

CNATRAINST 6410.2B
3 Jul 2018

AIRSICKNESS HANDOUT

Enclosure (8)

AIRSICKNESS

1. **Airsickness** is the result of conflicting sensory input between the visual and vestibular systems. Common signs and symptoms usually progress from stomach awareness, lethargy, apathy, sweating, salivation, drowsiness, and headache to vomiting. **Airsickness** is a common problem encountered in aviation training that historically has affected 60% of student pilots to some degree. **Airsickness** will usually abate with continued and consistent flying.

2. Prevention and treatment of airsickness.

a. Pre-flight Prevention.

(1) **Diet and Hydration.** Maintaining a balanced diet is essential for overall wellness. Eating bland food with adequate carbohydrates and protein an hour before flying is advisable. Until you determine what works (or does not work) for you, **avoid:** greasy, spicy, fatty foods, acidic foods (oranges, tomatoes or lemons), and dairy products. Avoiding dairy products means not only milk on your cereal, but also no cheese or mayo on your sandwich. Maintain proper hydration with juice, water or a sports drink. Take and consume water on training flights.

(a) **Dairy Products.** **Do NOT use milk** on your cereal. Milk and other dairy products are high in fat which take longer to digest. Milk has the tendency to exacerbate “stomach awareness” symptoms potentially aggravating airsickness arousal level. Also, stay away from any food or drink that has a high acidic content. Additional acid is not needed in your stomach. The primary purpose of this particular diet, one to two hours prior to flight, is to reduce/minimize the amount of stomach acid. Use your better judgment when adding new/additional foods to your “*before flight*” menu.

(b) **Sources of Complex Carbohydrates.** This is a *suggested* list; there are many other foods high in complex carbohydrates.

1. Grits, oat cereals with no milk, whole grain cereals, pancakes, waffles, French toast, muffins, bagels.

2. Pasta, without sauces (tomato sauce is high in citric acid).

3. Crackers, popcorn, pretzels.

4. All vegetables, especially peas, beans, lentils, corn, lima beans, potatoes, sweet potatoes, and squash; unless they cause excess gas.

5. Juices, non-acidic only (like apple). No lemonade, orange or tomato juices.

6. Any sandwich combination is good; however, do not use mayonnaise, spicy pepper, spicy mustard, or cheese.

(2) Rest. Eight hours of uninterrupted sleep is recommended the night prior to flying.

(3) Ginger. Ginger root tablets can create a gastrointestinal relaxation effect that helps prevent airsickness and have no adverse medical side effects. Also, they have been approved by the flight surgeons. Recommended minimum dosage is one 250 mg tablet with dinner, one tablet with breakfast, and one tablet prior to walking to the aircraft. Since ginger taken alone can be harsh, tablets should always be taken with food. Total daily intake of ginger is limited to 4 grams per day.

(4) Peppermint. Natural peppermint oil also creates a gastrointestinal relaxation effect. Eating peppermint candy before flight can help settle the stomach.

(5) Anxiety. Proper preflight preparation with studying and chair flying will help decrease anxiety. Moderate physical training (PT), both anaerobic (e.g. weight lifting, plyometrics) and aerobic (e.g. running, swimming) will help the body "learn" to regulate the release of the stress hormone called cortisol (even during non-exercise/stressful events like check-rides and tests). Cortisol is naturally released during stressful events ("fight or flight") and exercise. This hormone is normal and controllable, but can cause adverse effects at excessively high levels. Moderate exercise will also enhance the release of beneficial hormones that aid in improved sleep, recovery, and mood. Excessive exercise bouts (e.g. extending past 45 minutes in duration and/or too frequently at high intensities) may lead to dehydration, higher levels of cortisol in the bloodstream, injury, compromised immune system (cold/flu), and general fatigue. Remember to re-hydrate following all exercise. Along with a healthy diet and regular exercise, meditation has proven beneficial for reducing stress and anxiety.

b. In-Flight Management.

(1) The complex instrument package of the T-6 draws attention to the flight instruments during flight. To become a better pilot and avoid the vestibular-ocular mismatch that causes airsickness, students should employ an outside scan by placing the center of the HUD (blue line that occurs at the overlap of the two HUD panes) on the horizon. Keeping the head steady when possible while scanning only with the eyes can be a helpful technique to minimize coriolis forces and nausea. Make smooth control and head movements, since abrupt movements can incite sensory mismatch. The following T-6 maneuvers should be planned to be conducted in a manner that can be performed to provide maximum recovery time.

(a) Power-on Stall. With nothing above the glare shield to stimulate vision, a natural tendency is to look solely at cockpit instruments. To avoid airsickness, students should momentarily look outside with eyes only to verify attitude while slowing through 100 knots.

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(b) G-Awareness Maneuver. The sensitivity of the instruments during high performance maneuvers can cause students to chase the proper attitude. The resulting erratic up and down nose movements above and below the horizon not only causes poor performance but airsickness, as well. Find a point on the aircraft (the point where the upper exhaust stack meets the airframe) to drag across the horizon.

(c) ELP series Stalls. Initial recovery will have the nose of the aircraft searching for a stable attitude. Until the aircraft entirely stabilizes, students should use the prop arc on the horizon as a visual reference. Only after the prop arc is stable on the horizon should the 8-10 degrees nose down be verified on the attitude indicator.

(d) Spin. Unlike all the other maneuvers, keep an inside scan as much as possible while conducting spin training. Looking outside too quickly during spin recovery will induce airsickness—wait about two seconds to look outside. The abnormal, abrupt motion of a spin can render the stomach queasy. If altitude and airspeed permits, avoid excessive G-loading during recovery pull-out.

(e) Unusual Attitudes. Negative G-loading unsettles the stomach. Proper FTI procedures for nose high recovery are to maintain positive G's on the aircraft, which is particularly important to avoid airsickness.

(f) Landing Pattern. Coupled with additional turbulence, the dynamic nature of the landing pattern causes a lot of head and aircraft movements that incite airsickness. Airsickness recovery is difficult because flying wings level is not possible. For instance, when the aircraft is #1 upwind it has to turn and at the abeam position it must also turn. If time and fuel permit, depart the pattern to recover and reenter when airsickness subsides.

(2) When airsickness is recognized, students should be proactive and not reactive with trying to correct the problem; don't just endure it.

(3) Cockpit management and maintaining controls of the aircraft as much as possible are imperative to avoiding airsickness. Storing gear in the right pocket causes students to fly with the left hand, with which they are not proficient. Placing the barf bag in the storage compartment will necessitate head movement and an inside scan when an outside scan is needed the most. Put the barf bag in the left G-suit pocket or under the knee board. When the IP demonstrates a maneuver, lightly ride the controls so as to not be surprised by unanticipated aircraft movements.

(4) If you start to experience airsickness, inform your instructor the degree of airsickness using the airsickness scale (1 feeling normal, 10 vomiting). When experiencing airsickness students should tell instructors their levels after each ops-check or checklist.

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(5) Reduce airspeed and fly aircraft wings level. Slowing down saves fuel, reduce turbulence, and permit more straight and level flight needed to recover. Resuming maneuvers too quickly increases the chance of a relapse.

(6) Diaphragmatic Breathing. Perform deep diaphragmatic breathing when airsickness symptoms begin. Close your mouth and inhale slowly through your nose so that your abdomen expands. This helps to prevent air swallowing and hyperventilation. Slowly exhale through your mouth. Continue at a slow, comfortable pace. Resume normal breathing once your airsickness symptoms have dissipated.

(7) Water bottle. Most right-handed people will instinctively use their right hand to hydrate- forcing them to fly rough left-handed flight. Take a sip of iced water to break up the thick spit that develops during airsickness. Water fountain water will warm to a temperature that will provide little relief when it is needed. The water bottle should be small enough to be stored in the left G-suit pocket and have a top that permits one-hand operation, so that normal control can be maintained. The student should also be proficient connecting the left bayonet fitting of the oxygen mask.

(8) Cool down. While continuing to fly with your right hand, undo the left sleeve and put your hand above the air conditioning vent on the glare shield, so that cool air flows up the sleeve. For added relief pour some water on the back of the neck- this distracts the affected and also cools them down. Caution: an extreme amount of improperly poured water could cause inadvertent LPU activation.

c. Post-Flight Management.

(1) A visit to the Squadron Airsickness Representative (AR) or AMSO is required after the second episode of airsickness and on any occasion thereafter. Relaxation techniques, adaptation flights, Life Skills consults, and the Barany chair may be prescribed by the Squadron AR, or AMSO.

(2) Call the AMSO if you require additional assistance pertaining to airsickness.

EXAMPLE OF DAILY ROUTINE

Breakfast

- No dairy products
- Bagel with peanut butter only or including honey/grape or apple jelly
- One Ginger tablet (250mg)
- Drink water, apple juice, or a sports drink (no orange, lemonade or tomato juices)

Flight Brief: know briefing info thoroughly (helps reduce stress)

- Following brief, eat a peanut butter sandwich
- One Ginger tablet (250mg)
- Drink water or sports beverage...no more than 20 oz.
- While walking to paraloft, eat a peppermint candy

In-flight

- Minimize head movements/lead with eyes - helps reduce dizziness/nausea
- Exercise deep breathing technique if nauseous
- Ride the controls when IP is demonstrating— helps provide better SA

Lunch

- Refrain from eating greasy, spicy or fried foods
- No dairy products

Dinner/Supper

- Avoid greasy, fried, and spicy foods like Italian red sauce for pastas, cheese, pepperoni pizza
- Grilled chicken or fish, salads
- One Ginger tablet (250mg)
- Drink water, tea, or sports beverage
- No dairy products
- Complex carbohydrates (rice, bread, pasta, etc.)