Physical Activity and Creative Movement Interventions for Individuals with Autism Spectrum Disorder (ASD)

Anjana Bhat, PT, PhD
Associate Professor
Physical Therapy Department
Biomechanics and Movement Sciences Program
Psychological and Brain Sciences Department
University of Delaware
Outline

✓ Why is movement important in individuals with ASD?
✓ Movement in COVID times
✓ Evidence for effects of movement/play in individuals with ASD
✓ Small changes you can make in your/your child’s daily life
✓ Effective strategies to teach motor skills
✓ Effects of yoga in children with ASD
✓ Yoga poses and breaths
✓ Final thoughts
Why is Movement Important in Individuals w/ ASD?

**Infants/Toddlers**
- Motor delays are an early marker of ASD

**Children**
- Motor incoordination is common in ASD

**Adolescents/Adults**
- Physical activity and social participation is reduced in adults with ASD

Bhat, Galloway, Landa, 2011
86.9% of children with ASD were at-risk for motor impairment/DCD.

Motor impairment did not change between 5-15 years of age.

Developmental Coordination Disorder (DCD)
Why is movement important in COVID times?

- Limited space to move
- ↓ Social interaction
- Reduced services/ “unlearning”
- Lack of a consistent schedule/ structure
- ↑ in sedentary time with devices
- Unable to attend to child due to work
- Stress and Anxiety about COVID
- ↓ in Social interaction

↑ in sedentary time with devices
Evidence for Structured Movement

- ↑ endurance/strength, reduces stereotypies, ↑ attention/academic skills
- **Frequency**: 2-3 times/week, 10-16 weeks
- **Intensity**: Moderate to vigorous physical activity
- **Time**: 30-60 minutes (or short activity breaks)
- **Type**: Treadmill, Walking, Jogging, Cycling, Aquatic, Trampoline, Ball skills, Adapted PE/sport, Strengthening w/ weights, Stand vs. sit when working.

Srinivasan, Pescatello, & Bhat, 2014
Creative Movement Ideas

- ↑ social communication, cognition/behavior, and perceptuo-motor skills

Drumming

- Motor planning and arm coordination

Moving in Space

- Body coordination, synchrony, & balance

Srinivasan et al., 2015a, b, 2016a, b, Srinivasan et al., 2019, Kaur & Bhat, 2019
Evidence for Creative Movement

- **Rhythm therapies:** Singing, Instrument play, Dance
  - ↑ child enjoyment, social synchrony, and motor coordination

- **Yoga/mindfulness:** Poses, Breaths, Relaxation
  - ↑ behavior/attention, communication, motor coordination/imitation, posture/muscle strength.

- **Animal-assisted interactions:** *Hippotherapy*,
  - Therapeutic horseback riding, Dog-assisted therapy
  - ↑ behavior and communication to some extent.

- **Tech-based/Exergaming:** Wii/Xbox-based, DDR, etc.

- **Others:** Martial Arts, Outdoor play, Theater

Srinivasan et al., 2015a, b, 2016a, b, Srinivasan et al., 2019, Kaur & Bhat, 2019
Simple Steps to Enhance Movement and Play

- Intersperse exercise in your child’s day (longer 1-2 bouts, or short/many).
- Do it as part of your daily routine.

- **Make it creative** – sing, dance, walk/play with pets.
- **Play** – balls skills, sport, obstacle courses, building/board games, art-crafts, etc.

- Follow along with online videos.
- Set up the environment and move as a group.
- Allow free play and exploration time.
Effective Strategies for Movement Sessions

• Setting up the space with minimal distractions
  • Few props, clear markings to provide context
• Assistance/support for loss of balance
• Sensory activities for breaks/warm up
• Have social check-ins
• Follow a session structure
Effective Strategies for Movement Sessions

• Provide a model/demo,
  • Use video or pictures
  • Do it together
• Break down the activity
• Wait and give opportunity to move
• Be sure to reinforce/affirm
• Use just right challenge - 3/4 times child succeeds
• Give child the lead and follow them
Creative Yoga Ideas

Songs w/ poses

Partner Poses

Stories

Rachel’s Garden

Right on the edge of Rachel’s garden is a big maple tree! It provides shade for the plants in the summer, yummy maple syrup, and a home for animals! (TREE POSE).

Kaur & Bhat, 2019
Effects of Creative Yoga in Children with ASD

Spontaneous Verbalization

- ↑ coordination and imitation accuracy
- ↑ spontaneous verbalization
- High level of compliance

Kaur & Bhat, 2019, under review
Creative Yoga Ideas - Poses

- Practice 3-4 poses (stand, sit, lying)
- Go from standing to lying
- Learn good posture in each pose
- Hold the pose (10-30 counts)
- Find a point of focus
- Breathe in each posture (3-5 breaths)
- If moving in a pose, inhale when spine straight (e.g., cow) and exhale when curled up (e.g., cat)
Creative Yoga Ideas – Sun Salutation Sequence

1. Mountain
2. Waterfall
3. Forward Bend
4. High lunge
5. Down. Dog
6. Plank
7. Up Dog
8. Down. Dog
9. High lunge
10. Forward Bend
11. Waterfall
12. Mountain
Yoga Breaths

Prop breaths

Breathing ratio: in:out-1:2, Props – hand, tissue, mirror, pinwheel
Add arm or trunk movements

Sound breaths
Pranayama

Use vowels – “aa”, “ee” “oh” “uu”
Use hands to feel breath or chest/belly move
Final Thoughts

• Movement intervention is important for individuals with ASD

• Stay in the moment, work on things within your control

• Seek advice from experts

• Intersperse short or long periods of exercise in your child’s day

• Try out fun, multisystem play and use appropriate behavioral strategies

• Yoga is minimalistic – poses and breaths work well to promote coordination, communication, behavior, and respiratory health.
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Online Resources for Movement Ideas

**Music/Dance: GM coordination**
Music Express Magazine: [https://www.youtube.com/channel/UCy6k3iWYxFWYKXEuXxfCsMw](https://www.youtube.com/channel/UCy6k3iWYxFWYKXEuXxfCsMw)

**Brain breaks by Learning Station** [https://www.youtube.com/channel/UC4Hdb26_xnPQsntwLazMqYw](https://www.youtube.com/channel/UC4Hdb26_xnPQsntwLazMqYw)

**Hand games/Action Songs**

**Instrument play**
**Green Bean’s Music**: [https://www.youtube.com/results?search_query=green+bean%27s+music](https://www.youtube.com/results?search_query=green+bean%27s+music)

**Visual Musical Minds**: [https://www.youtube.com/channel/UCjUxQg9cHiOYqaRdtZ6pfoQ](https://www.youtube.com/channel/UCjUxQg9cHiOYqaRdtZ6pfoQ)

**Prodigies Music**: [https://www.youtube.com/watch?v=z9WAySPjHmY](https://www.youtube.com/watch?v=z9WAySPjHmY)

**Yoga**
**Poses, relaxation, pretend**: [https://www.youtube.com/user/CosmicKidsYoga](https://www.youtube.com/user/CosmicKidsYoga)

**Breathing for kids**: [https://www.youtube.com/watch?v=ravVawKXEsc](https://www.youtube.com/watch?v=ravVawKXEsc)

**Yoga for adults**: [https://www.doyogawithme.com/yoga-poses](https://www.doyogawithme.com/yoga-poses)

**Outdoor play**: [https://activeforlife.com/activities/](https://activeforlife.com/activities/)


Thank you!

Contact: abhat@udel.edu

Questions?