



### **Early Movement Indicator (EMI) Scoring Definitions**

Scoring procedures are designed to record a child's gross motor behaviors as they occur during the Early Movement Indicator (EMI) assessment. The EMI is a direct assessment of child skills elicited by an adult play partner during a 6-minute play session. Discrete key element behaviors are scored as individual episodes. These key element behaviors include Transitional Movements (T), Grounded Locomotion (GL), Vertical Locomotion (VL), Throwing/Rolling (TR), and Catching/Trapping (CT). While a child may engage in additional types of movement, these are the skills measured for the EMI.

"Partner" in these definitions refers to the adult playing with the child during the EMI assessment.

"Assessor" refers to the person in charge of the assessment and recording of the child's behavior. The assessor may also be the partner.

"Recorder" is the person who records the child's behaviors on the Recording Sheet. This person may also be the assessor and adult play partner. A "Reliability Recorder" is someone who double checks scoring of the child's movements to ensure continued reliability of recording. This person is usually not the assessor or partner.

"Locomotion" involves movements that transport the body forward, backward, sideways or upward from one point to another.

"Episode" in these definitions refers to an incidence of a behavior. An episode is counted with a tally.

Each key skill element is scored separately as it occurs in a situation. All elements are scored using a frequency count. Each instance of an element is counted and recorded with a tally mark in the appropriate cell on the recording sheet. Recording sheets have different sections for each element for each minute of the assessment. Elements can be summed into a Total Movement score.

## Definitions of Movement Key Elements

### Transitional Movements

Transitional Movements are motions used by a child to achieve a new position within a posture or to a new posture. These can include movement within a stable posture (changing the primary weight bearing surface), or moving from one distinct posture (lying on his/her back or stomach, sitting, kneeling, stooping, standing) to another. An episode begins when a child begins moving from a stable position to a new position. The episode ends when the child has regained a stable position or begins locomotion. Falls are not counted as transitions in position, but movements a child uses after the fall to begin moving again are counted (e.g., a child takes a step, then falls on his/her bottom, then begins crawling – the fall would not be counted, but the movement from sitting to crawling would count).

Includes:	Excludes:
<ul style="list-style-type: none"> <li>• Rolling to stomach from back</li> <li>• Rolling to back from stomach</li> <li>• Rolling to side from back or stomach</li> <li>• Moving in and out of sitting position</li> <li>• Standing up</li> <li>• Kneeling down on knees</li> <li>• Stooping (bending at knees)</li> <li>• Rocking back and forth in crawling position (counts as one episode unless child changes into a new position; e.g., 2 episodes would be counted when the child is in a crawl position and rocks back and forth, then sits down and then moves back to the crawl position and rocks again)</li> <li>• Bouncing up and down by bending knees, in a standing position (counts as one episode unless child changes into a new position; e.g., 2 episodes would be counted when the child holds onto table and bounces knees while standing, then stoops down and stands again to bounce)</li> <li>• Child lying on stomach holding self up on arms (either forearms or extended arms) for at least 3 seconds</li> <li>• Movement within a stable posture – a child shifts weight in a very obvious way to lean forward or sideways from a stable position into another stable position. The weight bearing surface must change, it is not enough to simply lean forward or to one side (e.g., child is leaning on one hand, and changes position to lean on other hand; child is kneeling and moves body weight to the side to push a ball to a partner)</li> </ul>	<ul style="list-style-type: none"> <li>• Child lifting head up while on his/her stomach (for a behavior to count as a transitional movement, the child must lift up on arms)</li> <li>• Adult helps child roll over</li> <li>• Child attempts to roll over and not making it all the way over, and ends up in original position</li> <li>• Adult helps child move to sitting, kneeling, stooping, or standing</li> <li>• Bouncing with feet</li> <li>• Falling from vertical or grounded locomotion (movements transitioning the child out of the fallen position would be counted)</li> <li>• Rolling over and over repeatedly across the floor (this is scored as grounded locomotion)</li> <li>• Any movement coded under locomotion</li> </ul>

**Grounded Locomotion**

Grounded locomotion is horizontal to the ground, and does not use upright postures when moving. It is movement that is used by children to propel the body forward, backward or sideways. If child stops moving for more than 3 seconds, count any new movements as a new episode.

Includes:	Excludes:
<ul style="list-style-type: none"> <li>• Moving on belly from one location to the next, either forward, backward or sideways (pivot in prone)</li> <li>• Thrusting arms forward and then subsequently flexing them in a movement that leads to a slight forward or backward movement</li> <li>• Scooting by sitting on bottom and wiggling legs and bottom to move forward or backward</li> <li>• Crawling, stopping, but not changing position and then continuing to crawl</li> <li>• Crawling on 3 or 4 limbs (Either hands and knees or hands and feet)</li> <li>• Rolling over and over across the floor (more than rolling from one position to another, e.g., rolling once from back to stomach) – counts as 1 episode</li> </ul>	<ul style="list-style-type: none"> <li>• Lying on stomach and making swimming-like movements</li> <li>• Lying on stomach and lifting up slightly on arms to view an object</li> <li>• Rolling over once (this is scored as a Transitional Movement)</li> <li>• Movement that involves stepping with knees or feet</li> </ul>

**Vertical Locomotion**

Locomotion involves movements that transport the body forward/backward/ sideways or upward from one point in space to another.

Vertical locomotion is movement in an upright position intended to move the child forward, backward, sideways, or upward. If child stops moving for more than 3 seconds, count any new movements as a new episode. So for example, child walks (vertical locomotion), squats down (transitional movement), stands back up (transitional movement), and begins walking again (vertical locomotion). Each of these episodes would count even if it all happened within a 3-second period because each one is separated by an episode of a different key skill element.

Includes:	Excludes:
<ul style="list-style-type: none"> <li>• Cruising – walking while holding on to furniture for support</li> <li>• Walking alternating feet with one foot always on the floor. Walking must stop for at least 3 seconds before occurring again in order to be coded as 2 separate episodes (unless a child engages in a different motor behavior)</li> <li>• Walking up or down stairs</li> <li>• Walking sideways</li> <li>• Walking while hanging on to an object such as a push walker</li> <li>• Walking on knees</li> <li>• Running alternating feet with a brief period of no contact with the floor</li> <li>• Jumping up when throwing a ball</li> <li>• Jumping off of an object</li> <li>• Jumping – taking off on one foot and landing on the same foot</li> <li>• Climbing on an object or apparatus in which the child moves upward alternating arms and legs (e.g., lifting self on top of a chair, using arms and legs to crawl on top)</li> </ul>	<ul style="list-style-type: none"> <li>• Cruising or walking while supported by an adult (adult hangs on to child’s hands – this is not counted because the adult can adjust the level of support to help the child maintain balance and movement; however, if the child cruises hanging onto furniture, the child is the only one who has control of his/her balance and movement)</li> <li>• Walking while supported by a walker in which the child sits in a seat that supports the child’s weight</li> <li>• Adult lifting child up on top of apparatus or furniture (even if child had been attempting to lift self up)</li> </ul>

**Throwing/Rolling**

Throwing is propelling an object through the air. Rolling is pushing a circular object on the ground or floor so it rolls away from the child’s body.

Includes:	Excludes:
<ul style="list-style-type: none"> <li>• Throwing an object using an over-arm, underarm, or sidearm throw</li> <li>• Throwing backward</li> <li>• Object does not have to hit/contact the person or object at which child was aiming</li> <li>• Rolling an object toward a person, a target, or to experience the movement</li> <li>• Pushing an object away from the child’s body that may fly through the air for a short distance and then roll on the ground</li> </ul>	<ul style="list-style-type: none"> <li>• Bringing arm back, but dropping an object before releasing it</li> <li>• Pushing at an object, but it does not move forward</li> </ul>

**Catching/Trapping**

Catching is bringing an airborne object under control using hands and arms. Trapping is stopping a moving object (moving through the air or rolling on the ground) with hands, arms, legs, body. Trapping needs to be an active movement, and not just passively allowing an object to come to a stop against the body (e.g., it would not count as an episode of trapping if the child sits on the floor as a ball rolls up against his leg; however, it would count if the child reached out to stop the ball against her leg).

Includes:	Excludes:
<ul style="list-style-type: none"> <li>• Catching an object with hands or arms</li> <li>• Trapping it against the body (e.g., child holds out arms as a ball is thrown to the child; child traps the ball between his/her arms and chest)</li> <li>• Child trapping a ball rolling along the floor with his/her legs</li> </ul>	<ul style="list-style-type: none"> <li>• Child holding up arms to cover face/body when a ball is thrown toward him/her</li> <li>• Child picking up a ball that had not been moving from the floor</li> <li>• Child is sitting still as a ball comes to rest/stops against his/her leg/trunk/arm</li> </ul>