

NOAA Aviation Safety





NOAA

Office of Marine And Aviation Operations

Aviation Health



General Overview

Just as the Pilot inspects the aircraft prior to flight, we must also insure, that as a Qualified Non-Crewmember, we are also ready to perform our duties with the same resolve.



Preflight

- NOAA currently does not have an authorized medical screening program for its Qualified Non-Crewmember Program.
- Qualified Non-Crewmembers need to be aware of the potential physiological hazards involved in **flying**. Self awareness is the key to staying healthy while performing your duties. The following slides will review Key Points in medical self-awareness.



Physical Condition

The focus of all medical programs is to insure that you are medically capable of performing duties without aggravation of existing physical defects or medical conditions.



Disease of the eyes, ears, sinuses

- The eyes are very sensitive to changes in the level of oxygen absorbed by the body. Smoking reduces the amount of oxygen in the blood and may effect your “field-of-view” at flight altitudes.
- Seasonal allergies or hay fever which cause difficulty with clearing your ears, or pain in your ears or sinuses may become aggravated from changes in altitude and may cause disorientation or incapacitation that will require medical attention.



Chest pain

- If you have, or have experienced Chest pain, angina, heart attack, heart disease, heart murmur, palpitations, cardiac catheterizations, or pacemaker please check with your physician prior to performing flight duties. Light aircraft are not equipped to handle heart related emergencies.
- Also, insure that you have an adequate supply of any required medications in the event of unscheduled weather diversions/delays.



Hypertension

- The changes in pressure altitude, as well as the vibration of the aircraft or changes in temperature associated with non-pressurized aircraft may aggravate swelling in feet or excessive fatigue with mild exertion. If you have a history of blood clots in legs, hypertension or stroke you are at an increased risk of aggravating these conditions.



Asthma or Lung related

- Changes in pressure altitude have been known to trigger asthma and asthma related attacks. While the level of oxygen is the same at sea level and 5000 feet, you would have to breath in 11% more volume to get the same amount of oxygen (due to the lower pressure).
- People with a history of asthma, wheezing, emphysema, chronic cough, tuberculosis, collapsed lung, or shortness of breath with mild exertion should consult their physician.



Intestinal

- The same expansion of gas caused by climbing to 5000 feet (about 11%) will expand any gas trapped within the intestinal tract.
- Diseases of the bowel, ulcers, rectal bleeding, chronic abdominal pain or hernia may be adversely affected by this expansion of gas.



Arthritis

- Arthritis, joint deformity or chronic back pain may be aggravated by the vibrations produced by light aircraft.
- Limitation in the use of your back or extremities may limit your ability to exit the aircraft in the event of an emergency evacuation.



Paralysis

- Paralysis, weakness of muscles, seizures, epilepsy, loss of consciousness, fainting spells, dizziness, or amnesia are serious conditions that may not be compatible with NOAA's flight missions.
- Any condition that would limit your ability to exit the aircraft in the event of an emergency evacuation should be thoroughly evaluated prior to flight assignment.



Mania

- If you have a history of fear of flying, fear of heights, fear of enclosed spaces or panic attacks, flight in light aircraft may cause triggers for these events.
- The medications used to treat mania, depression, schizophrenia, a suicide attempt, alcoholism, or illegal drug use may adversely affect your ability to comprehend emergency situations. The prescribing physician should be consulted prior to assignment to flight duties.



Anemia

- Some conditions can be directly related to changes in pressure like arterial gas embolism or decompression sickness.
- Other conditions like Anemia, diabetes, cancer(s), surgery, hospitalization, or other chronic medical conditions related to the general condition of the body and should be carefully evaluated by a competent medical authority.



Allergic reactions

Allergic reactions occur when a person's immune system inappropriately reacts to a substance that is harmless to most other people.



What types of substances may cause an allergic reaction?

- Many substances may cause a person to have an allergic reaction. Some of the most common triggers that may cause a person in flight to have an allergic reaction are:
- ___ Certain types of food (such as peanuts, shellfish, milk, and eggs).
- ___ Medication
- ___ Insect bites
- ___ Dog and cat allergens



What are the symptoms of an allergic reaction?

- There are varying degrees of allergic reactions. Some symptoms may be very mild, such as a rash, hives, a runny nose, or sneezing. Some allergic reactions may be very severe. Exposure to allergens may trigger asthma attacks in some people. In other people, exposure to allergens may cause an extreme allergic reaction called anaphylaxis.



Are you currently taking any medications?

- A good general rule to follow is not to fly if you must depend on the medication to keep the flight safe. In other words, if the untreated condition is one that would prevent safe flying, then you shouldn't fly until the condition improves — whether you take the medication or not.



Common side-effects of frequently used medications

If you must take over-the-counter medications:

- ✦ Read and follow the label directions.
- ✦ If the label warns of significant side effects, do not fly after taking the medication until at least two dosing intervals have passed. For example, if the directions say to take the medication every 6 hours, wait until at least 12 hours after the last dose to fly.
- ✦ Remember that you should not fly if the underlying condition that you are treating would make you unsafe if the medication fails to work.
- ✦ Never fly after taking a new medication for the first time.
- ✦ As with alcohol, medications may impair your ability to perform your assigned in-flight duties—even though you feel fine.
- ✦ If you have questions about a medication, ask your aviation medical examiner.
- ✦ When in doubt, don't fly.



Prescription Medicine

➔ Ask your Doctor if:

- ✦ Your condition will be aggravated by the effects of flying.
- ✦ Your prescribed medicines will effect your abilities to operate required equipment or focus on your assigned airborne mission.
- ✦ Your prescription has side effects that could cause a hazardous condition if they occurred during flight.





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Aviation Safety
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Medical Physiology Quiz

1.

→ True or False –

It is ok to fly after taking an over-the-counter medication after waiting 12 hours after the last dose if the directions say take the medication every 6 hours.

Answer - true



Medical Physiology Quiz

2.

→ What body organs can be affected by the effects of flying?

- A. Brain, liver, legs/feet, skin
- B. Eyes, lungs, intestines, joints [arthritis]
- C. Nerves, ears, lungs, kidneys
- D. Blood, brain, nerves, intestines

Answer - B



Medical Physiology Quiz

3.

→ True or False –

All medical conditions should be evaluated by a competent medical authority before flying.

Answer - true



Medical Physiology Quiz

4.

→ True or False –

The same expansion of gas caused by climbing to 5000 feet will also expand any gas present in the intestines.

Answer - true



Medical Physiology Quiz

5.

→ True or False –

The focus of all medical programs is to insure that you are medically capable of performing duties without aggravation of existing physical defects or medical conditions.

Answer - true



Medical Physiology Quiz

6.

→ True or False –

You would get the same amount of oxygen per volume breathing at 5,000 feet as you would breathing at sea level since the level of oxygen is the same.

Answer – true

You would have to breath 11% more volume at 5,000 feet than you would at sea level to get the same amount of oxygen.



Medical Physiology Quiz

7.

→ There are some medical conditions that may not be compatible with NOAA's flight mission and should be evaluated medically prior to the flight assignment. They include:

- A. Seizures
- B. Fainting spells
- C. Limited physical mobility
- D. Medications for anxiety / depression
- E. Alcohol and/or drug abuse

- 1. All but C are true
- 2. Only D and E are true
- 3. None of the above are true
- 4. All of the above are true

Answer - 4



Medical Physiology Quiz

8.

You have a flight today. On your way to work, after a restless night, you notice a numbness or tingling sensation in your hands or feet and a shortness of breath you are uncomfortable but feel this is nothing, - it will pass. Before your mission, you should:

- A. Tell your supervisor and ask if it is ok to fly on the mission
- B. Ask advice from your co-worker
- C. Tell your spouse or roommate – ask what they suggest
- D. Take an aspirin, Tylenol, Motrin or Advil – this will help
- E. Tell the aircraft commander or an aviation medical doctor

Answer- E



Medical Physiology Quiz

9.

You have a flight today or tomorrow. You have been having difficulty overcoming the loss of a cherished, close, family member or loved one. You are distracted, unhappy and depressed – feeling down. You have not been sleeping well. Before your mission, you should:

- A. Tell your supervisor and ask if it is ok to fly on the mission
- B. Ask advice from your co-worker
- C. Tell your spouse or roommate – ask what they suggest
- D. Take an aspirin, Tylenol, Motrin or Advil – this will help
- E. Tell the aircraft commander or an aviation medical doctor
- F. Request sick leave and advise the mission planner
- G. Remove yourself from the flight schedule

Answer- E, F or G

Do not fly with medical, mental or emotional distractions



Medical Physiology Quiz

10.

Today is your first day back. You have a flight today or tomorrow. You have just gotten over the flu or a surgery. You have been taking medication to help you sleep. You seem to be moving slow. Before your mission, you should:

- A. Tell your supervisor and ask if it is ok to fly on the mission
- B. Ask advice from your co-worker
- C. Tell your spouse or roommate – ask what they suggest
- D. Take an aspirin, Tylenol, Motrin or Advil – this will help
- E. Tell the aircraft commander or an aviation medical doctor
- F. Request sick leave and advise the mission planner
- G. Remove yourself from the flight schedule
- H. Forget about it – you can do it

Answer- E, F or G

Do not fly until the medications have timed out. Always check with a physician or medical doctor.



Medical Physiology Quiz

Bottom Line:

Do not fly while distracted, have just experienced a life event, recovering from an emotional loss, physically impaired, mentally stressed, immediately after a medical procedure [unless specifically authorized by a knowledgeable doctor/physician]

