Intellectually Disabled Athletes and the Special Olympics

Aaron Rubin, MD, FAAFP, FACSM
Kaiser Permanente Sports Medicine Fellowship Program
Objectives

- Special Olympics movement
- ID and associated conditions
- Exercise benefits
- Healthy Athletes
- Injury patterns in SO athletes
Almost 4.4 million athletes in more than 170 countries
Almost than 1.36 million coaches and volunteers
More than 81,000 competitions around the world each year
More than 226 competitions hosted each day
32 Olympic-type summer and winter sports
Special Olympics Today

All Special Olympics athletes have intellectual disability, but intellectual disability is often just part of the picture
Intellectual Disability

- Generally, an IQ test score of around 70 or as high as 75 indicates a limitation in intellectual functioning.
- Standardized tests can also determine limitations in adaptive behavior, which comprises three skill types
  - Conceptual skills
  - Social skills
  - Practical skills
Intellectual Disability

- **Conceptual skills**—language and literacy; money, time, and number concepts; and self-direction.

- **Social skills**—interpersonal skills, social responsibility, self-esteem, gullibility, naïveté (i.e., wariness), social problem solving, and the ability to follow rules/obey laws and to avoid being victimized.

- **Practical skills**—activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone.
Life Expectancy Increase

Age at Death

- Intellectual Disability
- Down Syndrome

Time Period


Age

0, 10, 20, 30, 40, 50, 60, 70

Courtesy Matthew Holder, MD, MBA
Global Medical Advisor, Special Olympics International
Common Diagnoses

Down syndrome
- The most common genetic cause of ID
- 16% of Special Olympics athletes

Fragile X syndrome
- The most common inherited cause of ID

Fetal Alcohol syndrome
- The most common acquired cause of ID

Cerebral Palsy
- Neuromotor dysfunction most often associated with hypoxic brain injury

Autism
- 22% of Special Olympics athletes

Facial features associated with Fragile X syndrome and gaze aversion associated with autism

Courtesy Matthew Holder, MD, MBA
Global Medical Advisor, Special Olympics International
Neurodevelopmental Disorder

Secondary Health Consequences

- Intellectual Disability
- Sensory Impairment
- Neuromotor Dysfunction
- Seizure Disorder
- Abnormal Behavior

Environment

Genetics

Common Cerebrogenic Conditions

Syndrome Specific Conditions

Secondary Health Consequences

- Cephalic & Cervical
- Cardiac & Pulmonary
- Skeletal & Connective
- Endocrine & Metabolic
- Gastro – Intestinal

Courtesy Matthew Holder, MD, MBA
Global Medical Advisor, Special Olympics International
Special Olympics Differences

• How the athletes are chosen for World Games
  – Some are chosen through achievement
  – Most are chosen by lottery

• Divisioning
  – Six divisions according to ability

• Unified Partners
  – Some athletes will not have IDD
  – Vary greatly in terms of physical conditions

• Age range 8-80
Exercise in IDD

The benefits of exercise to a Down’s Syndrome population

“clear benefit to the Down’s Syndrome individual”

http://www.intellectualdisability.info/physical-health/articles/the-benefits-of-exercise-to-a-downs-syndrome-population
Benefit to the Down’s Syndrome Individual

- Improved cardiovascular and neuromuscular responses.
- Basic function and vocational performance is positively affected by exercise.
- Improvements in adaptive skills more independent in leisure and work opportunities:
  - (Mendonca et al, 2010).
- Demonstrated benefits from performing jumping exercise:
  - (Wang et al, 1997); (2001)
- Combination of walking/jogging and virtual reality Wii game console exercise:
  - (Lin et al, 2012)
Benefit to the Down’s Syndrome Individual

- Group-based training where two to three individuals together with one supervisor present programme which was led by student mentors
  - (Shields et al (2008); (2013)
  - Avoids many of the pitfalls associated with prescribed exercise programs
- Barriers to physical activity are evident
  - Cost efficiency and motivation
  - 92%(Shields)-100%(Lin) attendance rate
Exercise in IDD

Commentary: Exercise as a Treatment in Intellectual and Developmental Disability

“It is essential that physical activity be acknowledged as a necessary daily intervention to increase the quality of life of individuals with IDD.”

http://www.oadd.org/docs/41017_JoDD_20-1_v11f_122-127_Janicas.pdf
Exercise in IDD

Increasing physical activity of people with intellectual disability

“lack of physical activity means that people with intellectual disability are becoming increasingly susceptible to lifestyle diseases that are avoidable - such as cardiovascular disease and premature ageing - on top of their existing conditions.”

The exercise prescription

• Needs
  – Aerobic
  – Strength
  – Balance

• Concerns
  – Cardiac
  – MSK
  – Seizures
  – Guidance
Get them involved with Special Olympics
BENEFITS OF PARTICIPATION

No matter the person’s age or skill level, Special Olympics Southern California has something for everyone with intellectual disabilities. We deliver high-quality, year-round competition and training opportunities in an inclusive culture that stresses athletic excellence, rewards determination, emphasizes health, and celebrates personal achievement.

STRENGTH

Physical exercise positively impacts health, mood and anxiety. Emphasis on sports training helps athletes maintain a healthy weight.

CONFIDENCE

Through sports, our athletes see themselves for their abilities, not disabilities. They become confident and empowered by their accomplishments.

INSPIRATION

As athletes become empowered, they have opportunities to get involved in decision making, public speaking, and leadership roles.

FRIENDSHIP

Athletes have many opportunities to make friends and socialize in an accepting environment. They discover they are not alone.

STRENGTH

Physical exercise positively impacts health, mood and anxiety. Emphasis on sports training helps athletes maintain a healthy weight.
Healthy Athletes

• Officially launched in 1997, Healthy Athletes organizes its events in a welcoming, fun environment. Its events educate athletes on healthy lifestyle choices and identify problems that may need additional follow-up.

http://www.specialolympics.org/Sections/What_We_Do/Healthy_Athletes/Health_Programs.aspx
Healthy Athletes

- Despite a mistaken belief that people with intellectual disabilities receive the same or better health care than others, they typically receive sub-standard care, or virtually no health care at all.
- Healthy Athletes has the world's largest database of health data for people with intellectual disabilities.

http://www.specialolympics.org/Sections/What_We_Do/Healthy_Athletes/Health_Programs.aspx
Healthy Athletes

• Through Healthy Athletes, more than 136,000 health care professionals have been trained to treat people with intellectual disabilities. These health care professionals provide improved care to millions. Special Olympics has given out more than 100,000 pairs of prescription eyeglasses to athletes who needed them.

http://www.specialolympics.org/Sections/What_We_Do/Healthy_Athletes/Health_Programs.aspx
Healthy Athletes at SOWG
88.98% Screened (RECORD)

- 5,484 total
- 5,000 pairs of properly fitted athletic shoes were distributed
- Eye exams and ocular dispensing
  - 875 RX eyeglasses
  - 250 RX sports goggles
  - 52 plain sports goggles
  - 1500 Sunglasses
- 600 received comprehensive dental care
- Audiology exams
  - 322 hearing aids distributed
  - 197 were fitted with hearing aids
Injury and illness patterns:
Special Olympics World Games 2015
Los Angeles

Aaron Rubin, MD, FAAFP, FACSM
Medical Director SOWG LA 2015
Kaiser Permanente Sports Medicine
Highlights

• 247,000 World Games attendees
• 6,321 Athletes
• Over 700 physician volunteers
• 3,040 recorded medical encounters
Let the Games Begin

• 6 venues/26 events/28 Fields of play (FOP)
  – UCLA
    • Football (soccer), Softball, Gymnastics, Volleyball, Tennis, Judo
  – USC
    • Athletics (track), aquatics, basketball, Healthy Athletes
  – LACC
    • Team Handball, Bocce, Badminton, Table tennis, Bowling
  – Long Beach
    • Beach volleyball, ½ marathon, triathlon, cycling, kayak, sailing, open water swim, sailing
  – Balboa Park
    • Football (Soccer)
  – Griffith Park
    • Equestrian, Golf
3040 Medical events

142 Poly Clinic transfers
49 ED transports
9 Hospital admissions
# Distribution of Medical Events

## RaceSafe Entries - Medical Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Arrivals</th>
<th>Host Towns</th>
<th>Competition Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/21</td>
<td>44</td>
<td>18</td>
<td>129</td>
</tr>
<tr>
<td>7/22</td>
<td>46</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>7/23</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/24</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/25</td>
<td>121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/26</td>
<td>402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/27</td>
<td>303</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/28</td>
<td>442</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/29</td>
<td>395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/30</td>
<td>456</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/31</td>
<td>517</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/2</td>
<td>236</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/3</td>
<td>21</td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

**Arrival**

**Host Towns**

**Opening Ceremonies**

**Closing Ceremonies**
142 Poly Clinic transfers
49 ED transports
9 Hospital admissions

Transfers, Transports, and Hospital Admissions

- Poly Clinic Transfers
- ED Transports
- Hospital Admissions

Number of Athletes

Arrival | Host Towns | Competition days

Opening Ceremonies

Closing Ceremonies
Ceremonies Briefing
Types of medical encounters

• Most common complaints
  – Fatigue, headache
  – Abrasions, pain
  – Most common injuries-knee, feet, ankles

• Serious complaints
  – Seizures-20
    • Lower than anticipated
    • May have been cared for within the teams
  – Head injury-26
    • Protocols to escalate to Sports consultant
    • Neurologist consultant always available
    • Most serious TBI was fall in bathtub
Story behind the last athlete seen
Thank You!

Special Olympics World Games
Los Angeles 2015

Kaiser Permanente
Founding Champion & Official Health Partner
Bibliography

• Medical Planning for Very Large Events: Special Olympics World Games Los Angeles 2015. Vasquez, Marissa S. MD, FAAFP; Fong, Michael K. MD; Patel, Leena J. DO; Kurose, Brian MD; Tierney, John MD; Gardner, Imani MD; Yazdani-Arazi, Arash MD; Su, John K. MD, MPH. Current Sports Medicine Reports: May/June 2015 - Volume 14 - Issue 3 - p 161–164


• Unexpected Disasters at Organized Sporting Events: Considerations in Preparation and Response. Woodward, Thad MD; Shamim, Ferheen MD2; Hinson, Michael DO; Bass, Evan MD Current Sports Medicine Reports: May/June 2015 - Volume 14 - Issue 3 - p 171–175