National Aeronautics and Space Administration

Train Like an Astronaut: Adapted Physical Activity Strategies

Mission Control

YOUR MISSION

To improve balance and spatial awareness (one's understanding of themselves in relation to objects around them) you will perform throwing and catching techniques at the same time to maintain balance in challenging situations.

LINK TO SKILLS AND STANDARDS

APENS: 2.01.06.01 Develop and implement programs that stimulate vestibular, visual, and proprioceptive senses (Perception of movement from within the body.)

APENS: 2.03.06.01 Structure tasks and activities involving the flight of objects to control for problems in timing that are evident in certain types of disabilities.

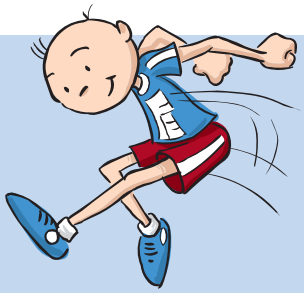
Activity Specific Terms/Skills
Balance, coordination, stability, hand-eye coordination, concentration, reaction time

SPACE RELEVANCE

During and after space flight, astronauts have challenges with balance and spatial awareness. Through astronaut reconditioning, when they return to Earth, they relearn how to use their eyes, inner ear, and muscles to help control body movement.

WARM-UP & PRACTICE

- Dead Bug (lay on the ground and put one arm and opposite leg in the air. Move opposite arms and legs back and forth like a bug)
- Bird dog (get on all fours and put one arm in the air and extend your opposite leg behind you).
- Wall walk
- Stretch arms, close eyes and touch nose
- Holding a table/bar, lift one foot at a time (marching)
- Tai Chi movement
- Bounce and catching a ball
- Balance on one foot for 1 sec., gradually increase time

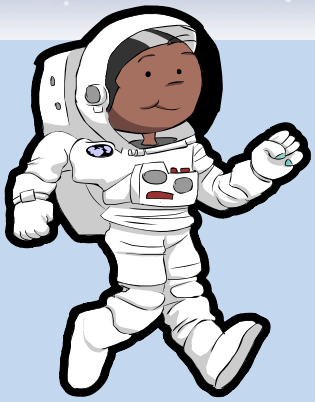


SUGGESTED ADAPTED EQUIPMENT:

- BALLOON OR BEACH BALLS
- SAND OR BEAN BAG OR SQUISH BALL
- VELCRO GLOVES
- GARBAGE CAN

Mission Control

LET'S "TRAIN LIKE AN ASTRONAUT!"



Adjust steps and procedures as appropriate for participants

Instructions for individual play:

- Bounce a tennis ball off the wall and try to catch it while balancing on one foot.
- Raise one foot up behind you, level with your knee.
- Count how many seconds you can stand on one foot while throwing the tennis ball against the wall. Try not to let the ball, or your foot, touch the floor. Try to balance for at least 30 seconds without falling.
- Continue to practice this activity over time until you can keep your balance for 60 seconds without having to start over.

Instructions for group play:

- Divide into groups of 6 or more players, and stand to form a circle.
- In your circle: Space apart more than arms-length apart.
- Try to balance on one foot while gently tossing a gym ball to a player across from you.
- If a player loses balance and both feet touch the floor, he or she should hop on one foot around the outside of the circle before rejoining the game.
- Record observations of this physical experience in your Mission Journal.

TRY THIS! *Some ideas for Adapted Activity*

Divide into 3 missions (progress from 1 to 2 to 3):

Mission 1: Balance on one foot
Mission 2: Throwing and catching
Mission 3: Put Missions 1 and 2 together

- Vary the size of balls
- Velcro gloves (No Miss Mitts)
- Use chair, wall or bar to stabilize performer
- Throw ball to a target (on the floor, into a garbage can, on a wall, or Velcro)
- Using two hands to bounce or catch a beach ball
- Sand or bean bag drop
- Individual toss and catch between right and left hand
- Individually or in groups, isolate each skill in Mission 2; only throw or catch a ball
- Hold ball and squeeze and release
- Teach or review proper falling techniques in case they lose their balance