



FLIGHT  
SAFETY



F O U N D A T I O N

independent • impartial • international

*Am I Safe to Fly?*

## A Pilot's Personal Preflight Checklist

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FSF BASS 2019

2 May 2019

**AMAS**  
AVIATION MEDICINE ADVISORY SERVICE



# NBAA Foundations for Safety

Professionalism  
Safety Leadership  
Technical Excellence  
Risk Management  
***Fitness for Duty***



[www.nbaa.org/ops/safety/top-safety-focus-areas/2018/#foundations-for-safety](http://www.nbaa.org/ops/safety/top-safety-focus-areas/2018/#foundations-for-safety)



# NTSB MOST WANTED LIST OF TRANSPORTATION SAFETY IMPROVEMENTS 2015

CRITICAL CHANGES NEEDED TO REDUCE TRANSPORTATION ACCIDENTS AND SAVE LIVES

## REQUIRE MEDICAL FITNESS FOR DUTY



[www.nts.gov/mostwanted](http://www.nts.gov/mostwanted)



A large commercial airplane is shown from a low angle, flying directly towards the viewer over a runway. The runway has white dashed lines and a yellow center line. The sky is a mix of blue and orange, indicating sunset or sunrise. The airplane's landing gear is visible, and its engines are prominent.

*NTSB* : "The goal is simple: ensure safety-critical professionals are medically fit for duty *before* they operate a vehicle."



# Not Just for Flight Crew!

- Fatigue & Fitness for Duty applies to pilots, maintenance technicians, flight attendants, dispatchers, and ground handlers.



## Non-Pilot Aviation Professionals

- Absent Rest Guidelines / Rules
- Longer hours
- Backside of Clock
- Less Automation → More Workload



FFD is a Soft Threshold!

*Anything* we can do  
to improve personal capabilities  
is a positive step in  
**advancing safety.**



# Fitness Assumption

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A person is *able to perform essential job functions* and is *not limited* because of:

- Physiological – Medical
- Cognitive
- Psychological and/or
- Psychiatric conditions







# F4D is a SHARED Responsibility!

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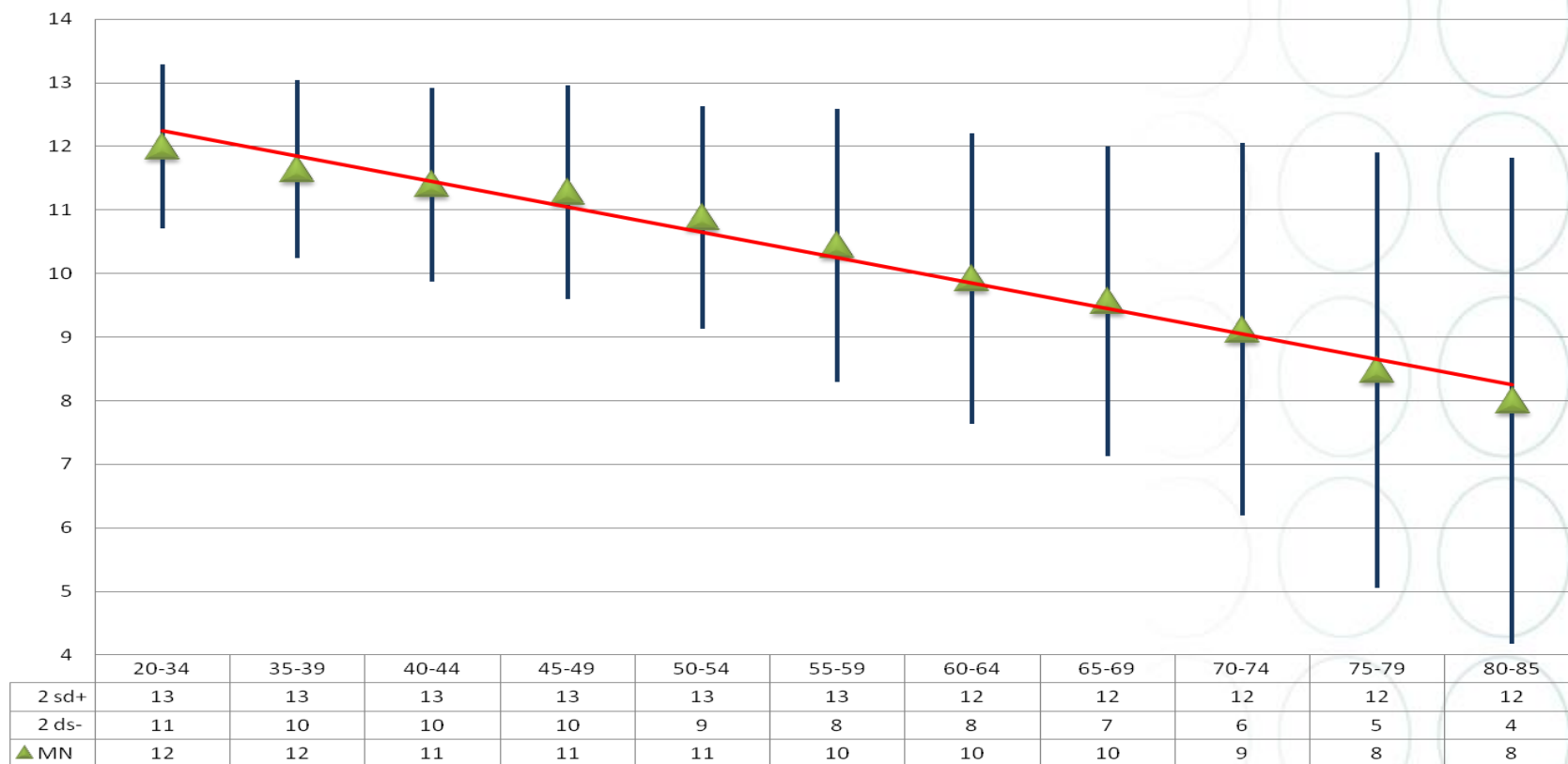
- Pilots / Cabin Crew
- Ground Crew, Maintenance, Dispatch
- Company
  - Philosophy
  - Leadership
  - Programs





# Aging Pilots Fitness For Duty

**Mean Score +/- 2 Standard Deviations of 24 Neurocognitive Abilities as a Function of Age**







# Employee Responsibility

- PERSONAL ASSESSMENTS

AIM Section 8 – 1 – 1 I'M SAFE

- I - Illness
- M – Medications
- S – Stress
- A – Alcohol
- F – Fatigue
- E – Eating/Hydration





FAA  
Aviation Safety

# Personal Minimums

## PILOT

### Experience/Recency

Takeoffs/landings..... in the last  
\_\_\_\_\_ days

Hours in make/model ..... in the last  
\_\_\_\_\_ days

Instrument approaches ..... in the last  
(simulated or actual) \_\_\_\_\_ days

Instrument flight hours ..... in the last  
(simulated or actual) \_\_\_\_\_ days

Terrain and airspace .....familiar

### Physical Condition

Sleep ..... in the last  
24 hours

Food and water ..... in the last  
\_\_\_\_\_ hours

Alcohol .....None in the last  
\_\_\_\_\_ hours

Drugs or medication.....None in the last  
\_\_\_\_\_ hours

Stressful events .....None in the last  
\_\_\_\_\_ days

Illnesses .....None in the last  
\_\_\_\_\_ days

## AIRCRAFT

### Fuel Reserves (Cross-Country)

VFR Day ..... hours  
Night..... hours

IFR Day ..... hours  
Night..... hours

### Experience in Type

Takeoffs/landings..... in the last  
in aircraft type \_\_\_\_\_ days

### Aircraft Performance

Establish that you have additional performance available over that required. Consider the following:

- Gross weight
- Load distribution
- Density altitude
- Performance charts

### Aircraft Equipment

Avionics..... familiar with equipment  
(including autopilot and GPS systems)

COM/NAV..... equipment appropriate to flight

Charts ..... current

Clothing..... suitable for preflight and flight

Survival gear ..... appropriate for flight/terrain

## ENVIRONMENT

### Airport Conditions

Crosswind ..... % of max POH  
Runway length..... % more than POH

### Weather

Reports and forecasts .....not more than  
\_\_\_\_\_ hours old

Icing conditions .....within aircraft/pilot capabilities

### Weather for VFR

Ceiling Day..... feet  
Night ..... feet

Visibility Day..... miles  
Night ..... miles

### Weather for IFR

#### Precision Approaches

Ceiling ..... feet above min.  
Visibility ..... mile(s) above min.

#### Non-Precision Approaches

Ceiling ..... feet above min.  
Visibility ..... mile(s) above min.

#### Missed Approaches

No more than ..... before diverting

#### Takeoff Minimums

Ceiling ..... feet  
Visibility ..... mile(s)



# Personal Minimums Checklist

## EXTERNAL PRESSURES

### Trip Planning

Allowance for delays ..... minutes

### Alternate Plans for Diversion or Cancellation

Notification of person(s) you are meeting

Passengers briefed on diversion or cancellation plans and alternatives

Modification or cancellation of car rental, restaurant, or hotel reservations

Arrangement of alternative transportation (airline, car, etc.)

### Personal Equipment

Credit card and telephone numbers available for alternate plans

Appropriate clothing or personal needs (eye wear, medication...) in the event of unexpected stay



#### Importance of Trip

The more important the trip, the more tendency there is to compromise your personal minimums, and the more important it becomes to have alternate plans.

## Your Personal Minimums Checklist—

- An easy-to-use, personal tool, tailored to your level of skill, knowledge, and ability
- Helps you control and manage risk by identifying even subtle risk factors
- Lets you fly with less stress and less risk

## Practice “Conservatism Without Guilt”

Each item provides you with either a space to complete a personal minimum or a checklist item to think about. Spend some quiet time completing each blank and consider other items that apply to your personal minimums. Give yourself permission to choose higher minimums than those specified in the regulations, aircraft flight manuals, or other rules.

## How to Use Your Checklist

Use this checklist just as you would use one for your aircraft. Carry the checklist in your flight kit. Use it at home as you start planning a flight and again just before you make your final decision to fly.

Be wary if you have an item that's marginal in any single risk factor category. But if you have items in more than one category, you may be headed for trouble.

**If you have marginal items in two or more risk factors/categories, don't go!**

Periodically review and revise your checklist as your personal circumstances change, such as your proficiency, recency, or training. You should never make your minimums less restrictive unless a significant positive event has occurred. However, it is okay to make your minimums more restrictive at any time. And never make your minimums less restrictive when you are planning a specific flight, or else external pressures will influence you.

## Have a fun and safe flight!

Developed in cooperation with:



**King Schools, Inc.**  
3840 Calle Fortunada  
San Diego, CA 92123  
**1-800-854-1001**

**FOR SMART, SAFE, FUN FLYING**

# PERSONAL MINIMUMS CHECKLIST

*Think...*

**PILOT  
AIRCRAFT  
ENVIRONMENT  
EXTERNAL  
PRESSURES**

Pilot: \_\_\_\_\_

Date Revised: \_\_\_\_\_

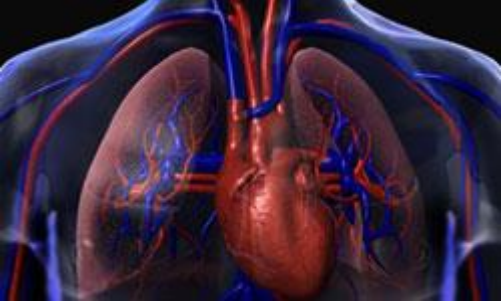
Reviewed with: \_\_\_\_\_  
(if applicable)



# “I’M SAFE ?”

- **I** - ILLNESS
- **M** - MEDICATIONS
- **S** - STRESS
- **A** - ALCOHOL
- **F** - FATIGUE
- **E** - EATING / HYDRATION





# ILLNESS



**Head** – Headaches, Vision, Hearing, Allergies, Colds, Dental

**Heart** – Coronary Ds., Rhythms, Valves, Heart Failure

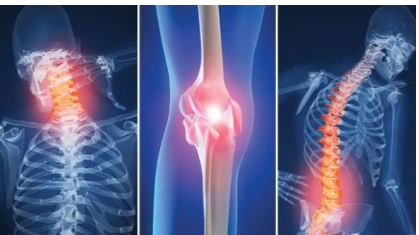
**Lungs** – Smoking, COPD, Asthma, Pneumonia

**GI / GU** – Ulcers, Gallstones, IBS, Colitis, Stones

**Neuro** – Parkinson's, Head trauma, LOC

**MS** – Back / Disc Ds., Joints

**Systemic** – Sleep Apnea. Diabetes, Cancer, HIV



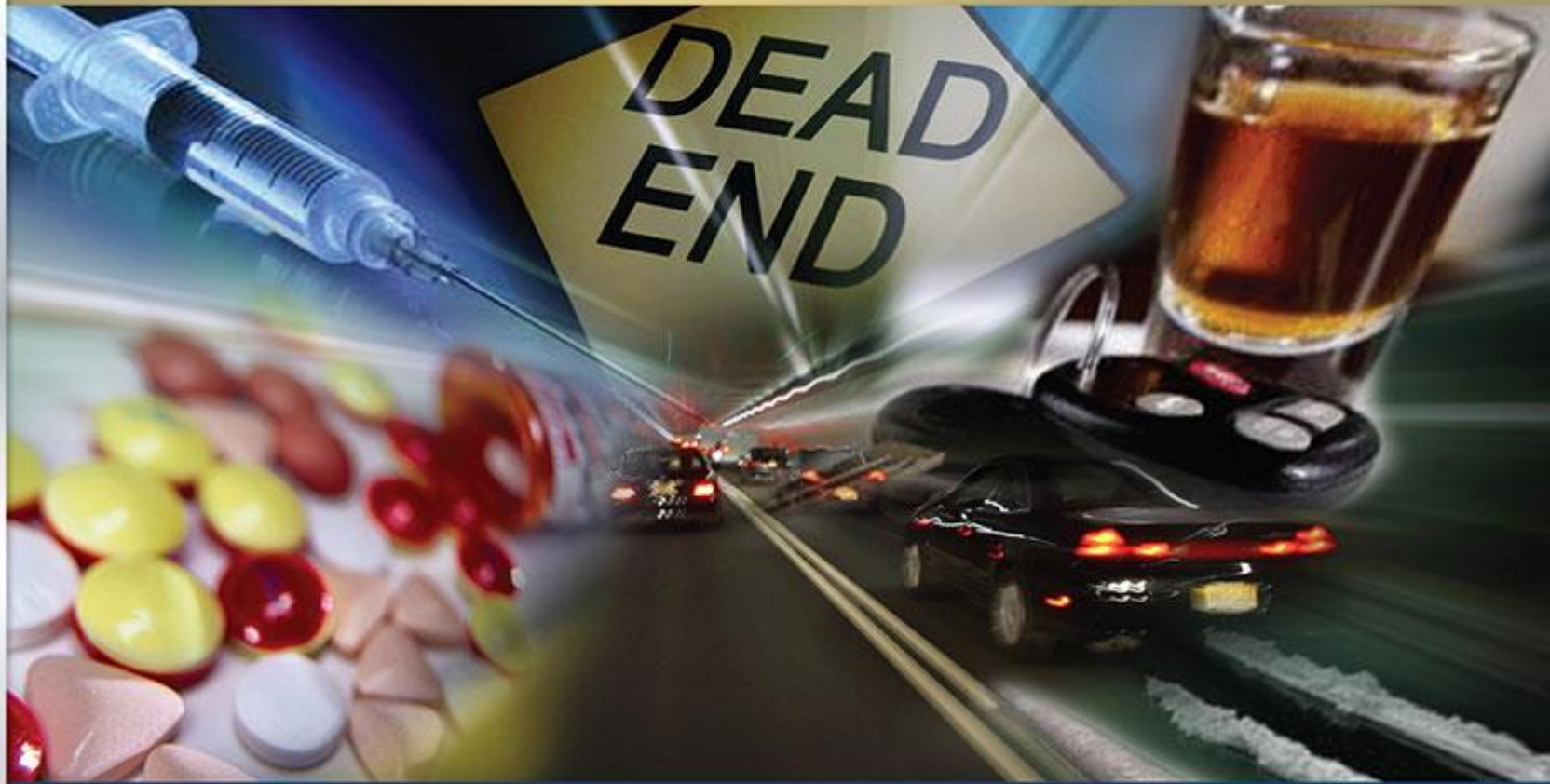




# NTSB MOST WANTED LIST OF TRANSPORTATION SAFETY IMPROVEMENTS 2015

CRITICAL CHANGES NEEDED TO REDUCE TRANSPORTATION ACCIDENTS AND SAVE LIVES

## END SUBSTANCE IMPAIRMENT IN TRANSPORTATION



[www.nts.gov/mostwanted](http://www.nts.gov/mostwanted)

**AMAS**  
AVIATION MEDICINE ADVISORY SERVICE





# MEDICATIONS



**Many OK, BUT..... Underlying Condition is KEY!**

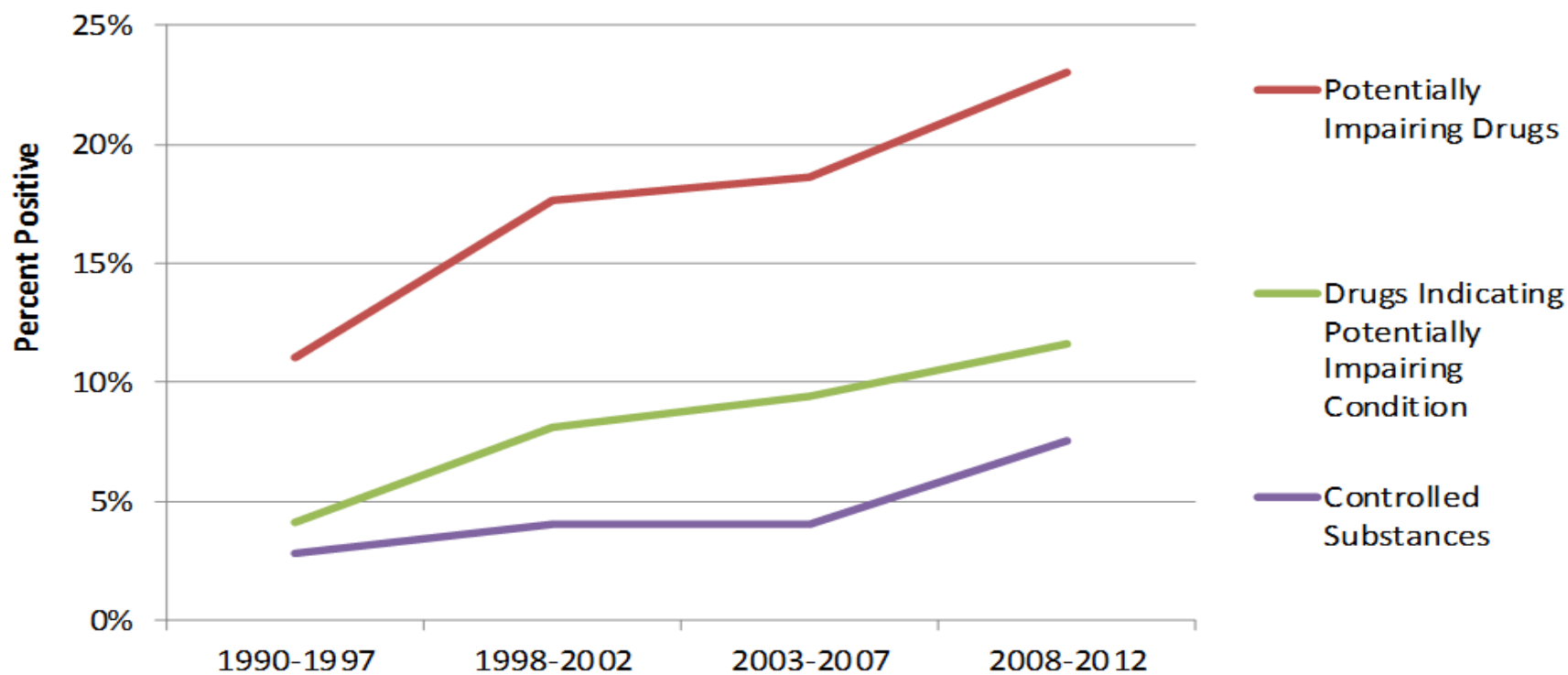
- Ground Test before Use
- Check w/ AME or AMAS database
- Some always disqualifying → Cognitive Impairment
- Sleep Meds are Tricky
- FAR 61.53 Responsibility
- Marijuana / THC always DQ!





# NTSB SS 14/01 Findings

**Percentage of Study Pilots With Positive Findings for Potentially Impairing Drugs and Conditions, and Controlled Substances, 1990-2012**





# STRESS

## Distractions – Can You Focus on Your Duties?

- Family & Relationship Issues
- Employment / Career
- Mission Demands
- Living Environment
- Coworkers
- Communications



# STRESS

## FAA Pilot Fitness ARC

- Prevalence of Mental Illness
- Value of Peer Support Programs
- AME Screening Training

## National Institute of Mental Health

- 20% of US populations annually
- 50% in lifetime
- #3 Cause of Pilot Disability



Credit : Ukulele Academy







# ALCOHOL / INTOXICANTS

- Alcohol is drug of choice for Pilots
- “Appropriate Use” as stress relief is encouraged by virtually every society
- Rigid regulations and rules about consumption (Regulatory Authorities and Employer)
- [www.faa.gov/pilots/safety/pilotsafetybrochures/media/alcohol.pdf](http://www.faa.gov/pilots/safety/pilotsafetybrochures/media/alcohol.pdf)  
FAA Pilot Safety Brochure – Alcohol & Flying
- Binge Behavior
- 7-9% of US Alcohol / 11 – 13% incl. Drugs
- FAR 91.17, FAR 91.19



# ALCOHOL

## Persistent Effects

- “Hangover” – Dehydration – Brain Cell Injury
- Cognitive Impairment
- Loss of REM Sleep
- Associated Diseases
  - Ulcers
  - Neuropathy
  - Cancers
- HIMS Program





# MARIJUANA

## ILLEGAL FOR PILOTS

- Recreational use allowed 9 states + DC, PR, Guam
- Medicinal use legal in 47 states
- PROHIBITED FEDERALLY – FAR 91.17 / FAR 91.19
- New Forms – Oils, Edibles, Creams
- Unknowing Ingestions – Not Excuse
- Underlying medical condition DQ
- CBD vs. THC



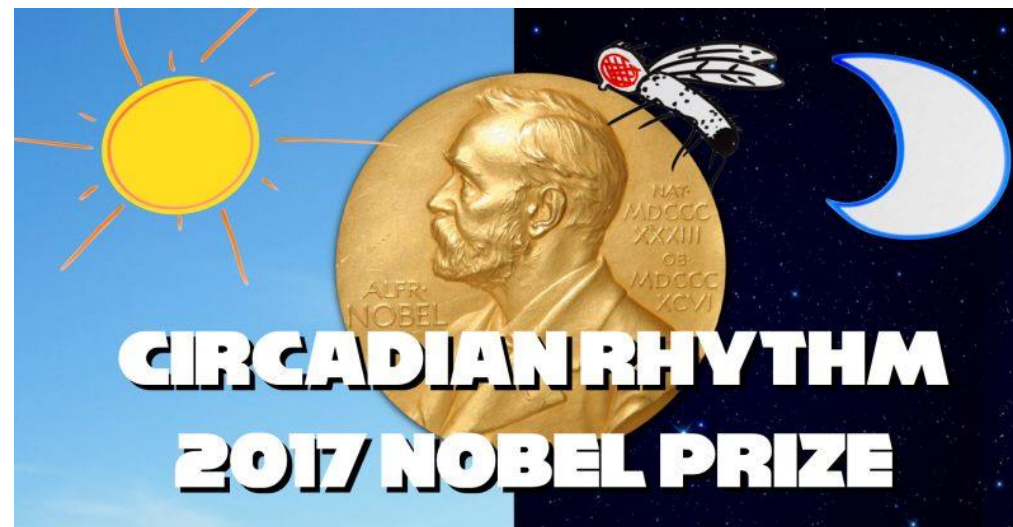
# FATIGUE – ICAO Definition

A physiological state of **reduced mental or physical performance capability** resulting from *sleep loss or extended wakefulness, circadian phase or workload* (mental and/or physical activity) that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties

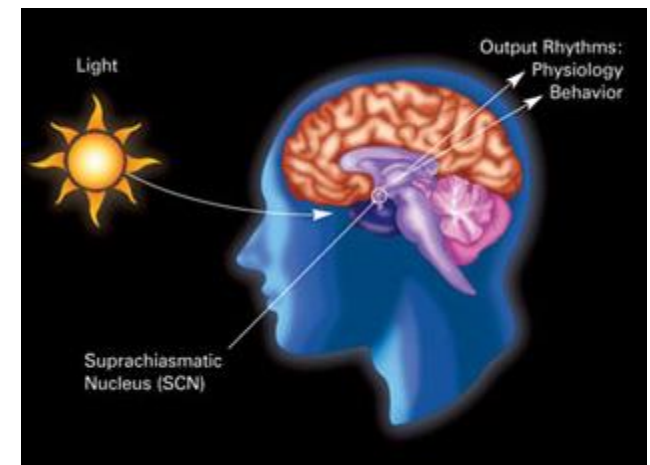


# FATIGUE

- Acute
  - Short-term, recovery in days
- Chronic
  - Long-term, Causes Morbidity
- Circadian
  - Transmeridian travel
  - Backside of clock duties



Credit: Simple Biologist



# In Other Words



- **FATIGUE MAKES YOU STUPID !**

# EATING / HYDRATION

## Strategic Eating

- Timing / Quantities of Meals / Snacks
- Maintain Stable Blood Sugar
- Proteins / Complex Carbohydrates
- Adequate / Not Excessive Calories
- Smaller More Frequent Eating





# EATING / HYDRATION

## Steady Hydration

- Thirst → 1 Liter deficient
- Urine – Light Yellow to Clear
- Alcohol / Coffee → Diuretics
- Sports Drinks – No Sugar
- Electrolyte Replacement



Credit: theunboundspirit.com





# RESOURCES

**Flight Safety Foundation Key Safety Issue – F4D**

<https://flightsafety.org/safety-issue/fitness/>

**NBAA Fitness for Duty Policy Template**

<https://nbaa.org/wp-content/uploads/2018/08/fitness-for-duty-policy-template.pdf>

**NBAA Safety Committee**

<https://nbaa.org/about/leadership/standing-committees/nbaa-safety-committee/>

**AMAS – [www.AviationMedicine.com](http://www.AviationMedicine.com)**

Medication Database

Medical Articles for Pilots

# STRATEGIES

**Optimize Health / Maximize Performance**

**Don't Fly Sick**

**Avoid Stupid Medications**

**Ask For Help - Early**

**Minimize Alcohol / No Drugs**

**Adequate Sleep**

**Proper Nutrition**

**Use Personal Checklist Before Every Flight**

**Use Expert Resources**

**I'M SAFE !!!**





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