

# 5. Operations

## *5.5 - Physiology*



# Structure & Formatting Reminder

This presentation is provided as a reference to help you prepare for the your exam. It seeks to go beyond memorization and provide explanation and rationale.

While this reference considers many of the points covered in the exam, given the breadth it is in no way exhaustive. It is suggested to consult a variety of resources when preparing for the exam.

Text that is marked in **YELLOW** has a high probability of being referenced directly in one of the exam's nearly 400 possible questions.

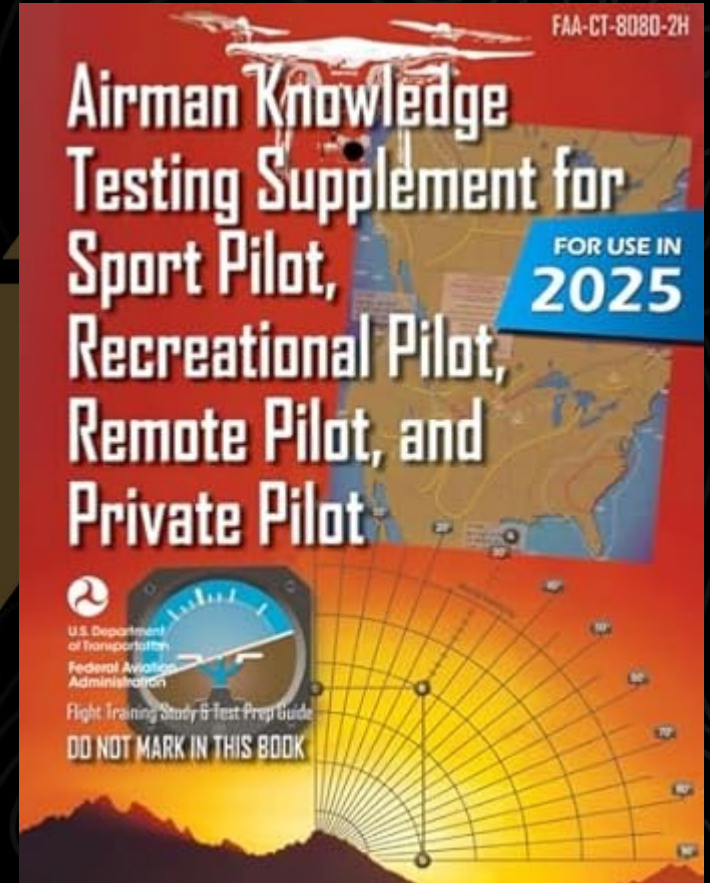
Take the quiz at the end to gauge your understanding.



# Airman Knowledge Testing Supplement

Many of the points covered in the slideshow and quiz reference images and concepts found in the “Airman Knowledge Testing Supplement”.

You can download the document from the FAA [here](#). Alternatively, a hard copy can be purchased online for around \$10.



## 5.5 - Physiological Considerations

Some physiological effects while seemingly minor may **impact your ability to fly safely**. Effects worth paying particular attention to include:

- Drug and **Alcohol Use**
- Prescription and OTC Medication
- **Hyperventilation** / Hypoxia
- **Stress and Fatigue**
- Vision
- Motion Sickness
- Dehydration / Heat Stroke





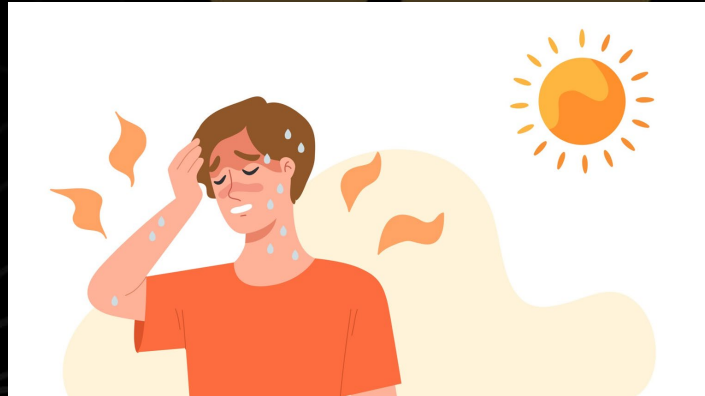
## 5.5 - Dehydration

- **WHAT IS IT?:** A **critical loss of water** from the body.
- **CAUSE:** Heat, wind, humidity, diuretic drinks (coffee, teal, alcohol, caffeine).
- **SYMPTOMS:** Fatigue impacting mental and physical performance.
- **REMEDY:** Drink 2-3 quarts of water every 24 hours. If you are feeling thirsty it's too late.



## 5.5 - Heat Stroke

- **WHAT IS IT?:** The body's **inability to control its temperature.**
- **CAUSE:** High temperatures, physical exertion.
- **SYMPTOMS:** Can look like fatigue but will eventually result in collapse.
- **REMEDY:** Drinking one quart of water per hour in severe heat conditions. Find shade. Wear light colored clothing and a hat.



## 5.5 - Drug and Alcohol Use

- **WHAT IS IT?:** Mental and physical performance deterioration as a result of drugs or alcohol.
- **CAUSE:** Consumption of drugs or alcohol.
- **SYMPTOMS:** Impaired judgment, coordination, visual acuity, memory, reasoning, attention span, reflexes.
- **REMEDY:** Know the effects of what you consume. Conduct a pre-flight self assessment. Allowing time for the substance to leave your body.



## 5.5 - Prescription and OTC Medications

- **WHAT IS IT?:** Unintended, unknown, or unrecognized effects of medications.
- **CAUSE:** Some antihistamines, decongestants, tranquilizers, or sedatives can cause an impaired mental or physical state.
- **SYMPTOMS:** **Drowsiness**, cognitive deficits, impaired judgment, memory, alertness, coordination, and vision.
- **REMEDY:** Know the effects of what you consume. Conduct a pre-flight self assessment. Allowing time for the substance to leave your body.





## 5.5 - Hyperventilation

- **WHAT IS IT?:** Excessive rate and depth of respiration.
- **CAUSE:** Abnormal loss of carbon dioxide from the blood.
- **SYMPTOMS:** Shortness of breath, increased breathing rate, anxiety, unconsciousness.
- **REMEDY:** Attempt to calm yourself, breath through your nose, slow your breathing.



## 5.5 - Stress and Fatigue

- **WHAT IS IT?:** Body's response to physical, physiological, and psychological demands.
- **CAUSE:** A release of hormones like adrenaline into the bloodstream. Increased metabolism to provide energy.
- **SYMPTOMS:** Increase in heart rate, respiration, blood pressure, and perspiration.
  - **Acute (short term):** immediate "fight or flight" response.
  - **Chronic (long term):** unrelenting pressures or burdens.
- **REMEDY:** Proper self care including sleep and diet, consult a physician and/or psychologist.



## 5.5 - Vision

- **WHAT IS IT?:**

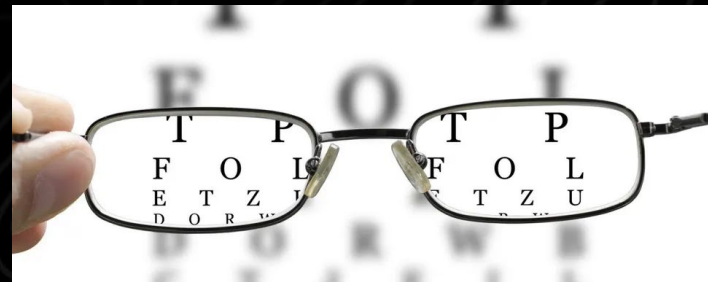
- Photopic Vision: Color and fine detail - daylight/artificial illumination.
- Mesopic Vision: Decreased acuity - dawn, dusk, moonlight.
- Scotopic Vision: Poor detail - Low-light situations.

- **CAUSE:** Inadequate information for light-sensitive cells in the eyes (rods and cones)

- **SYMPTOMS:** Issues with focus, detail, blind spots, or night vision

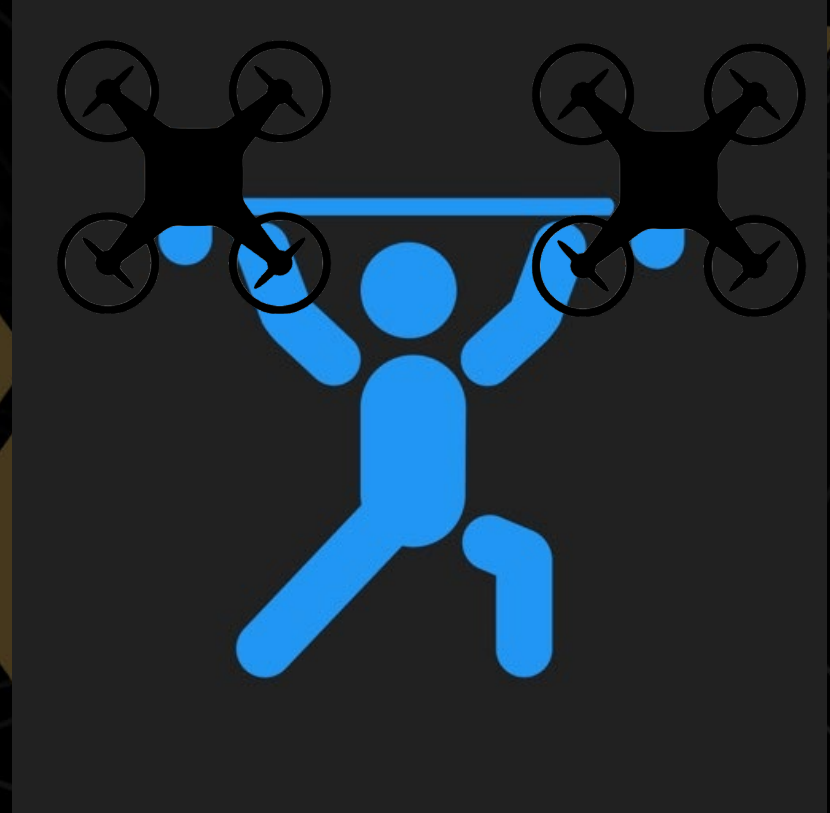
- **REMEDY:** Situationally dependent.

Sunglasses, preserving night vision, off-center focusing operating in safe lighting conditions.



## 5.5 - Maintaining Flight Fitness

- Be prepared.
- Know your body
- Reduce stress levels.
- Plan for the the conditions
- Set aside time for relaxation.
- Time management





Why are physiological considerations so important when it comes to piloting a UAV?



# Why are physiological considerations so important when it comes to piloting a UAV?

Even though you're not physically in the aircraft, your mental, physical, and emotional state directly affects decision-making, reaction time, and situational awareness



# Unit 5 Operations – 5.5 Review Quiz

- [5.5 – Physiology - QUIZ](#)
- This quiz contains 18 questions.
  - You may take it as many times as you like.
  - The order of questions are randomized each time.
  - The large majority of the questions are worded exactly as they appear on the exam.

