

Human Performance & Limitations - Glossary, Index & Reference

The back matter: a glossary of the terms used throughout the book, an alphabetical index by chapter, the references consulted, and a word about the author.

Glossary of Terms

Alveolus

The tiny air sac in the lung, one cell thick, where oxygen and carbon dioxide are exchanged with the blood. (Ch 5)

Armstrong's Line

~63,000 ft, the altitude at which body fluids boil at body temperature because ambient pressure equals their vapour pressure. (Ch 3)

Autokinetic effect

The illusion that a single fixed light in the dark is moving. (Ch 14)

Barodontalgia

Tooth pain caused by gas trapped under a filling or in decay expanding as cabin pressure falls. (Ch 17)

Barotrauma (otic / sinus)

Injury from a pressure difference that cannot equalise — commonly the middle ear or sinuses on descent. (Ch 13, 17)

Baroreceptor reflex

The body's automatic correction of blood pressure via sensors in the carotid artery and aorta. (Ch 8)

Circadian rhythm

The body's ~24-hour internal clock of alertness and temperature; disrupted by jet lag and night duty. (Ch 24)

CRM (Crew Resource Management)

The use of all available resources — people, procedures, equipment — to manage a flight safely. (Ch 22)

Dark adaptation

The eye's adjustment to darkness: cones in ~7 minutes, full rod sensitivity in ~30. (Ch 12)

Decompression sickness (DCS / the bends)

Nitrogen bubbles forming in blood and tissue when pressure falls (Henry's Law). (Ch 8)

Dirty Dozen

The twelve common human preconditions for error. (Ch 1)

Eustachian tube

Join live classes for guided practice and doubt clearing.

The passage that equalises middle-ear pressure with the surroundings. (Ch 13)

Fovea

The central pit of the retina, all cones — sharpest day vision, no night vision. (Ch 11)

G-LOC

G-induced loss of consciousness, the end of the positive-G cascade (grey-out → black-out → G-LOC). (Ch 15)

Haemoglobin

The iron-bearing molecule in red cells that carries oxygen; ~280 million per red cell, four O₂ per molecule. (Ch 5)

Hypoxia

A deficiency of oxygen reaching the tissues; four types — hypoxic, anaemic, stagnant, histotoxic. (Ch 6)

ISA

International Standard Atmosphere: 1013.25 hPa and +15 °C at sea level, lapse 1.98 °C/1000 ft to 36,090 ft. (Ch 2)

Load factor

The ratio of lift to weight, felt as "G"; 1.41 G at 45° of bank in a level turn. (Ch 15)

Presbyopia / Myopia / Hypermetropia

Age-related loss of focus / short-sight / long-sight. (Ch 11–12)

SHELL model

Human-factors model with Liveware (the human) at the centre, interfacing Software, Hardware, Environment and Liveware. (Ch 1)

Somatogravic illusion

Acceleration felt as a nose-up pitch (deceleration as nose-down). (Ch 14)

TUC

Time of Useful Consciousness — the working time after oxygen is lost; halved by rapid decompression. (Ch 8)

Vestibular system

The inner-ear balance organs: three semicircular canals (rotation) and otoliths (linear acceleration). (Ch 13)

WOCL

Window of Circadian Low, ~03:00–05:00, the period of lowest alertness. (Ch 24)

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References & Further Reading

- ICAO Doc 9683 — *Human Factors Training Manual*.
- ICAO Annex 1 — *Personnel Licensing* (medical provisions).
- DGCA Civil Aviation Requirements (CARs) & Aeronautical Information Circulars — current editions.
- CAP 715 — *An Introduction to Aircraft Maintenance Engineering Human Factors*.
- FAA — *Pilot's Handbook of Aeronautical Knowledge*, Aeromedical Factors chapter.
- FAA — *Introduction to Aviation Physiology*.

These are the standard authorities against which the facts in this book are checked. Always defer to the current official edition.

About the Author

Ghost Aviator is a pilot, flight instructor and ground instructor with seventeen years in aviation. He founded **Ghost Aviator** to give every student pilot in India correct, free, and beautifully-made DGCA exam preparation — question banks, notes, mock tests and live ground classes in Air Regulations, Meteorology and Air Navigation. This book is part of that mission.

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