Unique Medical Concerns in Special Olympics Athletes

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Disclosures

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No relationships to disclose

Overview

- Special Olympics Athletes
- Diagnostic Overshadowing
- Medical Causes of Behavior Change
- Polypharmacy and Medication Side Effects
- High Risk Sports Related Injury and Illness

Special Olympics Athlete

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 70-75 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
▪ Language and literacy ▪ Number concepts ▪ Self Direction	▪ Interpersonal Skills ▪ Social Responsibility ▪ Problem Solving ▪ Rule Following	▪ Activities of Daily Living ▪ Occupational Skills ▪ Schedules/Routines ▪ Travel/Transportation

Common Diagnosis

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

- Down Syndrome
  - Most common genetic cause of Intellectual Disability (ID)
  - 16% of Special Olympics Athletes
- Fragile X
  - Most common inherited cause of ID
- Fetal Alcohol Syndrome
  - Most common acquired cause of ID
- Cerebral Palsy
  - Neuromotor dysfunction most often associated with hypoxic brain injury
- Autism
  - 22% of Special Olympics Athletes

Higher Risk Population

Inadequate Access to Quality Health Care

Less preventive health care and management of chronic conditions

Less Access To Health Promotion Programs

Decreased physical activity
Increased Sedentary Lifestyle

Underlying Medical Conditions

Cardiac Conditions
Obesity
Seizure Disorders

SHORTER LIFE EXPECTANCY

2X

MORE LIKELY TO DIE BEFORE **50** THAN ADULTS WITHOUT ID

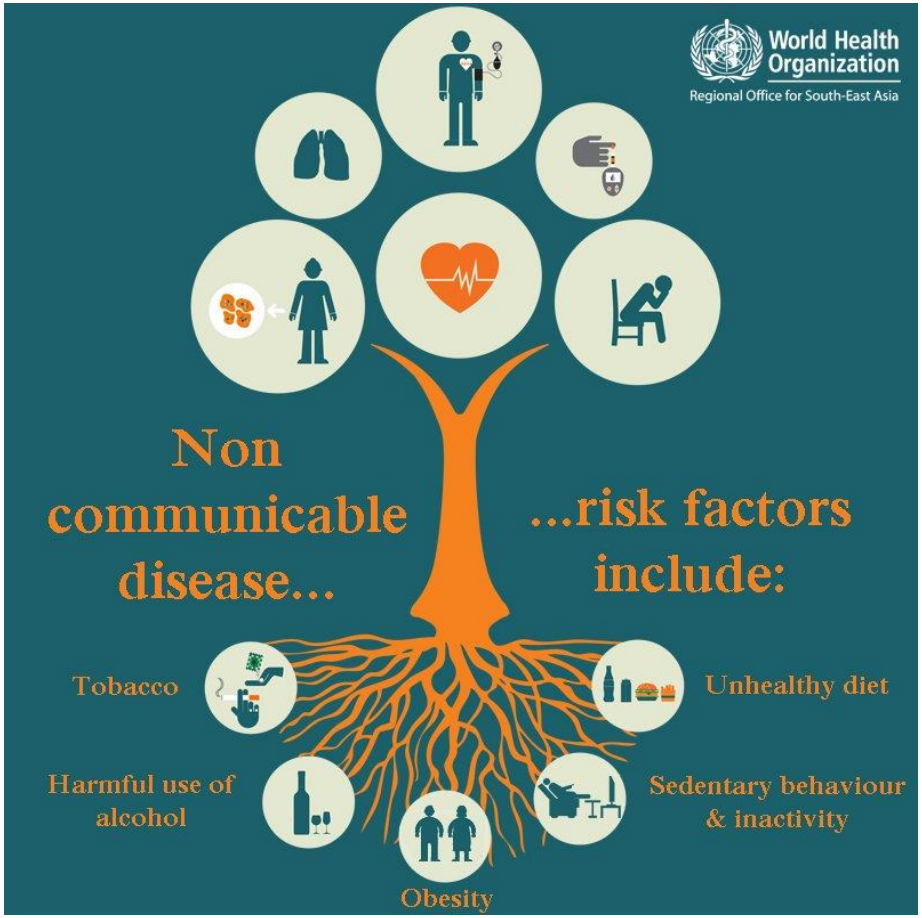
Non Communicable Diseases

Increased Risk For:

- Cardiovascular Diseases
- Chronic Respiratory Illnesses
- Cancer
- Diabetes

Contributing Factors:

- Sedentary Lifestyle
- Obesity
- Unhealthy Diet



Less Access to Quality Medical Care

- Difficult to navigate health care system
- Transportation
- Limited number of providers with experience in caring for a population with intellectual disabilities and co-existing conditions
- Athlete or family does not always recognize the need for a visit
- Diagnostic Overshadowing

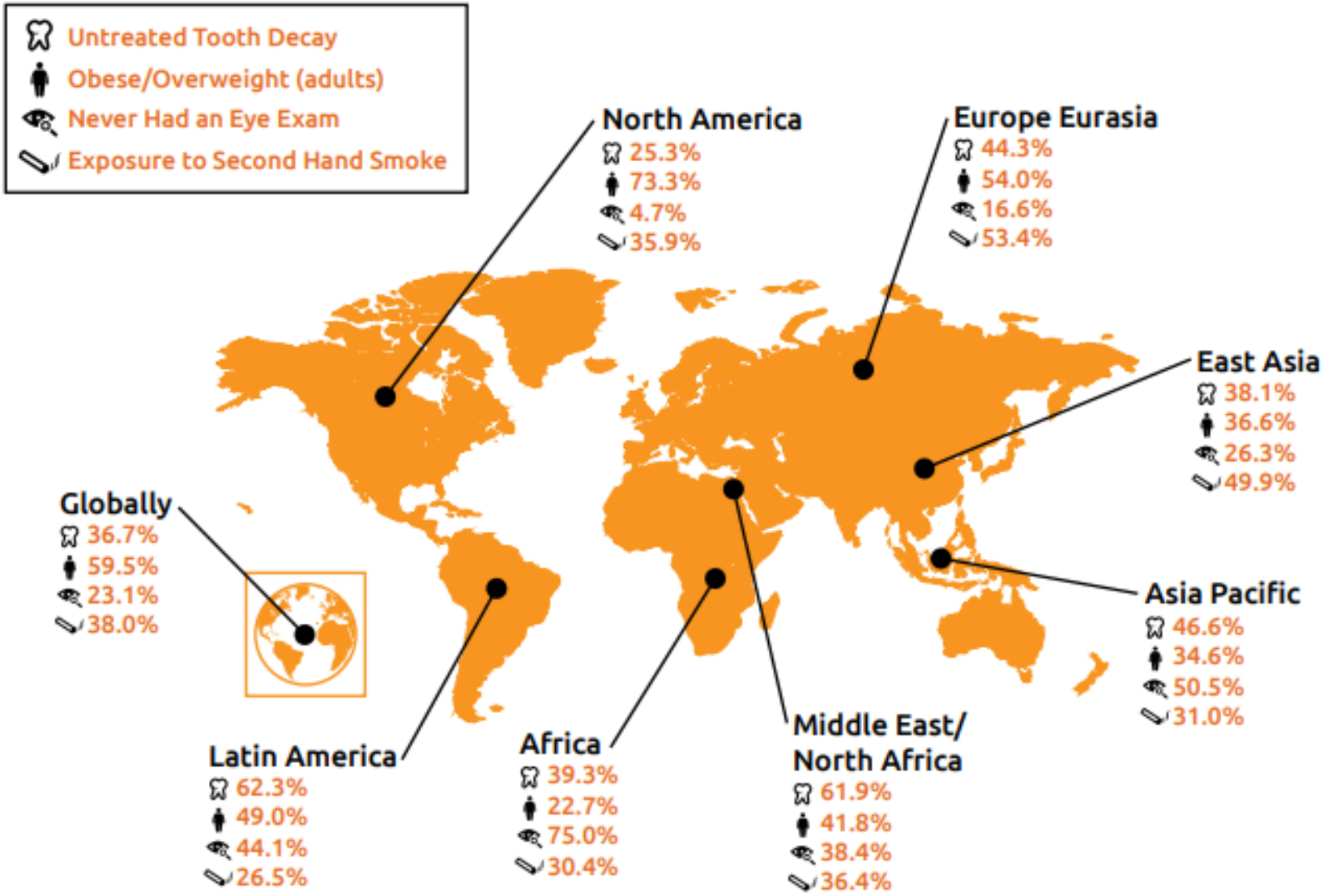
Healthy Athletes Screening USA Games

Athletes Screened

- 7,125 individual screenings
  - Fit Feet 1431 athletes
  - Healthy Hearing 989 athletes
  - Opening Eyes 806 athletes
  - Special Smiles 1161 athletes
  - Health Promotion 834 athletes
  - Fun Fitness (PT) 761 athletes
  - Strong Minds 1143 athletes

Opportunities

- 51% (730) athletes were in the wrong shoe size
- 23% (228) did not pass the hearing test
- 46% (371) needed new glasses or new prescriptions
- 8.4% (97) dental pain
- 17.7% (206) untreated tooth decay



The Healthy Athletes dataset includes over 220,000 dentistry, 100,000 audiology, 100,000 podiatry, 180,000 optometry, 130,000 health promotion, and 100,000 fitness exams since 2007. Over half of each of the disciplines' exams were completed outside of North America. Data through December 2017.

Recognizing and Avoiding Diagnostic Overshadowing

It is sometimes easy to misinterpret how athletes with intellectual disability present

Diagnostic Overshadowing

- Attributing a patient's new symptoms or behavior to an already established diagnosis without considering other causes.
- Cognitive Bias that results in
  - Delays in diagnosis and treatment
  - Over and under treatment
- While Special Olympics athletes and patients with intellectual disability often have common, easy to treat diagnosis, they may present in different ways
  - Awareness of bias
  - Expand your differential
  - Know that physical discomfort can present as psychological stress

Consider Medical Causes of Behavior Change

Patients with limited communication abilities will often "act out" their discomfort

ALWAYS rule out physical problems **FIRST!**

Behavioral Manifestations of Physical Disease

- Patients with limited communications abilities will often “act out” their discomfort
  - Brought to the doctor by caregivers for these behaviors
- Doctors often try to treat the behavior with psychiatric medciations
- The behaviors decrease because of the medication BUT. . .
- The physical problem is not being treated

ALWAYS Rule Out Physical Problems First!
Before assuming that a behavior change has a psychiatric cause.

Common Examples

- Dental Pain
- Ear Infections
- Constipation
- Urinary Tract Infection (UTI)
- Gastroesophageal Reflux (GERD)
- Decubitus Ulcers
- Arthritis
- Fractures

Problems are not always pain related

- Thyroid
- Hormonal Changes (Menstruation, Menopause)
- Vision or Hearing Loss
- Allergies
- Vitamin Deficiency
- Environmental Changes
- Grief
- Abuse
- Dementia
- Psychiatric/Psychological Stress

Polypharmacy and Medication Side Effects

Medications and medication side effects place additional sports injury risk on Special Olympics athletes

Medication Facts

- People with ID are more likely to get a prescription when they go to the doctor
- Polypharmacy among people with ID ranges from 11% to 60%
  - Increased side effects from multiple medications
  - In general only one medication in any particular drug class should be used at one time. It should be stopped if another medication in the same class is started
- 25% of SO athletes (in the US) are taking a medication that could negatively impact sports participation

Regularly review all medications at least yearly to ensure they are still needed and not duplicated

Medication Risks

Medications can adversely effect athletes risk profile

- Long QT Syndrome (cardiac arrhythmia)
- Weight Gain
- Osteoporosis (low bone density)
- Constipation
- Sun Sensitivity
- Reflux
- Dental Cavities
- Dehydration

Medication Risk

- Long QT Syndrome (antiarrhythmics, antipsychotics, antidepressants, antibiotics, antifungals)
  - 5% of Special Olympics athletes are on a medication that can induce a Long QT interval
    - 5% will develop Long QT
    - 5% who develop Long QT will have cardiac arrest
- Weight Gain (Seizure, PPI, SSRI)
  - Special Olympic athletes who take medications that can induce weight gain weigh about 5% more than those who do not
- Osteoporosis (antipsychotics, anti depressants, antihistamine, antacid)
  - About 20% of SO athletes have low bone density
  - SO athletes who take medications that promote low bone density have t-scores that are about 0.6 less than those who do not

Medication Risk

- Constipation
  - Up to 48% of people with ID take laxatives
- Sun Sensitivity (Diuretics, NSAID, antidepressant, antibiotics)
  - About 20% of SO athletes take medications that can induce sun sensitivity
- Reflux (antidepressants, anticholinergic, benzo, asthma meds)
  - About 36% of people with ID take anti-reflux agents
  - Cavities
    - 12-14% of SO athletes are in active dental pain, 36.7% have active tooth decay

High Risk and Common Types of Sports Injuries

Special Olympics athletes are at risk for the same types of serious injuries as other athletes

Though sometimes for different reasons and at a different prevalence than other populations

Life Threatening Situations

Sudden cardiac arrest/death

Concussion

Spinal cord injury

Status Epilepticus (severe seizure)

Status Asthmaticus (asthma attack)

Cardiac Risk

Sudden cardiac arrest/death

- The number one risk factor for sudden cardiac arrest in young athletes is the presence of an underlying cardiac defect.

Cardiac Risk

Sudden cardiac arrest/death

- Down Syndrome
  - 40-50% cardiac defect rate
- Fetal Alcohol Syndrome
  - 29-41% cardiac defect rate
- Fragile X
  - Up to 52% cardiac defect rate
- Turner Syndrome
  - Up to 50% cardiac defect rate
- William Syndrome
  - Up to 75% cardiac defect rate

Cardiac Risk

Sudden cardiac arrest/death

Concussion

Concussion

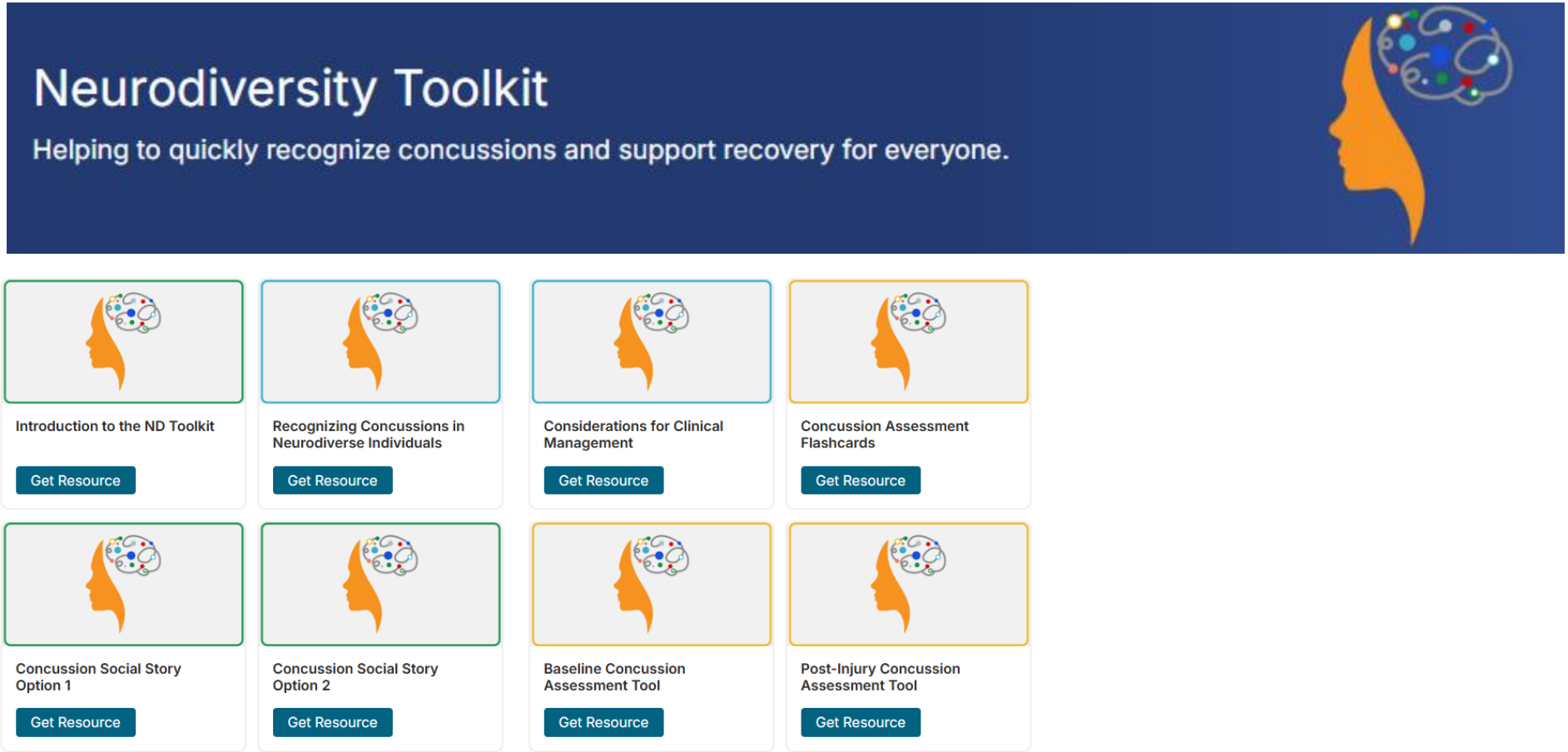
- Rates of concussion appear lower in Special Olympics athletes than other athletes
  - Likely underdiagnosed
    - Intellectual disability can make concussion diagnosis difficult
    - Most concussions do not have loss of consciousness
- Must rule out more serious head injury
- Risk under-diagnosis AND over-diagnosis
- Rely on caregivers, teammates and coaches for changes from athlete baseline to make the diagnosis

Neurodiversity Toolkit

Virginia Concussion Initiative

Concussion

- https://vci.gmu.edu/neurodiversity-toolkit



supporting the neurodiverse individual:

CONCUSSION
recognition and response

Neurodiverse (ND) individuals may show concussion symptoms in less obvious or unexpected ways. And current concussion tests are unlikely to be as reliable for those with ND needs. This guide is designed to help caregivers and providers recognize potential signs of concussion in ND individuals and respond effectively to ensure the best outcomes.

STEP 1: RECOGNIZE

HOW IT STARTS

- Bump or hit to the head or body
- Unusual change in behavior as noticed through signs (you observed) or symptoms (they report)

IMPORTANT CONSIDERATIONS

- **Young children (under 5):** Focus on emotional and physical changes, as they may struggle to express cognitive issues.
- **Neurodiverse individuals:** Watch for behavioral, emotional and physical changes, as they may find it hard to describe symptoms.
- **Symptom overlap:** Concussion symptoms may overlap with other developmental conditions or baseline behaviors.
- **Encourage everyone to share if they were hit in the head or body and something feels different!**

SIGNS OF CONCUSSION: *WHAT TO LOOK FOR*

COGNITIVE

Can they (as well as usual)...

- Follow instructions
- Keep up with conversations
- Respond quickly to questions
- Find words they need when speaking
- Solve problems
- Remember things or complete tasks without confusion

EMOTIONAL

Are they (more than usual)...

- Irritable or cranky
- Anxious or worried
- Tearful or sad
- Clingy (acting as they do if they were sick)
- Having mood swings
- Easily angered or upset

PHYSICAL

Do they seem (more than usual)...

- Tired or have sleep pattern changes
- In pain or uncomfortable
- Off balance
- To avoid favorite activities
- Bothered by light or noise
- To have less appetite

STEP 2: RESPOND

1 SIT THEM OUT
Immediately remove individual from sports or physical activities to prevent further injury.

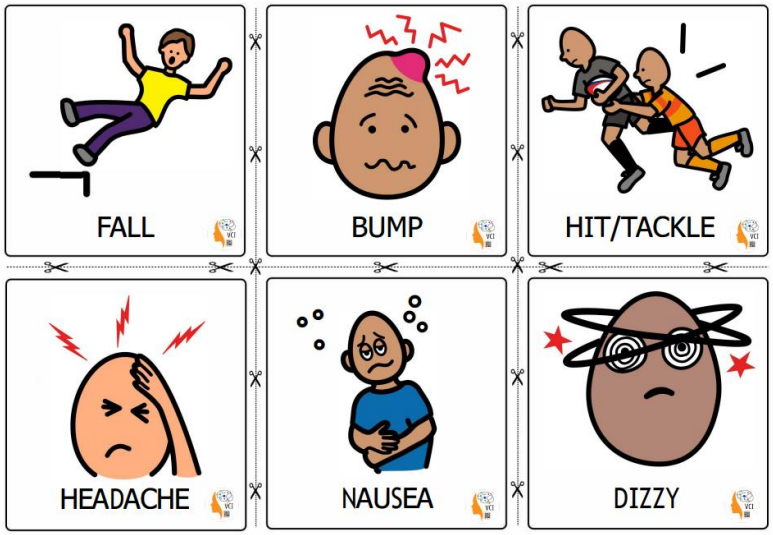
2 NOTIFY CAREGIVERS AND PROVIDERS
Report the suspected concussion and any new symptoms.

3 REST AND RECOVER
Follow medical advice and balance brief rest breaks with light activity as symptoms improve.

4 GRADUAL TRANSITION
Slowly return to school, work, and light activities at a comfortable pace.

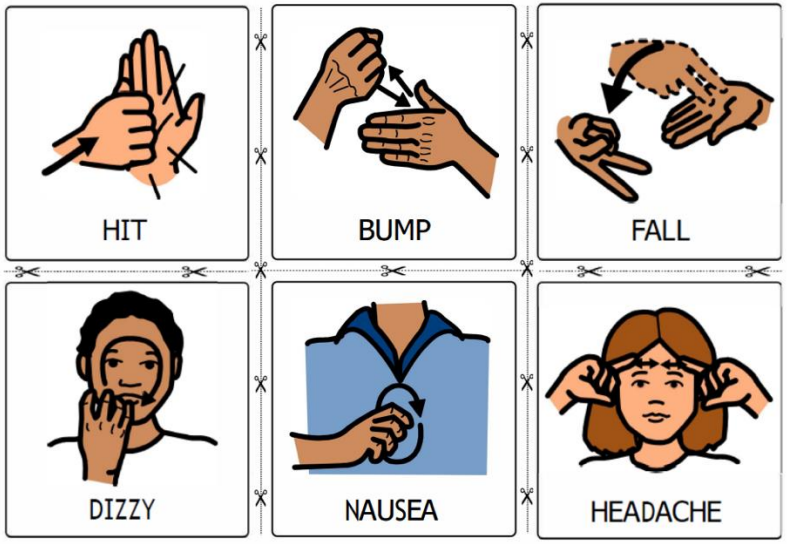
5 TAKE BREAKS AS NEEDED
Pause activities if symptoms worsen.

6 NO SPORTS UNTIL CLEARED
Avoid sports or contact activities until a healthcare provider confirms it is safe.



ASL prompts

1. PRINT DOUBLE SIDED. 2. LAMINATE. 3. CUT ALONG SCISSOR LINE



Spinal Cord Compression

Spinal cord injury

Warning Signs of Symptomatic Atlano-Axial Instability (AAI)

- Numbness or tingling in hands, feet, arms or legs
- Weakness in hands, feet, arms or legs
- Gait Changes
- Coordination Changes
- Spasticity
- Paralysis
- Difficulty Controlling Bowels or Bladder
- Head Tilt
- Burning, Stinger, or pinched nerve in neck, arms, shoulders or hands

Atlantoaxial Instability (AAI)

Spinal cord injury

- Increased Mobility or Instability of the joint between C1 and C2
- Most common type of spinal cord compression seen in Special Olympics athletes.
- Approximately 15% of people with Down Syndrome
  - 13-14% asymptomatic with no increased risk
  - 1-2% Symptomatic
    - Correlated with increased spinal cord injury risk
- Xray diagnosis of AAI is unreliable
  - Presence not a good predictor of spinal cord injury risk
  - Symptoms more predictive of risk

If new or worsening symptoms – no participation without clearance

Seizure

Status Epilepticus (severe seizure)

- 15-30% of Athletes in Special Olympics have a known seizure disorder
- Seizure Threshold may be lower in presence of:
  - Increased Adrenal Activity (excitement/nervousness)
  - Decreased Sleep
  - Increased Core Temperature (heat illness)
  - Electrolyte Imbalances
  - Decrease in Antiepileptic Medications
    - Forgot Pills
    - Intentionally decreased doses during training and/or games

Asthma

Status Asthmaticus (asthma attack)

- 14% of Special Olympic Athletes
  - Compared to 8% in the general population
- Results in breathing difficulties that can be triggered by exercise or change in air quality
- Can be medical emergency if unresponsive to treatments


KAISER

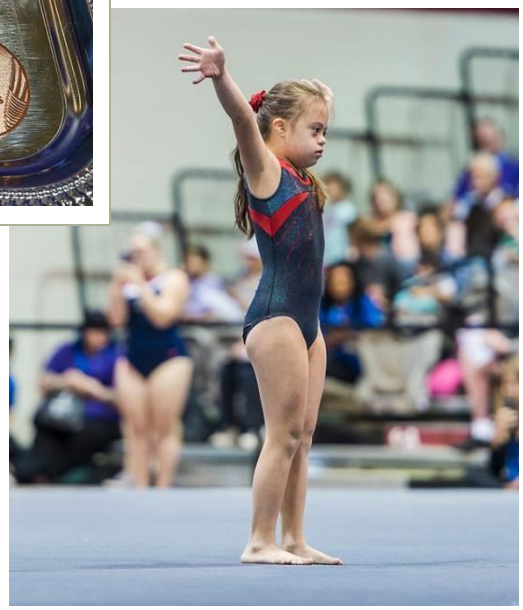

MD

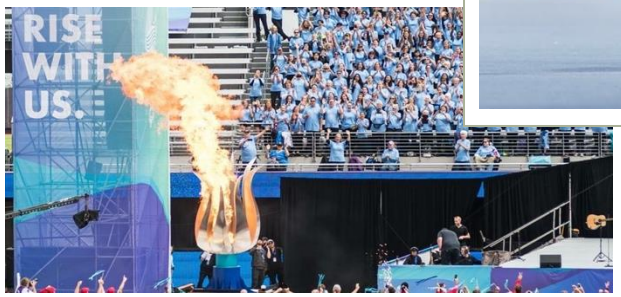

RISE WITH US.
ATHLETE
DEWALT

Inclusive Health

- Health disparities can be addressed by removing barriers to care
- Include people with intellectual disabilities in health promotion and public health efforts, including exercise promotion and guidelines

Thank You!





Resources

- Assessing the Unique Medical Needs of Special Olympics Athletes training video for Special Olympics USA Games 2018
- Adapted from PowerPoint initially designed and presented by Dr. Matt Holder, Global Advisor, Special Olympics International. With Permission
- American Academy of Developmental Medicine and Dentistry: www.aadmd.org
- Special Olympics International. Healthy Athletes MedFest: A Training Manual for Clinical Directors. 2007
- Special Olympics International. Special Olympics Sports Sciences: A Guide for Special Olympics Coaches. 2014
- Diagnostic overshadowing among groups experiencing health disparities. The Joint Commission. Issue 65, June 22, 2-22
- Virginia Concussion Initiative: Neurodiversity Toolkit; https://vci.gmu.edu/neurodiversity-toolkit; accessed 4/9/2025
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- Oviedo, Guillermo et al. Physical Activity and Sedentary Time in Active and Non-Active Adults with Intellectual Disability: A Comparative Study. Int J Environ Res Public Health 2019, 16(10), 1761
- Center for Inclusive Health: inclusivehealthcenter.org
- Special Olympics Research overview: Special-Olympics-Research-Overview.pdf