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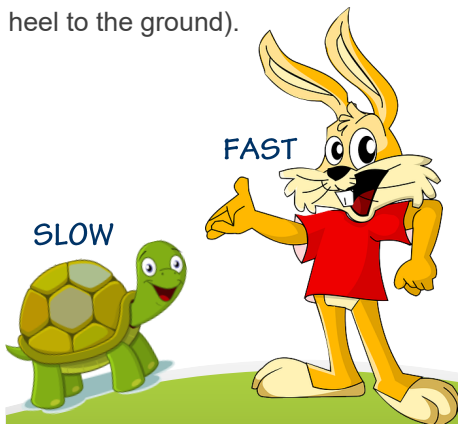
Connecting the Brain & Body

Perceptual-Motor Development

Being physically active is an important part of growing healthy children. Building an early foundation of physical activity is critical to being active throughout life but may require more than just spending time outdoors running and playing. Children need to build strength, learn basic fundamental movement skills and also develop their perceptual motor skills.

WHAT IS PERCEPTUAL MOTOR DEVELOPMENT?

Unlike fundamental movement skills that form the building blocks for movement, such as hopping, jumping, running or balance, perceptual motor development connects children's perceptual or sensory skills (the brain) to their motor skills (the body) so they can perform a variety of movements and confidently interact with their environment.¹ Developing perceptual motor skills involves teaching children movements related to time (e.g. moving fast vs slow), direction (moving forward, back or to the side) and spatial awareness (e.g. crossing their arms from the right side of the body to the left or tapping their heel to the ground).



WHY DO CHILDREN NEED TO DEVELOP PERCEPTUAL MOTOR SKILLS?



Preschoolers are still in Jean Piaget's pre-operational stage of development. They think in symbols, are developing memory, imagination and their thinking is egocentric and based on intuition not logic so they cannot yet grasp complex concepts such as direction, spatial awareness and speed variance (fast or slow). Perceptual motor development involves brain functions necessary to plan and make decisions from simple to more complex. Building perceptual motor skills allows children to practice these complex and unfamiliar tasks such as stepping back without looking or touching the *right* hand to the *left* knee (spatial awareness). Mastery of these perceptual motor skills sets a foundation for being more active and completing important day-to-day activities independently while preparing to read, write and master more complex skills. Young children need to be taught and provided with opportunities to practice perceptual motor skills; they do not just occur overnight.² Waiting until elementary school (when specific sports and other physical activities are introduced) to teach motor skills to children contributes to their lack of self-efficacy and consequently their ability to successfully participate. Children who do not develop these skills in the early years will eventually gravitate away from active sports, games and dance towards less threatening sedentary hobbies.³



EXTENSION

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Direction

Time

Space

Note: Children need to be taught and given opportunities to develop these skills. If you have concerns about a child's physical development or ability to complete skills and tasks, consult with the child's physician.



DIRECTION

Children need to understand directional instructions in order to perform most physical activities. Understanding directions verbally is the first step. "Which way is forward?" "Where is backwards?" "Can you point to the side?" Once children know the direction they are moving, the next step is ensuring that they move into space with ease and confidence. Practice having a child walk backwards on a painted line or step to the side while looking straight ahead. Children often step in the right *direction* of the command without actually stepping *sideways* or *backwards* (e.g. the child turns around and takes a step while facing the intended direction instead of stepping *backwards*).



TIME

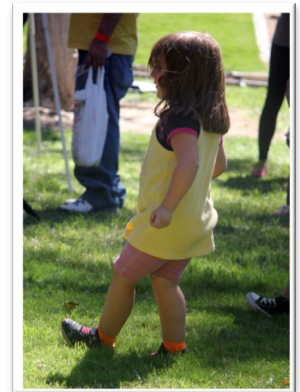
Children need to be taught skills that connect the brain to the body through varying *speeds* of movement. Children often have difficulty detecting differences in speed. Slow movement might be interpreted as smaller motions, while fast movements might be interpreted as larger motions. Learning to distinguish and practice the difference can help improve brain function and skill development. Try playing Red Light, Green Light or Simon Says and use both fast or quick movements or slow motion actions.



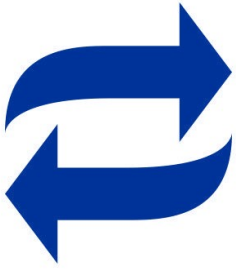
SPACE

This is one of the most difficult concepts for young children to grasp. Children tend to stand or sit close to each other because they haven't learned spatial awareness. We often teach children to create a bubble around themselves when we want them to spread out. Spatial awareness simply means being aware of where your body is as it moves about in space. Closing your eyes and then touching your nose with your finger requires understanding spatial awareness.

For children, this can be taught by practicing moving their body up high or down low to experience different spatial directional movements; swinging their hips or shrugging their shoulders to learn to isolate or pinpoint specific areas of the body to move; or touching the right hand to the left knee to master crossing the midline of their body. Crossing the midline (vertical imaginary wall that separates the two sides of the body) is not only a physical challenge, it is also a brain development challenge. Crossing the midline of the body can improve literacy and reading skills^{4,5} which require writing numbers and letters and moving the eyes from left to right.



ACTIVITIES TO IMPROVE PERCEPTUAL-MOTOR DEVELOPMENT IN YOUNG CHILDREN



Walk forward and backwards – While a child who is already walking knows how to step forward, the child may need only to learn the term “forward”. However, the movement of stepping backwards can be a challenge. Encourage children to step backwards without turning around (e.g. not turning around and stepping forward behind them). Practice walking *forward and backwards*:

Walk the line - Use tape to make a straight line on the floor. Have children practice walking forward and backwards on the line. Try it again without looking back. Vary the fun by making the line different shapes such as an “S” or a “Z”.



Step sideways – Children should practice stepping *sideways* without turning their shoulders in the direction of the step (e.g. not turning to the right and stepping forward in that direction). While teachers should use “right” and “left” commands, they should also point in the desired direction. This allows children who struggle with “right” and “left” commands to still perform the activity. Practice *stepping sideways*:

Boogie Oogie Slide - Put on a country song and have children line up side-by-side. The teacher should point and shout “right” or “left” and have children take 4 steps in the desired direction while looking straight ahead.

Move high and low – Children don’t often maximize their space. A high movement might be a slight tip toe and a low movement a slight downward bend. Teaching children to maximize their space involves jumping and reaching high to the sky and squatting down low and touching the ground. This allows children to feel the space above and below them. Practice *moving high and low*:

Popcorn - Provide each child with a streamer (or rainbow ribbon). Have them wave it as high as possible, then crumple down to the ground and crouch really small. Sweep the ribbon across the floor. When the teacher yells “Popcorn!” have the children jump up



TIME

Move the body fast and slow – While the concept of fast and slow as opposites makes sense, moving the body in varied speeds can be difficult for a child. A child may confuse a command to move his arms fast or slow with moving them in larger or small circles. Use visual cues to teach a child to move “fast like a jackrabbit” or “slow like a slow motion video action figure”. Teaching children to practice slow motion movements teaches them skills like varied speed, control and balance. Practice these *varied speed* movements:

- Alternate slow marching and running in place – Put on some music and march slowly, count out loud to 8, then run in place for 8 counts. Continue back and forth.
- Act like a slow-mo’ action figure – Have children take turns picking their favorite hero, sports star, or action figure. Pretend to be like that person by imitating them in slow-motion.
- Act like a fast and slow animal – Have children take turns choosing fast animals alternating with slow animals.
- Pretend to move like that animal, “run fast like a jackrabbit”, “crawl slow like a turtle”, “hop fast like a kangaroo”, “hop slow like a bunny”, “swim fast like a fish”, “slither slow like a snake”.





SPACE

Move the whole body in space – Performing large body movements, also called gross motor movements, allows the child to feel their body while moving into space. While teaching direction is important, allowing the child to experience moving his body in those directions is critical. Practice these *whole body* movements:

- Move up high with your whole body – get on your tippy toes, stretch your arms up, reach high to the sky and jump
- Move down low with your whole body – go down to the ground, get as small and low to the ground as possible; squat like a duck, or hop like a frog
- Pretend to be a snake – instead of placing your palms together and wiggling them around, place your entire arms together over your head and make your whole body be the snake. Pretend to be an elephant and swing the arms like the trunk or act like other animals using your whole body not just the feet and hands.



Isolate one part of the body – While swinging a hand or foot in the air might seem like a simple task, connecting the brain to the body for some areas can be difficult, such as shrugging the shoulders, swinging the hips or tapping just the heel on the floor (a child might stomp her whole foot because her brain doesn't connect with just the heel). Practice these *isolation* movements:

- *Pretend to be a cowboy* with your thumbs in your front pockets and tap *only* the heel to the floor alternating one heel with the other
- *Do a Latin dance* by placing your hands on your hips and practice swinging *only* the hips; swing them one way and then the other
- *Pretend to say "I don't know"* and shrug *only* the shoulders, then try shrugging only the right shoulder and then the left shoulder

Cross the midline of the body – Children are often uncomfortable crossing the midline of the body (an imaginary vertical wall that separates the two sides of the body). Generally the right hand and foot stay on the right side of the body and vice versa. Children should practice moving their hands and feet across the imaginary midline of their body. Practice *crossing the midline* of the body with these movements.

- *Pretend to be in a parade* and march in a straight line, looking forward while waving your hands across your body to the spectators on the other side
- *Pass the ball* by lining up with your friends in a straight line, shoulder to shoulder and practice passing a ball down the line without turning your shoulders.
- Do a jumping, criss-cross step; start with feet spread at shoulder width, and jump while crossing the right foot over the left, jump and return, then jump and cross the left foot over the right



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