Exploration as a mechanism explaining the link between the onset of walking and (spatial) language.

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Introduction
- Language develops through sensorimotor interactions with the environment, also known as exploration (Smith & Gasser, 2005).
- The attainment of independent walking dramatically changes these interactions and is important for the formation of spatial concepts (Campos et al., 2000).
- Relation between the attainment of sitting and walking and productive vocabulary (taken Oudgenoeg-Paz, Volman, & Leseman, 2012, see also Walle & Campos, 2014)

Current Study
- 62 Dutch children (55% girls), longitudinal design.
  - Parental reports about age of attainment of walking and sitting (diaries kept by parents)
  - Spatial exploration through self-locomotion (expected to be related to walking)
  - Exploration of spatial-relational object properties by making combinations (expected to be related to sitting)

Age 20 months
- Spatial language (productive)
  - Verbs of movement in a specific direction (e.g., *push, pull, climb*).
  - Locative prepositions (e.g., *in, between, under*)

Age 36 months
- Spatial memory 24 months
- Spatial processing 32 months
- Productive spatial language 36 months

Results

<table>
<thead>
<tr>
<th>Regression Models</th>
<th>B</th>
<th>β</th>
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<tbody>
<tr>
<td>Model 1</td>
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<td>Predictors</td>
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<tr>
<td>Age of sitting</td>
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<td>-.32</td>
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<td>Spatial-relational exploration</td>
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<td>.02</td>
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<td>Age of walking</td>
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<td>-.58</td>
<td>-.20</td>
<td>-.41</td>
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<td>Exploration using self-locomotion</td>
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<td>.34</td>
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Discussion and Conclusion
- The relation between motor milestones attainment and language is also evident for spatial language.
- Exploration is one of the mechanisms explaining the link between walking and spatial-linguistic skills.
- The difference between the effects of the two kinds of exploration (and possibly also sitting and walking) might be because knowledge of spatial words such as *between* or *behind* requires changes in perspectives which might be learned through exploration of the larger space through self-locomotion.

References