**Multiple choice questions**

**Postural control in children receiving intervention using the Astronaut Training Protocol**

**Correct** answers marked in red

1. The lack of an adequate upright posture in sitting at a desk while performing academic tasks may be related to
2. low postural tone and a lack of adequate postural control
3. incorrect desk heights
4. the need for additional vestibular input
5. inability to pay attention in class.
6. fatigue which further compromises the mental energy needed for learning
7. Postural control or the ability to sustain alignment of the body upright requires
8. intact haptic sensation
9. the development of muscle strength for anti-gravity movements,
10. dynamic muscle co-contraction and mature postural reactions6. To achieve postural control and upright posture, the
11. integration of the vestibular, somatosensory and visual system6 as well as the musculoskeletal system.
12. constant reminders from an external source
13. The deterioration in children’s posture and the increased need to fidget observed in the classroom may
    1. be due to the decreased time children spend moving and engaged in physical play and not developing sufficient core muscle strength
    2. result in better academic achievement
    3. be due to an attempt to gain more sensory input to feel alert enough to focus
    4. be due to inadequate understanding of academic material
    5. result in reduced proximal stability which can impact on pencil control and fine motor skills.

4 The Astronaut Training Protocol

1. has been well researched and validated
2. is based on the sensory integration framework, and used to stimulate and integrate the vestibular, visual and auditory systems
3. allows for stimulation of the vestibular system through rotation, inversion and linear movement.
4. Does not provide direct stimulation of the vestibular system
5. uses smooth pursuit and saccadic eye movements to stimulate the visual system
6. The Actigraph accelerometer was
   1. used to track participants upper limb movement
   2. large and may have interfered with trunk movement
   3. used to measure motor activity through detection of intensity of movement. It measured sedentary activity by using low movement counts
   4. worn on an elastic around the participant’s waist
   5. was initialised to record at a sample rate of 100Hz in 10 second segments.
7. Improvement in posture
   1. was not significant between pre-Astronaut Training and post-Astronaut Training.
   2. was not seen between pre-Astronaut Training and post-Astronaut Training
   3. was greatest for participants who tolerated rotational input at withdrawal
   4. had clinical significance for participants who were both over-reactive to rotary and who could tolerate rotary input between pre-Astronaut Training and post-Astronaut Training
   5. was a very small in participants who were over-reactive to rotational input at withdrawal
8. Participants who were over-reactive to rotational vestibular input
   1. more revolutions were done in each Astronaut Training session
   2. displayed autonomic nervous system responses
   3. showed no improvement in postural control
   4. had a decrease in balance scores post Astronaut Training
   5. needed less vestibular input if further improvement was to be expected
9. Participants who were tolerant of rotary input
   1. were diagnosed with ADHD
   2. showed no deterioration in Withdrawal
   3. demonstrated an overall improvement between pre-Astronaut Training and post-Astronaut Training.
   4. would not benefit from further Astronaut training
   5. failed to show any improvement in in seat movement
10. Assessment may have been limited since
    1. the in-seat posture Chailey Levels of Postural Ability assessment was not a standardised test
    2. as there were no z scores for the in-seat posture assessment.
    3. z scores were presented for balance
    4. there is no literature that indicates what the normal amount of in-seat movement during table-top activities for children.
    5. in-seat movement raw scores were compared against the children’s own movement scores to determine change.
11. Benefits of the Astronaut Training Protocol in this study
    1. cannot be assumed due to the lack of significant differences for inseat posture and balance
    2. can be considered to be positive for a child’s in-seat posture and in-seat movement
    3. can be inferred from the effect sizes and clinical difference
    4. cannot be generalised due the nature of the research design used
    5. can be applied in clinical practice as a result of this study