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Background/Purpose

Toe walking is one of the most prevalent gross motor function deficits found in children with autism spectrum disorders (ASD)¹. It can be diagnosed when walking on the toes or balls of the feet persists longer than 3 months after independent walking begins. Without treatment, persistent toe walking can lead to impairments of functional mobility due to equinus contracture² associated with plantar fasciitis, metatarsalgia, posterior tibial tendonitis, and Morton's neuroma³.

Learning and behavioral interventions for children with ASD are likely to produce more positive outcomes when initiated between the ages of 2 and 4 years of age⁴. Toe walking was shown to be linked to early diagnosis of ASD⁵. It is important to better understand the association between toe walking and ASD as well as aspects surrounding identification and management of toe walking in individuals with ASD.

This study examines the relationships between toe walking and ASD for age of onset, identifying entity, and utilization of physical therapy services.

Materials/Methods

Data were collected using an anonymous survey which posed the following questions:

1. Current Age and Age of Diagnosis
2. Has your child received therapy services in the past? If so, what services?
3. Has your child ever toe walked?
4. At what age was your child's toe walking noted?
5. Does your child currently toe walk?
6. Who first recognized your child's toe walking?
7. Has your child received intervention or therapy for toe walking?
8. What intervention did your child receive?

Surveys were distributed by clinic nurses to families attending autism clinics at the Thompson Center for a 2 month period. Families voluntarily completed the surveys during their visit.

Participants

Sixty-two families completed the surveys. Mean age for respondents with ASD was 13.49 (range 3-38). Mean age at diagnosis of ASD was 6.09 years.



Results

- 33/62 respondents (51.6%) experienced toe walking at some time. (figure 1) 19 of the 33 (58.0%) presented with toe walking at the time of the survey (TW)
- Difference in age of ADS diagnosis was statistically significant ($p=.000$) between TW and the non-toe walking group (NTW): TW group 4.14 yrs. (range 2-10, SD 2.197), NTW group 8.69 yrs. (range 2-33, SD 8.89)
- Mean age of identification of TW was 1.88 yrs (range 1-5, SD 1.08)
- TW was first identified by parents in 18 of 19 individuals (96.9%) (figure 2)
- 17 of 33 (51.5%) TW are currently receiving or have received physical therapy services in the past.
- 5 of 33 (15.2%) who received physical therapy services received physical therapy intervention specifically addressing toe walking

Identification of Toe Walking

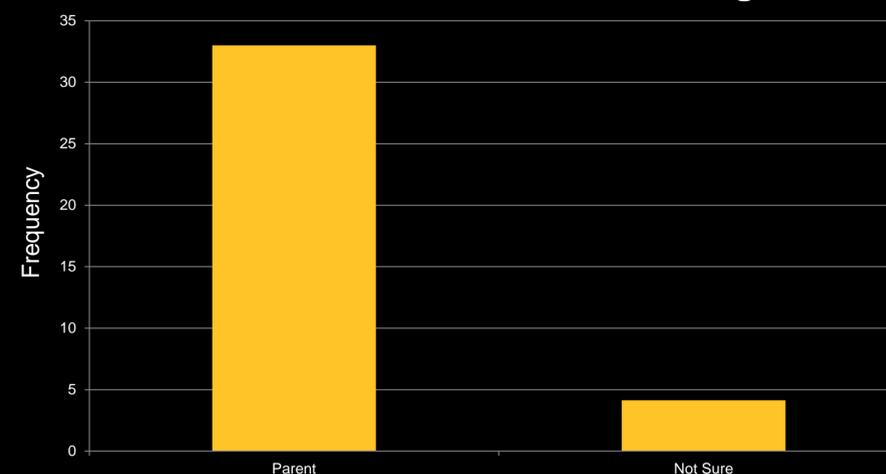


Figure 2

Conclusion

Data from this study are consistent with previous literature linking toe walking and early diagnosis of ASD (figure 3). Parents were first to notice toe walking in their children. It is critical that parents understand the link between ASD diagnosis and toe walking to increase early reporting to health care professionals. Utilization of physical therapy services to address toe walking is currently limited.

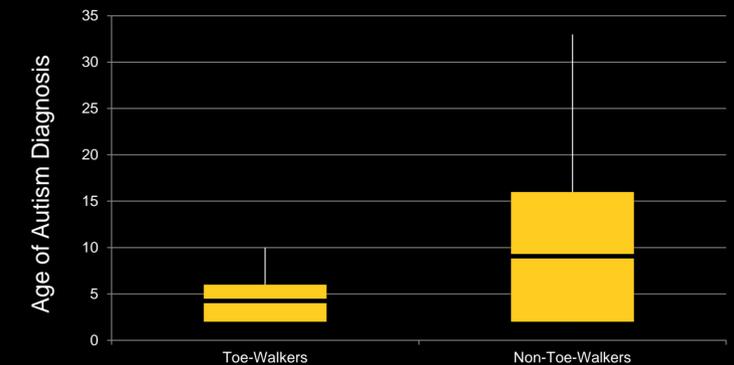


Figure 3

Clinical Relevance

Early diagnosis of ASD produces opportunities for earlier intervention and, in turn, positive outcomes. Utilization of parent reported toe walking to screen for ASD would accelerate access to ASD diagnosis and intervention services.

Increased referral to physical therapy services to specifically address toe walking in individuals with ASC can decrease long term functional mobility impairments and pain.

References:

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