

Meaningful Movement

Neurodevelopmental Movement in Education~Moving Bodies. Building Brains. Reaching Potential.

CRAWLING ON THE TUMMY

Crawling, in conjunction with other developmental activities, grows the neural connections and organizes the pons in the central nervous system. Just as infants are not taught how to crawl, we don't teach our students. When first given the opportunity to crawl, babies try several techniques before attaining a finished crawl. In the same way, students will experiment with many techniques before reaching a finished crawl. The various techniques, eventually culminating in a finished crawl, reflect the growth and organization of the pons.

Here are the simple rules for crawling:

- The only instruction is belly button on the ground, moving forward, using all parts of your body that you want. **DO NOT GIVE ANY OTHER INSTRUCTION, COACHING, OR HELPFUL HINTS.** Doing so will interfere with the process.
- Crawling should be done on a long, straight, smooth surface. Hardwood or linoleum is perfect. If your house is carpeted, you can obtain 6 foot by 12 foot pieces of flooring vinyl. Cut the pieces in half and duct tape the pieces together to form a 3 foot wide strip which can be rolled down a hallway or other area for crawling and then put away again when done.
- Crawling needs to be done with bare feet; do not wear shoes or socks.
- Do not carry anything in your hands or wear gloves or mittens when crawling.
- Crawling is physically demanding. When beginning, most clients cannot go for more than a few minutes at a time. Crawl for as long as the client can tolerate; her stamina will increase until she can do the entire amount at once. Until then, divide the time up to give the client permission to rest.
- The client should move forward at a nice, steady pace. If she's tired, she can break the time up. See the section on how to succeed for ideas on how to encourage movement.
- Crawling can be boring. We don't want the client thinking about what he's doing, because crawling needs to be a pons-level, not a cortical, activity. Because of this, it's important to keep the client engaged while crawling. For children, this means that the caregiver acts as a coach or cheerleader, making up a thousand games and activities to occupy the child. A child cannot be left to crawl on her own; a caregiver must be present and engaged. For younger children, games or simple inducements can be helpful. For older children, a caregiver can assist with homework during crawling. For adults, music, radio programs, podcasts, or foreign language instruction can engage the cortex. See the section on how to succeed for more ideas.

Notes:

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CREEPING ON HANDS AND KNEES

Creeping, in conjunction with other developmental activities, grows the neural connections and organizes the midbrain region in the central nervous system. Just as infants are not taught how to creep, we don't teach our students. When first given the opportunity to creep, babies try several techniques before attaining a finished creep. In the same way, students will experiment with many techniques before reaching a finished creep. The various techniques, eventually culminating in a finished creep, reflect the growth and organization of the midbrain region.

Here are the simple rules for creeping:

- The only instruction is to stay on hands and knees, moving forward. **DO NOT GIVE ANY OTHER INSTRUCTION, COACHING, OR HELPFUL HINTS.** Doing so will interfere with the process.
- Creeping can be done on either carpet or hard floors. Carpet is nicer as it provides additional cushion, but it's not required. If creeping on carpet, wear socks to avoid rug burn.
- **ANYONE OVER THE AGE OF EIGHT MUST WEAR KNEEPADS WHEN CREEPING.** The structure of the knee changes at adolescence; failing to protect knees can result in permanent damage. Use soft volleyball or floor-layer kneepads; avoid kneepads that are hard or rubberized as they need to slide easily. Kneepads can be obtained at sporting goods stores for a reasonable price.
- Do not carry anything in your hands or wear gloves or mittens when creeping.
- The client should move forward at a nice, steady pace. If she's tired, she can break the time up. See the section on how to succeed for ideas on how to encourage movement.
- Creeping can be tedious. We don't want the client thinking about what he's doing, because creeping needs to be a midbrain-level, not a cortical, activity. Because of this, it's important to keep the client engaged while creeping. For children, this means that the caregiver acts as a coach or cheerleader, making up a thousand games and activities to occupy the child. A child cannot be left to creep on her own; a caregiver must be present and engaged. For younger children, games or simple inducements can be helpful. For older children, a caregiver can assist with homework during creeping. For adults, music, radio programs, podcasts, or foreign language instruction can engage the cortex. See the section on how to succeed for more ideas.

Notes:

GAMES

All of these games can be played on the tummy or on hands and knees.

1. Block Building: (Need blocks.) Blocks are placed at one end of the room. Parent and child are at the other end. Child goes back and forth to get blocks. *
2. Ball into the Box: (Need box and balls or marbles.) Parent and child try to roll ball into box for prize and then go to retrieve the ball. * Need to give prizes for successful rolling.
3. Hide the apricots: (Need apricots, slices of carrot, raisins, or the like.) Food is hidden in various places around the room and child goes around to find them. Parent reclines on couch for much needed rest and occasionally says “getting warm” or “getting cold” to the child.
4. Race for Objects: (Need a group of 3 to 5 small, unbreakable objects.) One person throws them to the other end of the room and parent and child race after them to see who can get the most first. * Prizes may be necessary for winners.
5. Free Play with Moving Objects: (Need car, train, or other toys that move by friction.) One person gets it moving and both race after it, or child plays with it by himself.
6. Go Fish: (Need cards.) This is one of six card games that worked to facilitate crawling and creeping. The cards are spread around the room in a big circle and the child is asked to match pairs. Find all the cows, find all the A's, etc.
7. There are several games that cost a few dollars each that may facilitate crawling and creeping. These include Quits, Darts, Pop-Za-Ball, Dominos (play like #1 above), Picture Lotto (also played like #1 above), etc.
8. Drag-A-Bag: (need paper bag, long piece of string and small objects, food or toys.) Parents put objects in bag, wrap string around top of bag and pull it around the room as child tries to catch it.
9. Walk-the-Dog: For symbolic reasons, you may not choose to play this one, but for some kids it works very well. Tie a leash to the child's back and pretend that you are walking the dog, to the bone, to the store, to the hairdresser, and to the clothes store, etc.
10. Tag and Hide-and-Seek.
11. Tent Making: Much creeping and crawling can be involved in free play centered around a tent made in the living room with chairs and a blanket.
12. Puzzles: This is similar to the card games. Pieces of a puzzle are spread in a circle around the room and the child gets each piece separately and builds the puzzle. *
13. Simple Simon.
14. Egg Hide: (Need several toy plastic eggs that come apart in the middle, or several small paper cups.) Egg halves are spread in a circle around the room and an object of food is hidden under one. The Child has to creep or crawl around to find the object.

15. Red Light, Green Light.
16. Potato race.
17. Going Shopping: (Need coins and toys or toy foods.) Coins are at one end of the room. Toy food is at the other. Child gets coins (one at a time) and shops from parent (storekeeper) at the other end of the room. *
18. Bubbles: (Need bubble soap.) Blow bubbles at the other end of the room. Child creeps or crawls to pop them.
19. Pan and Spoons: Parent puts a pan and six spoons at the other end of the room. The whole family races to put all the spoons (which are spread widely apart) in the pan before the timer goes off.
20. Mail Delivery: (Need letter box for each family member and mail to deliver.) Child gets letter from "Post Office" and makes delivery. * Junk mail can be used.

*Note: For any of these games that involve the child carrying objects, it is important for the child to have a pocket or pouch to hold the object while he or she is transporting it so that his or her hands can remain free while crawling or creeping. Bib-overalls, fanny packs or small pouches worn in a way that doesn't interfere with the child's movement can be used.

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VESTIBULAR STIMULATION

The vestibular system is comprised of six inner ear canals, which are perpendicular to one another. Fluid sloshes through each of these canals discretely. Stimulating the vestibular system by moving fluid through each of these ear canals incites the midbrain region of the central nervous system, boosts visual motor skills, assists balance and other motor function, and diminishes overflow. It also stimulates the cerebellum, which plays a role in short-term memory, attention, impulse control, emotion, higher cognition, and the ability to schedule and plan tasks. Children engage in dozens of vestibular activities in the course of normal play; however, as we age and typically become more sedentary, these activities decrease and we need to be more systematic about them.

Here are the simple rules for vestibular stimulation:

- It's important to stimulate all of the ear canals that make up the vestibular system, so moving rapidly through space at different angles is imperative. Strive for the greatest possible variety of head positions.
- Each vestibular activity should last approximately fifteen seconds. If fifteen seconds is too long or makes the client nauseous or dizzy, scale back the time to meet the client's tolerance. For instance, start with five seconds and then work up to ten and then fifteen. If the vestibular system is not stimulated regularly, it loses efficacy, but, once stimulated, comes right back. Generally, it takes clients about two weeks to reach fifteen seconds without discomfort.
- To gain maximum benefit, wait five to ten minutes between each vestibular activity. When doing a vestibular activity, the brain fires at one hundred percent. If one continues the activity, the brain is already fired at one hundred percent, so no further benefit occurs beyond the initial firing. It takes approximately five to ten minutes for the neurons to settle and, hence, to gain the most benefit when stimulated again.
- The hardest part of vestibular stimulation is remembering to do it. Most clients find it helpful to schedule a routine; for instance, one before breakfast, one after breakfast, one before crawling, one after crawling, etc.
- Here are some examples of vestibular stimulation activities. Note: SAFETY FIRST! Do activities only to the client's tolerance:

NOTE: If spinning, ALWAYS spin in both directions.

- Use an office chair: sit upright and spin; tip head back and spin; tip head to the left and spin; tip head to the right and spin; lay on your stomach across the seat of the chair and spin
- Use an exercise ball: sit upright and bounce; sit upright and rock forward and back; lie on your stomach and roll back and forth; lie on your back and roll back and forth
- Use a swing: sit and swing normally; sit on the swing sideways; twirl to the right and untwirl; twirl to the left and untwirl
- Do log rolls; do somersaults; do cartwheels; do toe touches
- Hold hands with a partner and spin
- Rock in a rocking chair
- Jump on a trampoline
- Stand and spin with head upright; head tipped back; head tipped to either side

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PATTERNS

Patterns are exact, whole body movements that infants do automatically to gain neurological function. These patterns trigger reflexes in the central nervous system which lead to new brain growth. The brain growth triggers another set of reflexes, which triggers new patterns and then additional brain growth. This cycle of reflex > movement/pattern > brain growth is how humans gain functional neurology and lay the basis for all emotional, behavioral, academic, and motor skills. Just as we observe infants gain new capabilities when performing new patterns, students' skills and capacities change as we trigger the cycle of reflex > movement > brain growth. We did not make up any of these patterns; they have all been observed, documented, and recorded in infants.

Here are the simple rules for patterns:

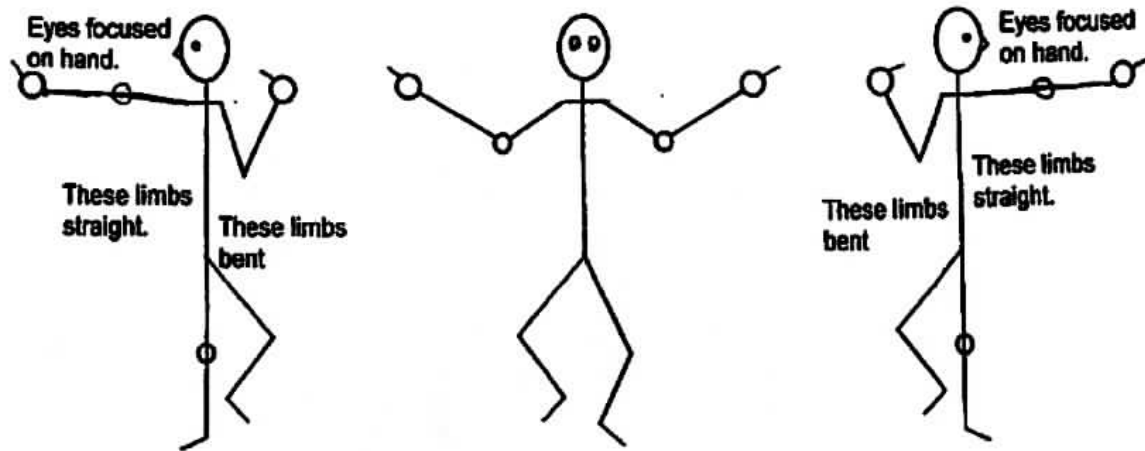
- Because we are triggering reflexes, PATTERNS MUST BE DONE CORRECTLY. If they are not done correctly, patterns become a range of motion exercise and most clients don't need range of motion exercises.
- Patterns require one's whole body to move in a specific manner, similar to an intricate dance step. Because of this, they can be difficult to learn and tricky to do. QUALITY OVER QUANTITY; ten perfect patterns are better than sixty sloppy patterns. TAKE THE TIME TO DO THEM CORRECTLY. If needed, begin by doing a reduced number of repetitions and increase the repetitions until you reach the targeted quantity. For instance, if you are assigned sixty repetitions, you may begin by doing thirty, increase to forty-five, and then do all sixty.
- Lots of coaching from caregivers is encouraged with patterns. It can be hard to know if one is doing the pattern correctly, so feedback from others is invaluable. Caregivers can and should supervise or move the client to insure patterns are done correctly.
- Because different patterns are assigned to stimulate different parts of the central nervous system, your neurological reorganization practitioner will discuss additional guidelines for your particular patterns. Again, it is critical to follow these instructions precisely to insure maximum benefit.

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TONIC NECK REFLEX [SUPINE (BACK)]



Lie on back, head turned to one side

Turn head and begin switching arms and legs. Head leads switch.

Remember: Smooth, steady rhythm.

Counting: Each time you look at your hand counts as 1.

Repeat 60 times.

TONIC NECK PATTERN (on Back)

The Tonic Neck Pattern is used with any student in whom good midline function has not yet been established. It also offers early opportunities for horizontal eye tracking in the infant.

To perform the Tonic Neck Pattern, the student lies on her back on a smooth surface. This pattern is easier to do if the student is wearing socks to allow the feet to slide easily on the surface. The student makes light fists of both hands with the pointer or index finger extended. The right arm, with this pointed finger, is extended straight out from the shoulder, resting on the floor and the head is turned toward this hand, eyes focused on the pointed finger. The right leg is straight. Meanwhile, the left hand, with its light fist and pointed finger is bent, resting on the floor with the finger pointed in the area of the left ear. The left leg is bent out to the side with the sole of the foot near the inside of the right knee.

The head initiates the movement. The spine remains straight while the head and limbs switch smoothly to the other side. Now, left arm and leg are straight while the right arm and leg are bent.

As the head turns side-to-side, the eyes trace a horizontal pathway. Special care should be taken to make sure that the eyes are open as they cross midline. A sticker on the ceiling can be helpful.

Also known as “Scarecrow” in Katie Johnson’s book “Red Flags for Primary Teachers” p. 80.