the affected hand.

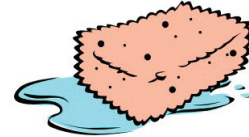


One-handed activities Continued

- Squeeze putty, playdough or stress ball.



- Squeeze sponges filled with water. Start with a sponge in a bucket of water, place sponge over an empty bucket and squeeze out water. Continue until first bucket is empty. Also can squeeze washcloth in bath or dishtowel to wipe counter.



- Rubber stamps. Use stamps that have a post to grab onto. Encourage pushing into an ink pad and then on to the paper. Use a vertical surface if possible.



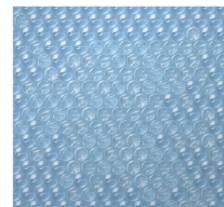
- Coloring/painting/printing on a vertical surface, chalk board or table top.



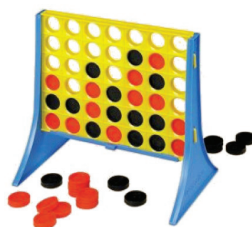
- Play a piano or use a computer to move the fingers. Encourage your child to use only one finger on a key and “hide” his/her other fingers.



- Pop bubbles on bubble/packing wrap.



- Put coins into a piggy bank slot or checkers into game slot (e.g. Connect Four).



- Put small objects such as blocks, beads, marbles, game pieces into containers with various sized openings. Inserting pennies in a piggy bank. Progress to using salad tongs or tweezers.



One-handed activities Continued

- Squeeze clothes pegs. Find ones that are easier or harder to squeeze. Place them on the edge of a cardboard box



- Frog jump. Plastic frogs that jump when you push on their “tail.”



- Games/board games. Some can be adapted to use one or two hands. Roll the dice, spin the spinner and move game pieces where appropriate. E.g. Wiggle Giggle, chess/checkers, Pop Up Pirate, Candyland, Guess Who or Kerplunk.



- Turn over cards using the affected hand. Thick cards and bigger cards are easier.



Two-handed (bimanual) activities

- Weight bearing activities. Weight should be on the affected hand while the non-affected hand plays. Side sitting, prone (on tummy), 4-point (hands and knees) reaching for toys, doing puzzle, reading book, etc.

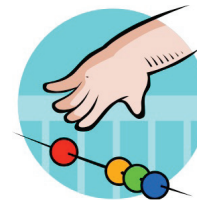
- Play on a play structure. Climbing/holding onto both rails, monkey bars, swing.



- Cut paper. Stabilize paper with affected hand.



- String beads (large or small).



- Ride a bike/scooter. Buckle the helmet.



- Throw a large ball that requires two hands: shooting basketball, volleyball.



- Carry a box, large stuffed animal or a tray.



- Jump rope.



Two-handed (bimanual) activities Continued

- Swimming. Use both arms to swim, holding onto a pool noodle or flutter board. Swim strokes with both arms.



- Play Zoom Ball. Child holds the straps at one end while you hold the other straps. Ask your child to pull the straps apart to “zoom” the ball over to you.



- Getting dressed. Push arms through sleeves, socks, pants. Do up fasteners: zippers, buttons, snaps and shoelaces.



- Gymnastics, yoga and taekwondo.



- Hula hoop. Hold with two hands and place it over a post. Roll hula hoop, reach out to catch it. Play tug of war or ‘row row row your boat’ while holding on to the hula hoop with both hands.



- Tug of war with a scarf, rope, towel, sheet.



- Mealtime and snack time. Use a knife and fork to cut up food. Open a food container. Twisting cap of bottle. Peel fruit. Remove wrapper from food. Remove and insert straw into drink box.



- Sit on a towel and have the child use both hands and arms to push himself/herself backwards for a short distance.



Two-handed (bimanual) activities Continued

- Household chores. E.g. sweep, wash and dry dishes, set the table, fold laundry, garden or shovel snow.



- Cook. Chop, slice, spread, pour, roll, grate, mix or use a rolling pin.



- Grooming activities. E.g. put up a ponytail, put on nail polish, cut finger nails, put toothpaste on a toothbrush, floss teeth, wash hair, put on jewelry.



- Grocery shopping. E.g. push cart, take money out of wallet, pack groceries and carry groceries in both hands.



- Sports such as basketball, hockey, tennis, baseball or volleyball.



- Tool use. E.g., hammer, screwdriver, nuts and bolts. Supervision suggested.



- Electronic games such as Wii or Kinect. Using game controllers.



Additional activities



As suggested by your child's therapist (including any specific bimanual goal identified by child/family):

Practice log



Name: _____ Date (week of): _____

	Activities	Time spent	Constraint on: Y/N?	Comments
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

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