Spina Bifida: Should I expect this child to walk?1



|  |  |  |  |
| --- | --- | --- | --- |
| **Function Level** | **Muscle Strength** | **Expected Ambulation** | **Lesion Level** |
| I | Weak foot muscles; grade 4-5 plantarflexion strength | Community ambulation, no orthoses; ability to keep up with peers | Low-lesion: S2 |
| II | Grade 3 or less plantarflexion strength; grade 3 or more knee flexion strength, grade 2-3 hip extension and abduction strength | Community ambulation with orthoses; no walking aid; wheelchair use for long distances only | Low-lesion: L5-S1 |
| III | Grade 4-5 hip flexion and knee extension strength; grade 3 or less knee flexion strength; grade 1 hip extension, hip abduction, and below-knee muscles | Household ambulation with orthoses and walking aid; wheelchair use for outdoors and long distances | Low-lesion: L3-L4 |
| IV | No knee extension activity; grade 2 or less hip flexion strength; grade 3-4 pelvic elevation strength | Household ambulation with orthoses and walking aid; wheelchair use for both indoors and outdoors | High-lesion:L1-L2 |
| V | No muscle activity in lower limbs; no pelvic elevation | Non-functional ambulation; ambulation during therapy and for limited time at home/in school; wheelchair use for primary mobility | High-lesion:Thoracic |

**MUSCLE STRENGTH GRADES:** **1 = TRACE** (can feel a contraction, no movement)

 **2 =** **POOR** (able to move in gravity-minimized position)

 **3 = FAIR** (able to move against gravity)

 **4 =** **GOOD** (able to hold against moderate resistance)

 **5 =** **NORMAL** (able to hold against maximum resistance)

1Bartonek A, Saraste H. Factors influencing ambulation in myelomeningocele: a cross-sectional study. *Developmental Medicine & Child Neurology.* 2001; 43: 253-260.