

# Incorporating Gross Motor Movement Works into an Infant Environment



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## Background

Maria Montessori spoke of the importance of movement for a child, linking physical activity to physical health, courage, self-confidence and intellectual growth (Montessori, 1972, p. 96-97). RIE, Resources for Infant Educators, also emphasizes the importance of gross motor movement in its philosophy. One of the basic principles of RIE is independent exploration and free gross motor movement for the infant (Kovach, 2015). Dr. Emmi Pikler believed this free movement allowed a child to be “more aware of their physical abilities and limits” (Gerber & Johnson, 1998, p. 14).

The importance of gross motor movement for infants is further supported by contemporary research. Research has shown that motor development and cognitive development are more closely linked than previously believed (Jenkins, 2012). Neuroimaging has shown either motor or cognitive tasks could activate both the cerebellum and prefrontal cortex when it was previously believed that motor tasks would only be concentrated in the cerebellum and cognitive tasks only in the prefrontal cortex (Diamond, 2000). Karen Adolph further suggested that for an infant movement is more than just a physical act, it’s also a cognitive act because the infant is learning how to learn, adapting to changing circumstances, and problem solving (Adolph and Joh, 2007).

## Research Question

The intent of this research was to explore what gross motor movement works could be incorporated into an infant environment and to determine the effects these works would have on climbing in the classroom.

Would infants engage and react positively to new gross motor works? Would the introduction of these gross motor works decrease the amount of unwanted climbing seen on chairs, tables and shelves?

## Research Methods

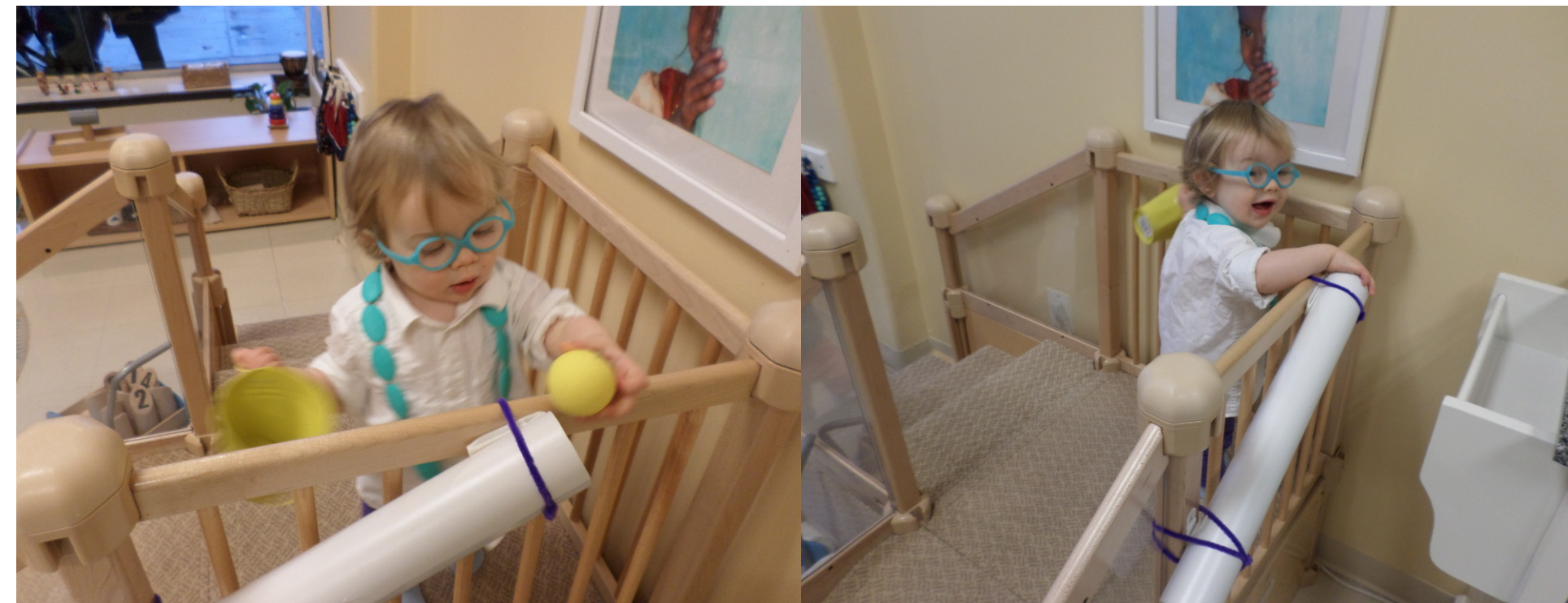
The research took place in a Montessori/RIE infant classroom. Research focused on the 6 mobile infants in the classroom who ranged in age from 14 to 20 months during the course of research. Data collection techniques included an observation journal, daily tally sheets of climbing and the use of gross motor works in the classroom, and 15-minute observations resulting in a quantitative and qualitative study.

The research process began with collecting data on how much climbing was taking place in the infant classroom before any new gross motor movement works were introduced. This control data was collected through three daily tally sheets of climbing, a 15-minute observation, and an observation journal.

After the data on climbing with no additional gross motor work had been collected, the first work was introduced: the climber work. A tube was attached to the top of the climber and a ball was placed in a bucket at the bottom of the climber. Infants could pick up the ball, walk up the climber, put the ball in the tube and watch it roll out, go down to pick up the ball, and repeat. The goal of this work was to encourage infants to make more use of the climber, a large work already available in the

## Research Methods Continued

classroom. Two daily tally sheets were completed for the climber work over the course of two days. A 15-minute observation was completed and notes were added to the observation journal.



After this was completed, the second work was introduced: the footprint work. Infant’s footprints were traced, cut out and mounted low on the wall with contact paper. This work and the climber work were inspired by conversations with Aline Feledy, MMI Infant/Toddler Course Director. The goal of this work was to encourage infants to try moving their bodies in a way they otherwise might not in class. Infants could sit or lie on their back on the floor and kick the footprint with their feet. Two daily tally sheets were completed for the footprint work over the course of two days. A 15-minute observation was completed and notes were added to the observation journal.



Lastly, the final work was introduced: the paint can work. Three paint cans were filled with water and placed in a corner of the classroom. One was wrapped in blue tape, one in red tape and one in yellow tape. Three squares were taped out on the classroom floor in blue, red and yellow. Infants could pick up the paint cans and match them to the corresponding square. This work was inspired by seeing infants trying to carry other large objects, such as the pushcart or doormat, around the classroom. The goal of this work was to encourage infants to use their maximum effort to carry or push the paint cans. Two daily tally sheets were completed for the paint can work over the course of two days. A 15-minute observation was completed and notes were added to the observation journal.

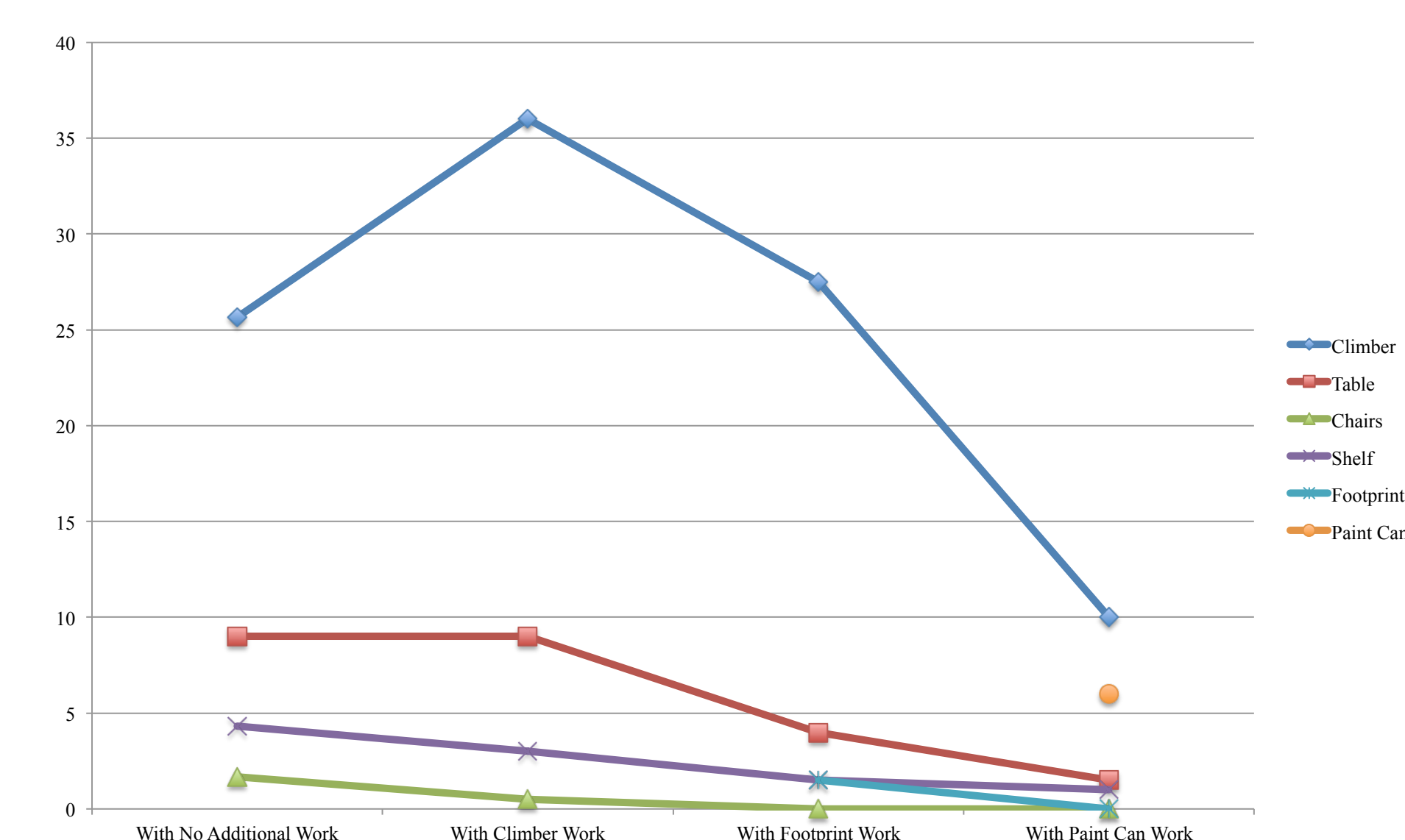


## Results

### Average Daily Tallies

	Climber	Tables	Chairs	Shelves	Foot-print	Paint Can
With No Additional Work	25.67	9	1.67	4.33	NA	NA
With Climber Work	36	9	.5	3	NA	NA
With Footprint Work	27.5	4	0	1.5	1.5	NA
With Paint Can Work	10	1.5	0	1	0	6

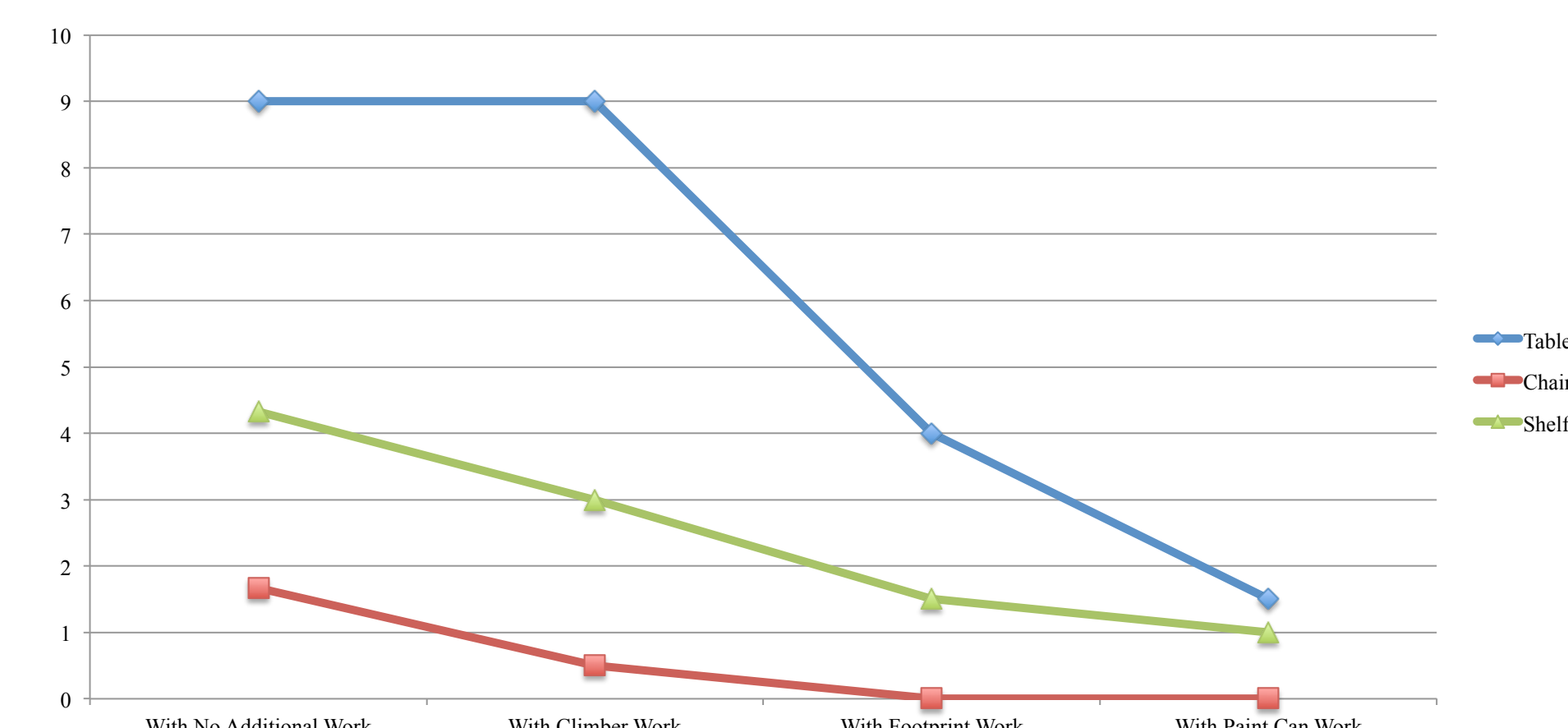
### Average Daily Tallies



### Average Daily Tallies: Tables, Chairs, Shelves

	Tables	Chairs	Shelves
With No Additional Work	9	1.67	4.33
With Climber Work	9	.5	3
With Footprint Work	4	0	1.5
With Paint Can Work	1.5	0	1
Percent Decrease	83%	100%	77%

### Average Daily Tallies: Tables, Chairs, Shelves



## Discussion

Overall, the data showed climbing on tables, chairs and shelves decreased by 83%, 100% and 77% respectively when new gross motor works were introduced into the classroom. Infants reacted positively to the gross motor works and engaged with them throughout the course of research. These results indicate that introducing new gross motor movement works could decrease climbing on furniture though other factors may also be involved.

After the introduction of the climber work, use of the climber increased; perhaps due to increased interest in the added tube and ball. With the climber work, climbing on chairs and tables decreased while climbing on shelves remained unchanged meaning climbing only decreased in some areas.

When the footprint work was introduced, daily climbing on the climber still remained higher than at the beginning of the research process. However, climbing on the climber decreased from when just the climber work was out, perhaps because infant’s initial interest in it had slightly waned. There was also a decrease in climbing on tables, chairs, and shelves.

With the addition of the paint can work, climbing decreased in all areas: climber, tables, chairs, and shelves.

Climbing on tables, chairs and shelves may have decreased with the additional gross motor work because the new work gave the infants an outlet for large movements and challenging movements that were purposeful and safe. Other factors that may have affected climbing, and could provide further areas for observation, include what other works were available to infants in the classroom and the caregiver’s responses, specifically language, to climbing.

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