

Introduction

- Individuals with intellectual disabilities (ID) face disparities across multiple sectors of health, contributing to poorer health outcomes [1, 2].
- Evidence from smaller studies suggests there is a higher prevalence of balance and vision impairments among this population [3-7]. Adults with ID face a high risk of falls at younger ages [8].
- Fall prevention strategies need to consider sensory differences compared to a typical population.
- Professionals in PM&R require a competent understanding of the needs of people with ID to ensure patient athletes can safely reach their competition- and health-related goals.
- Special Olympics (SO), the host of the world's largest public health database for individuals with ID, provides an accessible platform to advance large-scale epidemiological studies in this population [9].

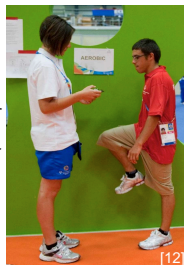
Purpose

The present study investigated the prevalence and overlap of visual and balance impairments in Special Olympics athletes, ages 8 and older, presenting to Healthy Athletes Screenings between 2007 and 2018.

Methods

PROCEDURE

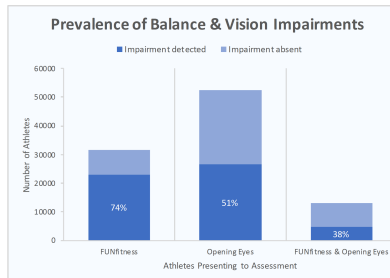
- SO implemented standardized vision assessments and balance screenings at Healthy Athletes events, including Opening Eyes and FUNfitness.
- Trained Opening Eyes optometrists assessed for visual impairments including (1) reduced acuity (e.g., 20/40 or poorer); (2) difference in acuity; or (3) presence of strabismus (poor eye motor control).
- Trained FUNfitness professionals screened for balance impairments using tasks:
 - Single Leg Stance with Eyes Open (SLS-EO)
 - Single Leg Stance with Eyes Closed (SLS-EO)
 - Functional Reach Test (FRT)
- A balance impairment was determined if >2 standardized tasks fell outside normal limits.



ANALYSIS

- Prevalence was assessed among each sample presenting for assessment.
- Student's t-tests were used to assess differences within SLS-EO between vision and non-vision impaired athletes with balance deficits.

Results



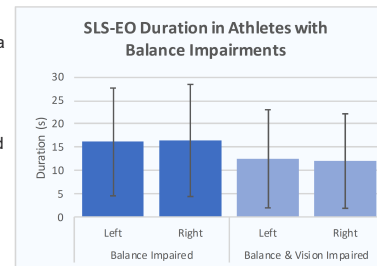
▲ Figure 1. Prevalence of visual and balance impairments in SO athletes.

PREVALENCE ANALYSIS

- 74% of SO athletes had a balance deficit (N = 31,446).
- Reported prevalence of balance deficits in the general population is 35% [11].
- 51% of SO athletes had a vision deficit (N = 52,521).
- Reported prevalence of vision deficits in the general population is 3% [10].
- 38% of SO athletes had concurrent balance and vision deficits (N=13,004).

FURTHER ANALYSIS

- SLS-EO was used as a vision-related balance assessment.
- Athletes identified with balance and visual impairments performed significantly worse on the SLS-EO task than without a visual impairment, $p < 0.001$.



◀ Figure 2. Mean duration of SLS-EO in balance-impaired athletes with and without concurrent vision impairments.

Conclusions

- Vision and balance impairments, both alone and concurrent, are more prevalent in SO athletes with ID compared to the general public.
- Screening and health counseling for individuals with ID are essential to ensure safety and quality of life.
- Vision plays a significant yet partial role in balance performance. Physicians, athletic trainers, and physical therapists should also consider enhanced somatosensory training for individuals with ID to improve balance, prevent falls, and promote safe ambulation.

References



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