

# FATIGUE

from "Basic Flight Physiology"  
by Richard Reinhart MD.

## Symptoms of Fatigue

Probably the most important symptom of fatigue, as with hypoxia and lack of sleep, is the feeling of indifference, of "settling for less" in performance. The pilot is unaware that he is fatigued and allows his personal acceptance tolerances and limits for performance to expand, which allows for mistakes or substandard skills.

Unfortunately, the mind has minimal long-term memory for fatigue. In other words, we do not really recall how impaired we are when we are fatigued. The mind tries to protect us from being overwhelmed by such bad experiences. The same is true for pain. We know we hurt but can't really define how incapacitating it was after the event....

Other specific fatigue symptoms unique to a pilot in flight include the following:

Increased reaction time. The pilot takes longer to react to a change or emergency. Automatic response to any abnormal flight is slowed, such as recovery from a tight turn that is losing altitude or recognizing a stall. It has the potential to turn minor problems into major accidents - both in the air and on the ground.

Channelized thought processes. The pilot tends to concentrate on one thought or activity at a time, rather than several, which is essential in flying. Concentration is also narrowed, as the pilot focuses only on what the weather is ahead and does not plan his approach... Flying requires a multitude of thoughts, all processed by the brain in a sequence or sometimes at the same time. The number of separate thoughts that can be processed decreases as fatigue gets worse.

Fixation. The pilot fixates on a single instrument...or listening intently to a strange sound that is not a factor of the flight. The instrument scan becomes less efficient and traffic is missed because the pilot is concentrating on some object below.

Impaired judgement and decision making. Dumb mistakes are made and while they might be insignificant, they might just as easily become another link in a growing chain of events leading to an accident. The pilot takes chances and shortcuts rather than following acceptable procedures - and he really knows better but just doesn't know he's messing up. Risk assessment is minimized.

Sloppy Flying. Fine motor skills are compromised, and the pilot finds himself holding onto the stick with his hand rather than his fingers. He loses the fine tuning of his turns and climbs... More importantly, he has to think about what to do rather than using well-learned skills. He has to think too long about which direction to turn to change his heading, or in what order controls are changed to begin a descent. His...flying is not precise and there are errors in timing. Much of our flying is automatic, a habit. Anything that interferes with these skills impairs the pilot and might not be noticed.

Decreased visual perception. It takes longer to focus (accommodate) from a distant object to a near object. This becomes especially critical while flying an... approach to landing...

Attitude. It bears repeating that the pilot is willing to settle for less and is not aware of his change in attitude and performance.