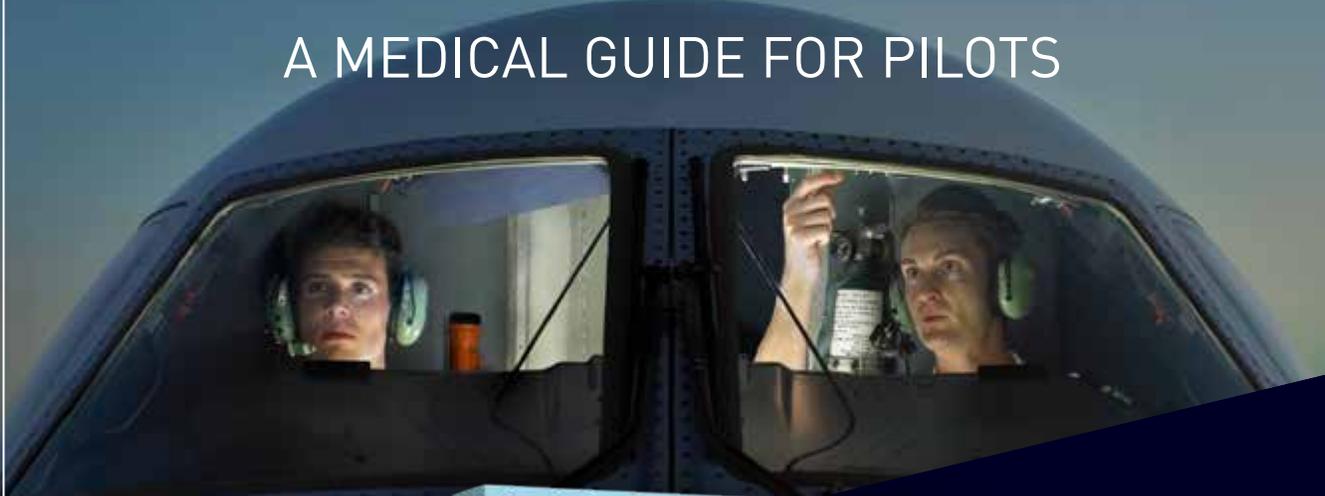


BOOK PREVIEW

# FITNESS TO FLY

A MEDICAL GUIDE FOR PILOTS



ICAO

IN COLLABORATION WITH:



# MAINTAIN GOOD HEALTH THROUGHOUT YOUR CAREER AS A PILOT

*Fitness to Fly – A Medical Guide for Pilots* is a preventive-medicine handbook that is easy-to-read, motivating and educational, with engaging content, graphics and charts to empower you to limit your health risks and set your own goals and strategies to maintain fitness to fly and a balanced lifestyle.

This guide was developed by the International Civil Aviation Organization (ICAO) in collaboration with the International Federation of Airline Pilots' Associations (IFALPA) and the International Air Transport Association (IATA). It is focused on the health risks pilots face during their careers and the medical recommendations that help them mitigate those risks.

This handbook is intended to close the gap between pilots' medical requirements in order to fly and the preventive measures that can help them fulfill those requirements.

The recommendations contained in this guide are also applicable for cabin crew, air traffic controllers and anyone working within the aviation industry. They will help improve the personal health of aviation personnel throughout their careers, bringing positive outcomes for all aviation stakeholders in the long-term.

This is ICAO's contribution to promoting the well-being of the aircrew community - a priority shared by all aviation stakeholders.

## This book helps you to:

- ✓ Understand the most common health issues facing pilots today
- ✓ Learn how to reduce major risks to mental and physical health
- ✓ Manage your nutrition, sleep and medication for optimal flight performance

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CHAPTER 1

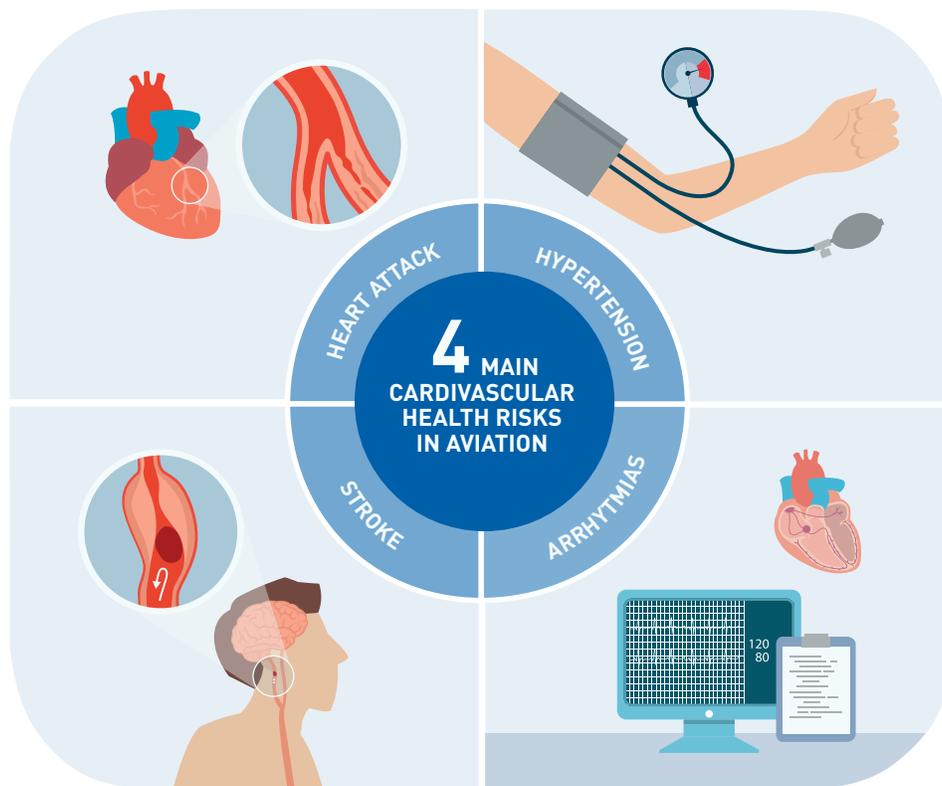
# UNDERSTANDING CARDIOVASCULAR RISK



## ARE YOU EXPERIENCING ANY OF THESE WARNING SYMPTOMS?

1. Irregular heart beat
2. Pressure, tightness or chest pain
3. Dizziness
4. Difficulty breathing or shortness of breath

If your answer is yes, you may be under one of these 4 major risks:



To learn more about these recommendations, get your handbook at [www.unitingaviation.com/fitnessstofly/](http://www.unitingaviation.com/fitnessstofly/)

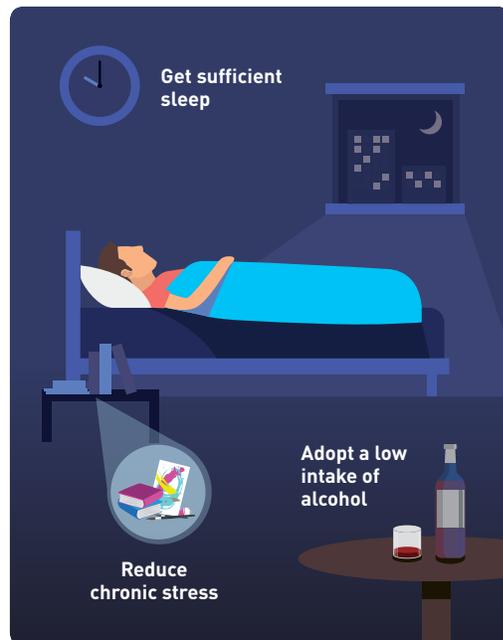
CHAPTER 1

# UNDERSTANDING CARDIOVASCULAR RISK



In Fitness to Fly, find  
**7 WAYS TO MITIGATE THESE RISKS  
AND ACHIEVE OPTIMUM  
CARDIOVASCULAR HEALTH:**

1. **Get active!**
2. **Understand your blood fat (lipid) levels**
3. **Manage your blood pressure**
4. **Eat a healthy diet**
5. **Maintain a healthy weight**
6. **Understand the risk of diabetes**
7. **Stop smoking**



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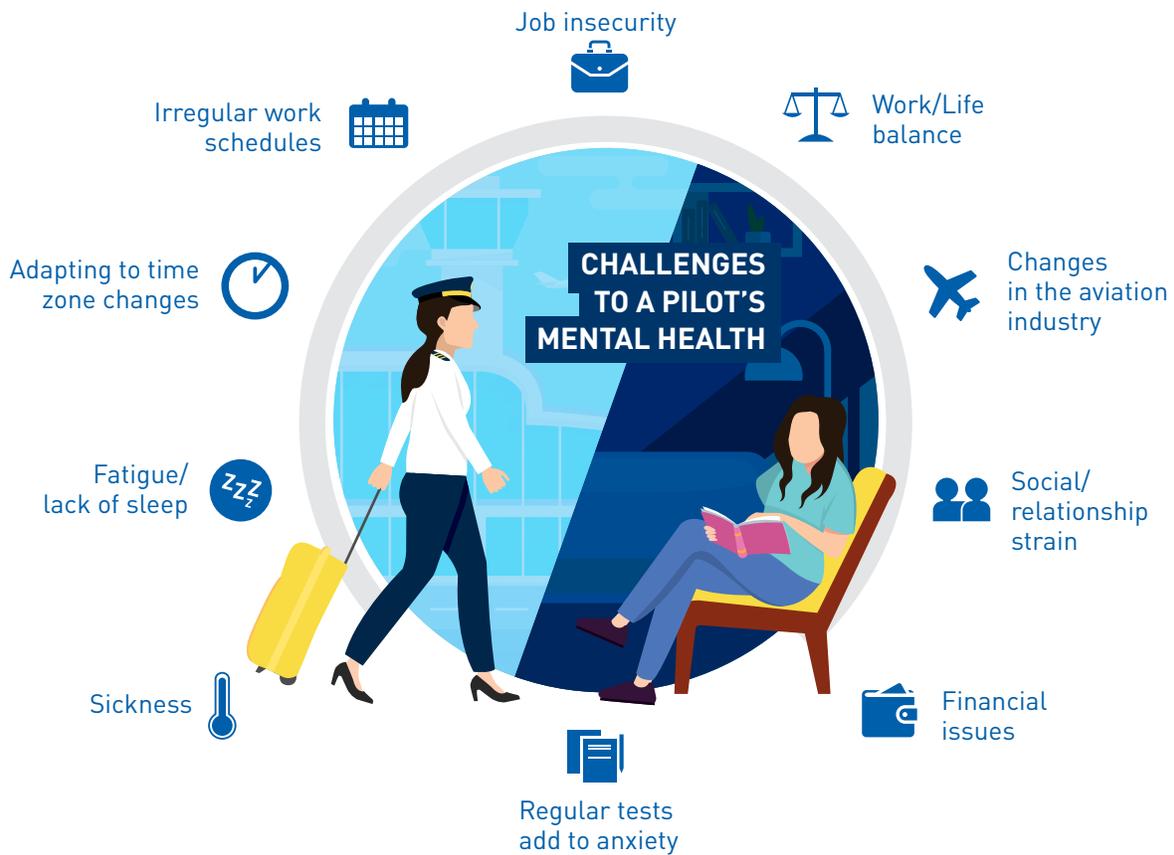
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[www.unitingaviation.com/fitnessstofly/](http://www.unitingaviation.com/fitnessstofly/)

## CHAPTER 2

# HOW TO KEEP MENTALLY WELL



There are several challenges pilots face during their career that can result in emotional and mental stress:



To learn more about these recommendations, get your handbook at [www.unitingaviation.com/fitnesstofly/](http://www.unitingaviation.com/fitnesstofly/)

## CHAPTER 2

# HOW TO KEEP MENTALLY WELL



In Fitness to Fly, find  
**5 PRACTICAL WAYS TO ACHIEVE  
OPTIMUM MENTAL HEALTH AND  
WELL-BEING:**

- 1. Connect socially with others**
- 2. Get Active**
- 3. Keep learning**
- 4. Give to others**
- 5. Be mindful**



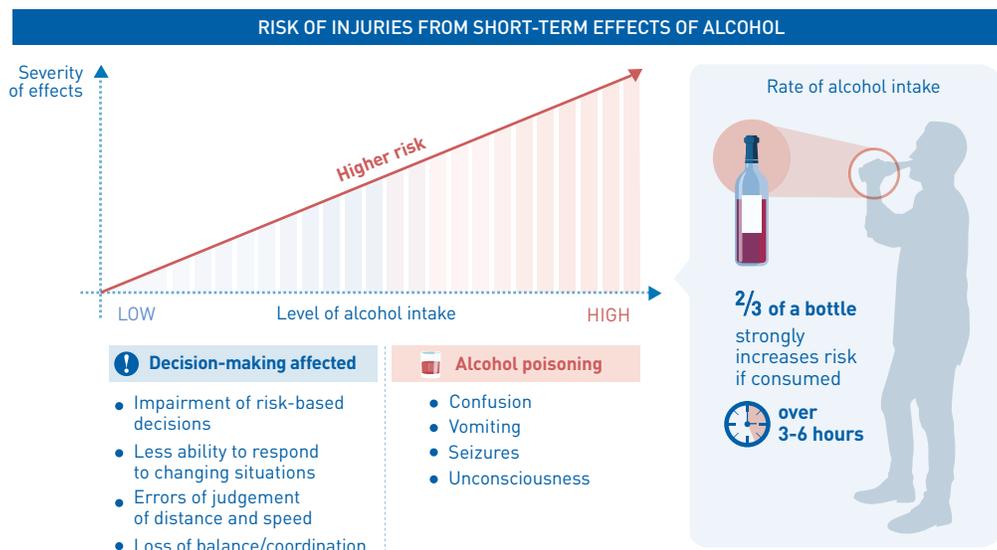
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## CHAPTER 3

# IMPACT OF ALCOHOL AND DRUGS ON PERFORMANCE AND HEALTH

There is a clear flight safety risk associated with problematic use of alcohol, or other psychoactive substances. Among a variety of other detrimental effects, the following are some effects of alcohol intake:

- **Increased self-confidence and reduced anxiety that can adversely affect decision making**
- **Coordination problems**
- **Impaired reaction time and double vision**
- **Errors of judgment of distance or speed**



# IMPACT OF ALCOHOL AND DRUGS ON PERFORMANCE AND HEALTH

## In Fitness to Fly, find 9 PRACTICAL WAYS TO MINIMIZE RISK FROM ALCOHOL INTAKE:

**1 Assess your drinking habits**

Take the AUDIT questionnaire

**2 Comply with your company's alcohol policy**

**3 Find out the drinking guidelines in your country**

**4 Learn about the amounts of alcohol in different drinks**

	Spirits	Beer	Wine
% alcohol	40%	5%	12%

**5 Set sensible drinking levels**

UNIT= small glass / 12% ABV

**UK guidelines** Max 14 units/week Spread over 3+ days

**US guidelines** Max Daily 1 2

**6 Don't "binge drink"**

The effects of binge drinking can last for up to 72 hours

Blood alcohol level = or + 0.08 grams

**7 Have several alcohol-free days per week**

**8 Mitigate the short-term effects of alcohol**

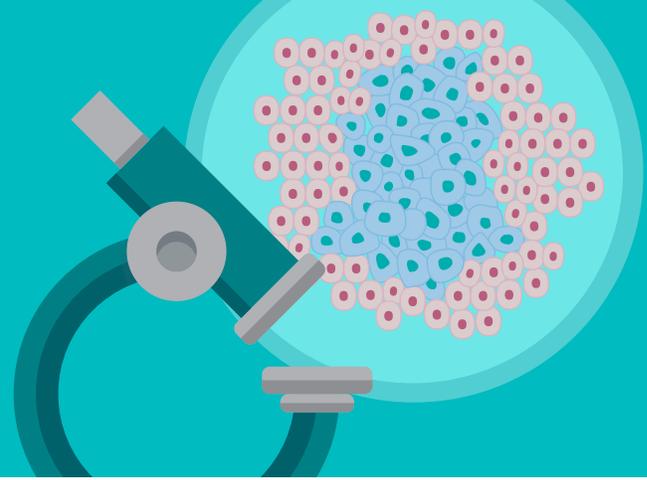
Alternate with water | Eat a meal prior to drinking

**9 Know where to seek help**

**9 PRACTICAL WAYS**  
to minimize risk from alcohol

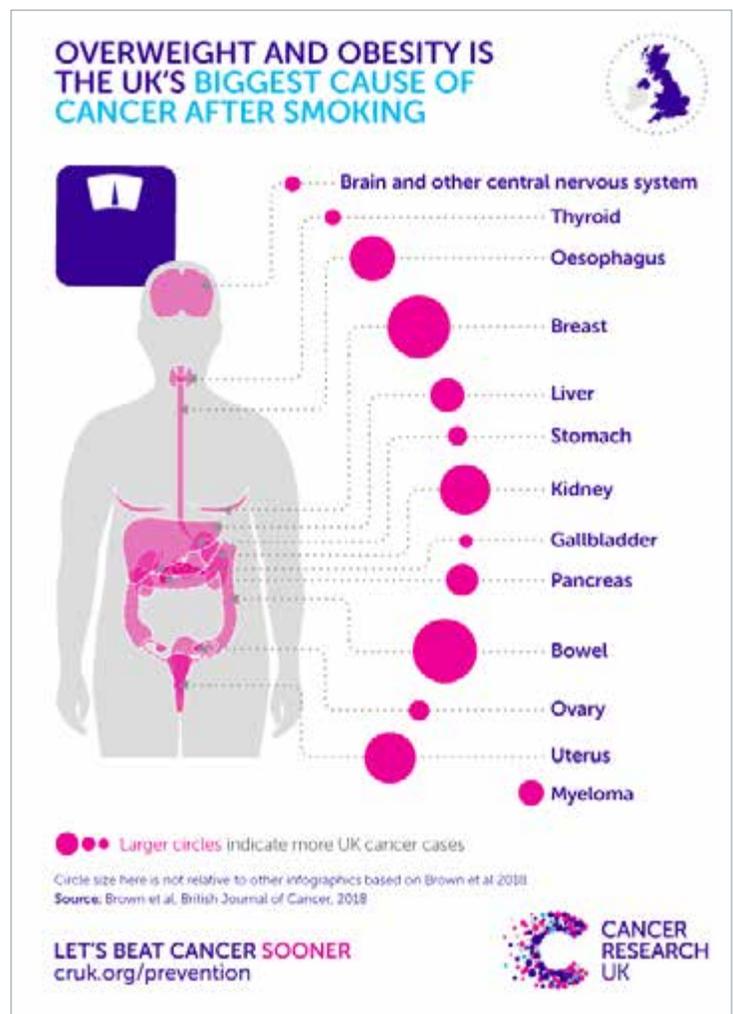
## CHAPTER 4

# WHAT WE KNOW ABOUT CANCER

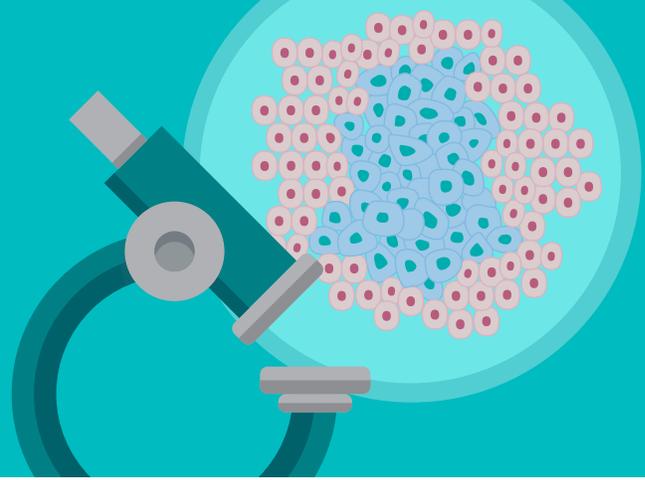


Studies indicate that cancer incidence is generally lower in professional pilots than the general population. However, an increased frequency of skin cancer has been reported in pilots which could be due to exposure to UV from sunlight.

Other types of cancer are caused by the five leading lifestyle risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use and alcohol use.



# WHAT WE KNOW ABOUT CANCER



In Fitness to Fly, find

## 8 PRACTICAL WAYS TO MINIMIZE THE RISK OF CANCER:

1. Stop smoking
2. Eat a healthy diet
3. Maintain a healthy weight
4. Cut back on alcohol
5. Avoid sunburn
6. Get active!
7. Reduce the risk of certain infections
8. Discuss with a health professional which cancer screening tests you should undergo

### SKIN CANCER CHECKLIST

To reduce the risk of developing skin cancer



**Do not** deliberately sunbathe



**Stay in the shade** when the sun is highest



Wear clothing that covers as much of your skin as possible



**Protect your head,** face and back of the neck (e.g. wear a hat with a wide brim)



**Use sunscreen** with factor (SPF) of 15 or higher

It should protect you against both UVA and UVB

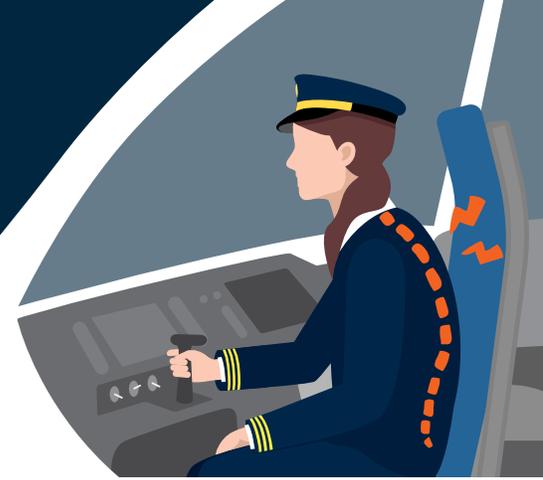


**Avoid using a tanning bed,** booth or sunlamp



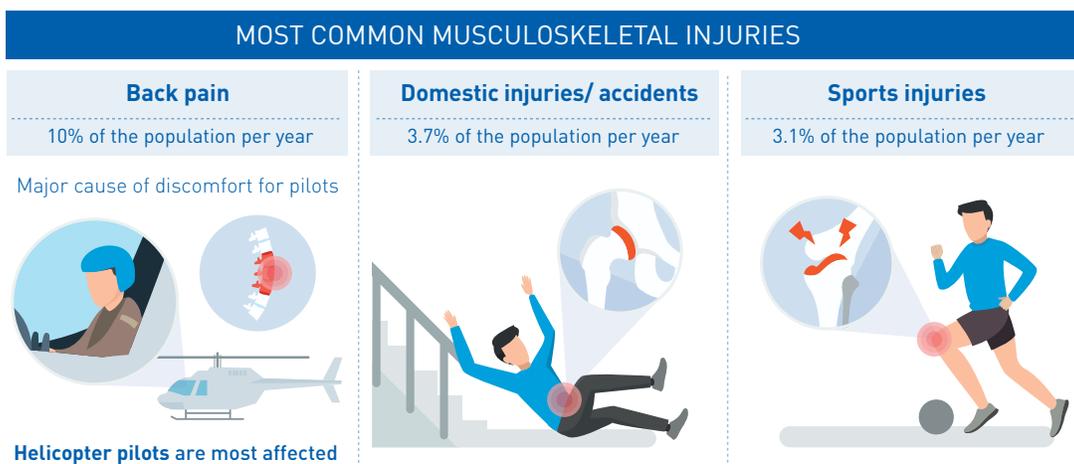
CHAPTER 5

# HOW TO REDUCE YOUR HEALTH RISKS FROM MUSCULOSKELETAL INJURY



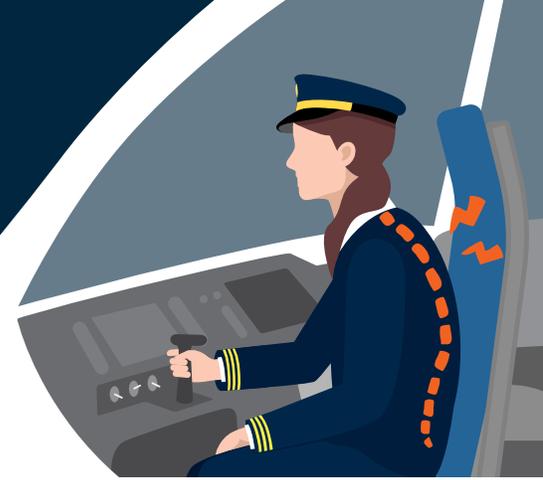
In professional pilots, musculoskeletal problems consistently rank among the most common reasons for unfitness, both temporary and long term with the potential to create a flight safety risk due to distraction and performance decrements.

While back pain is the single most important musculoskeletal problem in pilots, there are other types of musculoskeletal conditions that should be considered (e.g. those related to sporting injuries and home-based activities).



## CHAPTER 5

# HOW TO REDUCE YOUR HEALTH RISKS FROM MUSCULOSKELETAL INJURY



In Fitness to Fly, find

## 9 PRACTICAL WAYS TO REDUCE MUSCULOSKELETAL INJURY RISKS:

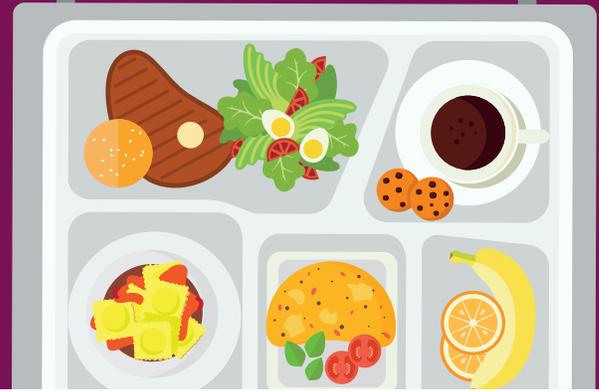
1. **Get active!**
2. **Build up levels of physical activity slowly, and warm up before undertaking sporting activities**
3. **Avoid exercise when feeling unwell**
4. **Adopt an ergonomically neutral posture**
5. **Keep your back straight and not twisted when lifting**
6. **Maintain a healthy weight**
7. **Take care to avoid accidents or falls**
8. **Stop smoking.**
9. **Sit less, move more - reduce risks from a sedentary lifestyle**

### A GOOD EXERCISE PROGRAMME SHOULD INCLUDE:

Aerobic fitness	Core exercises	Strength training	Balance training	Flexibility and stretching
				
Running, walking, using stairs	Muscles of the abdomen, lower back and pelvis	Push-ups, squats, exercise with weights	For example, standing on one leg and switching	Stretching exercises when the muscles are warmed up

To learn more about these recommendations, get your handbook at [www.unitingaviation.com/fitnesstofly/](http://www.unitingaviation.com/fitnesstofly/)

# NUTRITION AND WEIGHT MANAGEMENT



One of the main health risks for pilots is an unhealthy diet. Obesity is linked to a number of chronic health conditions. Diabetes is one of the top 10 diseases that cause long-term unfitness in professional pilots and is linked to diet and weight issues.

Healthy weight loss isn't about a 'diet' or 'programme'. It's about lifestyle changes in daily eating and exercise habits.

### BODY MASS INDEX (BMI)

$\frac{\text{Body weight in kilograms}}{\text{Height (in metres)}^2}$

Although widely used, it has some limitations

Alternative measurement: "waist/hip ratio"

A blue silhouette of a person standing on a scale. A vertical dashed line with an arrow at the top indicates the person's height.

#### Health problems related to raised BMI:

- Diabetes
- Cardiovascular disease
- Certain types of cancer

Pilots need to keep a healthy weight for safety reasons (escape in an emergency)

An illustration of a pilot in a white shirt and dark pants, sitting in a cockpit.

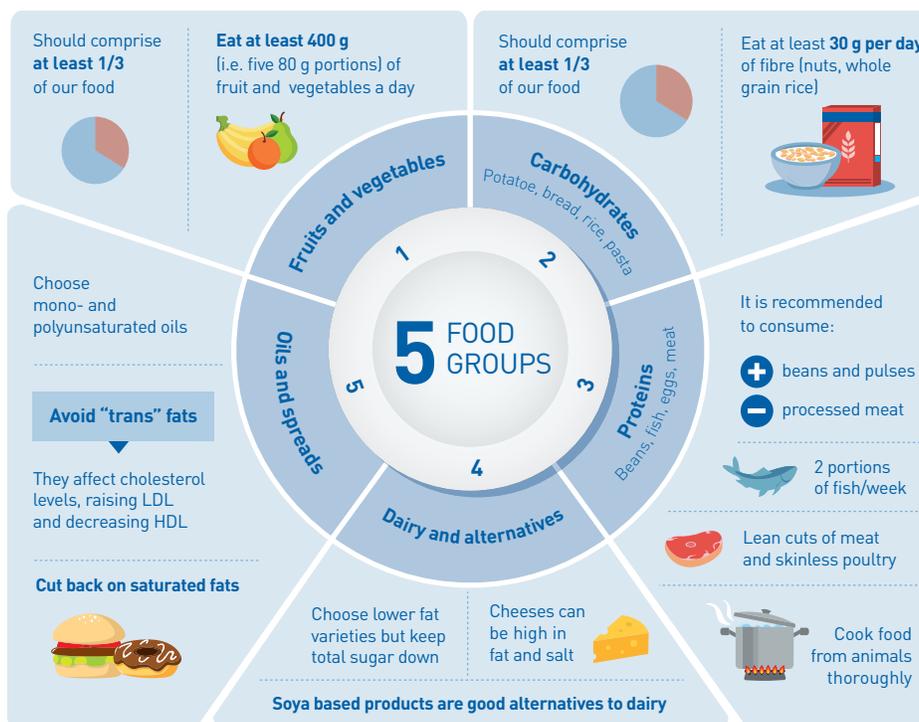
# NUTRITION AND WEIGHT MANAGEMENT



In Fitness to Fly, find

## 7 WAYS TO MAINTAIN GOOD NUTRITION AND SUCCESSFULLY MANAGE BODY WEIGHT:

1. Consume the number of calories required to obtain and maintain a healthy weight
2. Minimize intake of food with high refined sugar content
3. Eat a balanced diet
4. Reduce salt intake
5. Make healthy choices when eating away from home
6. Take an interest in reading and understanding food labels
7. Lower your risk of developing Type 2 diabetes



## CHAPTER 7

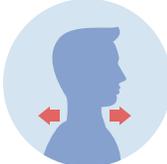
# SLEEP AND THE IMPACT OF MEDICAL CONDITIONS



Most of the scientific work related to sleep issues and professional pilots has involved the effect of fatigue on alertness and performance.

Obstructive Sleep Apnoea (OSA) is probably the most common medical cause of poor sleep in pilots. It consists of repeated pauses in breathing during sleep. The effects of OSA are seen when awake, with the individual feeling very tired the next day due to repeatedly disturbed sleep, resulting in an increased susceptibility to fatigue.

**THE FOLLOWING ARE RISK FACTORS FOR OSA:**

 <p><b>OBESITY</b> Increases risk by <b>4 times</b>.</p>	 <p><b>LARGE NECK SIZE</b> Over 17 inches for men and 16 inches for women</p>	 <p><b>CIGARETTE SMOKING</b> Inflammation and swelling in upper airway</p>	 <p><b>MALE GENDER</b> Men are twice as likely to have OSA</p>	
 <p><b>ALCOHOL USE</b></p>	 <p><b>AGE OVER 40 YEARS</b></p>	 <p><b>MENOPAUSE</b> Risk rises after menopause</p>	 <p><b>FAMILY HISTORY OF OSA</b></p>	 <p><b>CERTAIN FACIAL BONE STRUCTURE</b> (e.g. short lower jaw, large tongue)</p>

To learn more about these recommendations, get your handbook at [www.unitingaviation.com/fitnesstofly/](http://www.unitingaviation.com/fitnesstofly/)

# SLEEP AND THE IMPACT OF MEDICAL CONDITIONS



In Fitness to Fly, find

## 6 SIMPLE WAYS TO REDUCE THE RISK OF MEDICAL CAUSES OF POOR SLEEP:

1. **Maintain a healthy weight**
2. **Get active!**
3. **Avoid drinking alcohol before bedtime**
4. **Stop smoking**
5. **Use sleep opportunities wisely**
6. **Avoid caffeine and other stimulants before bedtime**

### SMOKERS AND SLEEP

The graph shows a silhouette of a person smoking. A horizontal axis represents time, with a clock icon at the start. A vertical line marks a 2-hour period. The area under the curve is shaded orange. The text 'Nicotine is a stimulant' is written inside the shaded area. After the 2-hour mark, the curve slopes downward, and the text 'Effect diminishes' and 'Withdrawal stage develops' is written below the axis.

**2 hours**

**Nicotine is a stimulant**

**Light sleep** in the early part of the night

Effect diminishes  
**Withdrawal stage develops**

Know your **circadian rhythms**

Try to go to sleep at a time you are most likely to drop off

### MAXIMIZE THE BENEFIT FROM SLEEP OPPORTUNITIES

Smokers are more likely to feel less rested after sleep

Smokers are 2.5 times more likely to have sleep apnoea

Quitting reduces the risks to the same level as a person who never smoked

**24h**

It takes a day to fully adapt to each hour of time zone shift

Napping is a useful mitigation for lack of sleep

**even for 10-20 minutes**



Due to the nature of the work, professional pilots travel often abroad and are exposed to a number of increased health risks such as poor food quality, road transport accidents and accidents when undertaking outdoor activities. The risk of injury is increased when under the influence of alcohol or drugs.

## HOW TO PREVENT FOOD POISONING

### When eating out while on a layover/ night-stop away from home base



If in doubt about the hygiene of a cafe or restaurant, **don't eat there**



**Don't eat "street food"**, as hygiene standards are often poor



Always eat **freshly cooked food**



In a location where water is not drinkable, **avoid salads, fruit, and ice**

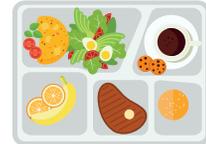


Ensure all meat and fish are completely cooked



Avoid shellfish

### During a flight



Operating flight crew should **eat different dishes** when in-flight meals are served

Pilots at the controls should eat at different times

A separation of **at least 30 minutes** is advisable.

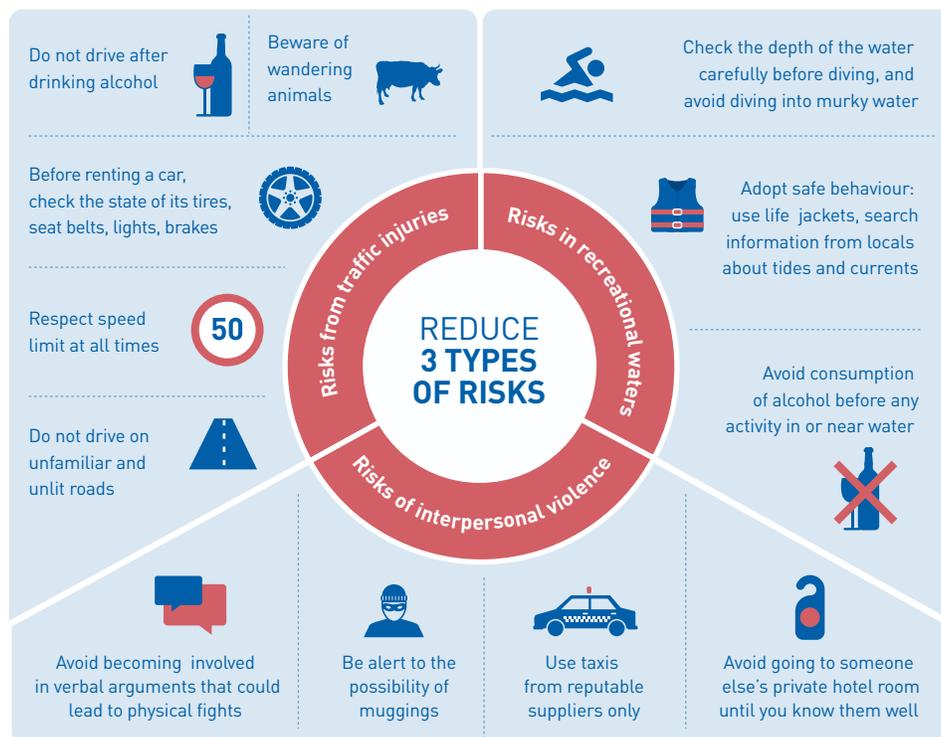




In Fitness to Fly, find

## 9 WAYS TO REDUCE MEDICAL RISKS WHEN TRAVELLING ABROAD:

1. **Keep your vaccinations up to date**
2. **Check risks from insects and take preventive action as necessary**
3. **Be careful about food and water hygiene**
4. **Reduce transport, recreational and assault risks**
5. **Know your blood group**
6. **Avoid unnecessary exposure to sunlight**
7. **Do not use medications from unreliable sources**
8. **Avoid sex with casual partners**
9. **Stay away from animals**



To learn more about these recommendations, get your handbook at [www.unitingaviation.com/fitnessstofly/](http://www.unitingaviation.com/fitnessstofly/)

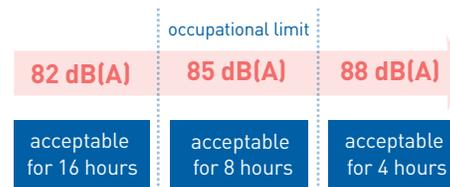
# HEARING AND VISION



The main concern with hearing loss is the risk of reduced ability to communicate clearly and the increased possibility of misunderstanding an ATC instruction. As with hearing, loss of vision has the potential to cause major safety risks for a pilot.

**NOISE LEVEL REGULATION**

An increase of 3 dB **DOUBLES** the sound pressure level



If you are operating noisy aircraft, the risk of NIHL is increased, so be particularly careful about protecting your hearing, both at work and during leisure time.

The most frequent eye diseases with the potential to significantly reduce vision in pilots are cataracts, age-related macular degeneration, diabetic retinopathy, glaucoma and eye injuries. All of these diagnoses can be prevented, or progression delayed.



Find in Fitness to Fly

## ESSENTIAL TIPS AND RECOMMENDATIONS ON HEARING AND VISION PROTECTION:

1. **Protect your hearing from long duration high level background noise and from loud noises even if it is for short duration**
2. **Keep the volume down**
3. **Use ear protectors**
4. **See your doctor if you notice any hearing loss**
5. **Reduce exposure to ultraviolet radiation**
6. **Wear eye protection**
7. **Eat healthy balanced diet**
8. **Reduce risk from diabetes**

### SUMMARY

#### HOW TO PROTECT YOUR VISION



Reduce exposure to ultraviolet radiation (UV)



Wear eye protection when undertaking risky activities



Eat a healthy, balanced diet – one that is rich in green, leafy vegetables and fish



Treat high blood pressure



Reduce risk from diabetes



Manage blood cholesterol levels



Quit smoking



**ORDER NOW!**

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