

## Aeromedical Factors (Pilot Handbook of Aeronautical Knowledge Ch. 17; AIM Ch. 8)

Type	Symptoms/Effects		Causes	Corrective Actions
<b>Hypoxia</b>	<ul style="list-style-type: none"> <li>● Cyanosis</li> <li>● Headache</li> <li>● Decreased reaction time</li> <li>● Impaired judgment</li> <li>● Euphoria</li> <li>● Visual Impairment</li> </ul>	<ul style="list-style-type: none"> <li>● Drowsiness</li> <li>● Lightheaded/dizzy sensations</li> <li>● Tingling in fingers/toes</li> <li>● Numbness</li> </ul>	<ul style="list-style-type: none"> <li>● <u>Hypoxic</u>: Insufficient O<sub>2</sub> (high altitude, drowning).</li> <li>● <u>Hypemic</u>: Blood unable to transport O<sub>2</sub> (CO poisoning, blood donation).</li> <li>● <u>Stagnant</u>: Blood not flowing (heart condition, high G maneuvers, reduced circulation).</li> <li>● <u>Histotoxic</u>: Cells unable to use O<sub>2</sub> (alcohol, drugs, poisons).</li> </ul>	<ul style="list-style-type: none"> <li>● Use oxygen</li> <li>● Descend in altitude</li> </ul>
<b>Hyperventilation</b>	<ul style="list-style-type: none"> <li>● Visual impairment</li> <li>● Unconsciousness</li> <li>● Lightheaded or dizziness</li> </ul>	<ul style="list-style-type: none"> <li>● Tingling sensations</li> <li>● Hot and cold sensations</li> <li>● Muscle spasms</li> </ul>	<ul style="list-style-type: none"> <li>● Excessive breathing rate reducing amount of CO<sub>2</sub> in the blood.</li> <li>● (Can occur at the same time as hypoxia)</li> </ul>	<ul style="list-style-type: none"> <li>● Control breathing rate</li> <li>● Breathe into a bag or talk</li> </ul>
<b>Middle Ear and Sinus Problems</b>	<ul style="list-style-type: none"> <li>● Severe ear/sinus pain</li> <li>● Ruptured eardrum</li> </ul>	<ul style="list-style-type: none"> <li>● Reduction in hearing</li> </ul>	<ul style="list-style-type: none"> <li>● Upper respiratory infection</li> <li>● Allergies</li> </ul>	<ul style="list-style-type: none"> <li>● Avoid flying with sickness</li> <li>● Swallowing, or valsalva maneuver (ear only)</li> </ul>
<b>Spatial Disorientation</b>	<ul style="list-style-type: none"> <li>● Lack of orientation to position, attitude, or movement of the aircraft</li> </ul>		<ul style="list-style-type: none"> <li>● Loss of visual cues (poor visibility, night with low lighting conditions)</li> </ul>	<ul style="list-style-type: none"> <li>● Avoid marginal/night conditions without good outside references</li> <li>● Trust your instruments</li> <li>● Avoid sudden head movements</li> </ul>
<b>Motion Sickness</b>	<ul style="list-style-type: none"> <li>● Paleness, sweating</li> <li>● Nausea</li> </ul>	<ul style="list-style-type: none"> <li>● Dizziness</li> <li>● Vomiting</li> </ul>	<ul style="list-style-type: none"> <li>● Brain receiving conflicting messages about state of body.</li> <li>● Anxiety and stress</li> </ul>	<ul style="list-style-type: none"> <li>● Opening fresh air vents</li> <li>● Focusing eyes outside aircraft</li> </ul>
<b>CO Poisoning</b>	<ul style="list-style-type: none"> <li>● Headache</li> <li>● Blurred vision</li> <li>● Loss of muscle power</li> </ul>	<ul style="list-style-type: none"> <li>● Dizziness</li> <li>● Drowsiness</li> </ul>	<ul style="list-style-type: none"> <li>● Exhaust leak into aircraft heater system</li> <li>● Breathing aircraft exhaust</li> </ul>	<ul style="list-style-type: none"> <li>● Turn off heater, open fresh air vents</li> <li>● Use supplemental oxygen</li> <li>● LAND</li> </ul>
<b>Stress</b>	<ul style="list-style-type: none"> <li>● Fight or flight (acute); automatic responses</li> </ul>	<ul style="list-style-type: none"> <li>● Drop in performance (chronic)</li> </ul>	<ul style="list-style-type: none"> <li>● Immediate threat (acute)</li> <li>● Psychological pressures (chronic)</li> </ul>	<ul style="list-style-type: none"> <li>● Fix psychological pressures before flight</li> </ul>
<b>Fatigue</b>	<ul style="list-style-type: none"> <li>● Lack of attention or concentration</li> </ul>	<ul style="list-style-type: none"> <li>● Impaired coordination</li> <li>● Impaired communication</li> </ul>	<ul style="list-style-type: none"> <li>● Physical stress</li> <li>● Psychological stress</li> </ul>	<ul style="list-style-type: none"> <li>● Adequate rest</li> <li>● Proper nutrition</li> </ul>
<b>Dehydration</b>	<ul style="list-style-type: none"> <li>● Fatigue</li> <li>● Headache and dizziness</li> </ul>	<ul style="list-style-type: none"> <li>● Cramps</li> <li>● Sleepiness</li> </ul>	<ul style="list-style-type: none"> <li>● Hot temperatures, wind, humidity</li> <li>● Lack of water</li> </ul>	<ul style="list-style-type: none"> <li>● Drink water</li> <li>● Awareness of condition</li> </ul>
<b>Alcohol and drugs</b>	<ul style="list-style-type: none"> <li>● Impaired judgement</li> <li>● Impaired coordination</li> </ul>	<ul style="list-style-type: none"> <li>● Drowsiness</li> <li>● Susceptibility to hypoxia</li> </ul>	<ul style="list-style-type: none"> <li>● Drug or alcohol usage</li> </ul>	<ul style="list-style-type: none"> <li>● Follow required/recommended wait times</li> <li>● Avoid drugs unless approved by FAA</li> </ul>
<b>Scuba Diving</b>	<ul style="list-style-type: none"> <li>● Decompression sickness (the bends)</li> <li>● Localized, dull, deep pain, mild to excruciating</li> <li>● Headache</li> </ul>	<ul style="list-style-type: none"> <li>● Changes in vision (spots, double vision)</li> <li>● Chest pain</li> <li>● Muscle weakness</li> <li>● Itching around face/neck/arms</li> </ul>	<ul style="list-style-type: none"> <li>● Flying after scuba diving</li> </ul>	<p><u>Recommended wait times:</u></p> <ul style="list-style-type: none"> <li>● 12 hours below 8,000' (nondecompression stop diving)</li> <li>● 24 hours for decompression stop diving or flights above 8,000'</li> </ul>