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EASA Workshop on Pilots' age limits

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Antti Tuori

A320/330 captain, M.D., Ph.D., AME 1

AGE limits – arbitrary?

Age is just a number.

70 is the new 60.



AGE – a risk factor

Deterioration of senses

- Vision
- Hearing
- Balance

Cognition

Reaction time

Risk factor for many diseases (e.g. heart & circulation, cancers)



Identifying incapacitation risk

Huster et al. 2014: Medical risks in older pilots: a systematic review on incapacitation and age:

“In sum, medical incapacitations are a very rare event and are still rare at an older age.
The number of in-flight as well as general incapacitations clearly does increase with age.”

DeJohn et al. 2018,: Cardiac Inflight Incapacitations of U.S. Airline Pilots: 1995–2015.

CONCLUSION: The proportions of airline pilots with identified cardiac conditions could not be reliably used to identify which pilots had inflight incapacitations.

Not easy to detect and are the current requirements good enough for this?



Occupational health issues



+

48 years =



22- year-old
pilot

70-year-old pilot

+

43 200 flight hours

EASA max block hours 900 hours annually

650 hours/year

=

31 200 flight hours

800 hours/year

=

38 400 flight hours

We have no data on this much flying from epidemiological studies
Does prolonged careers have an effect on our health?



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Radiation

- Max 6 mSv/year
- Average 2-5mSv, but increasing as long haul flying, polar flying and flight altitudes are increasing
- Pilots & flight attendants are one of the most exposed workers to radiation
- Already small increase in the group level is significant
- Is there a need for life-long cumulative restriction?

	30 years	40 years	50 years
Average	60-150 mSv	80-200 mSv	100-250 mSv
Maximum	180 mSv	240 mSv	300 mSv



Shift & night work

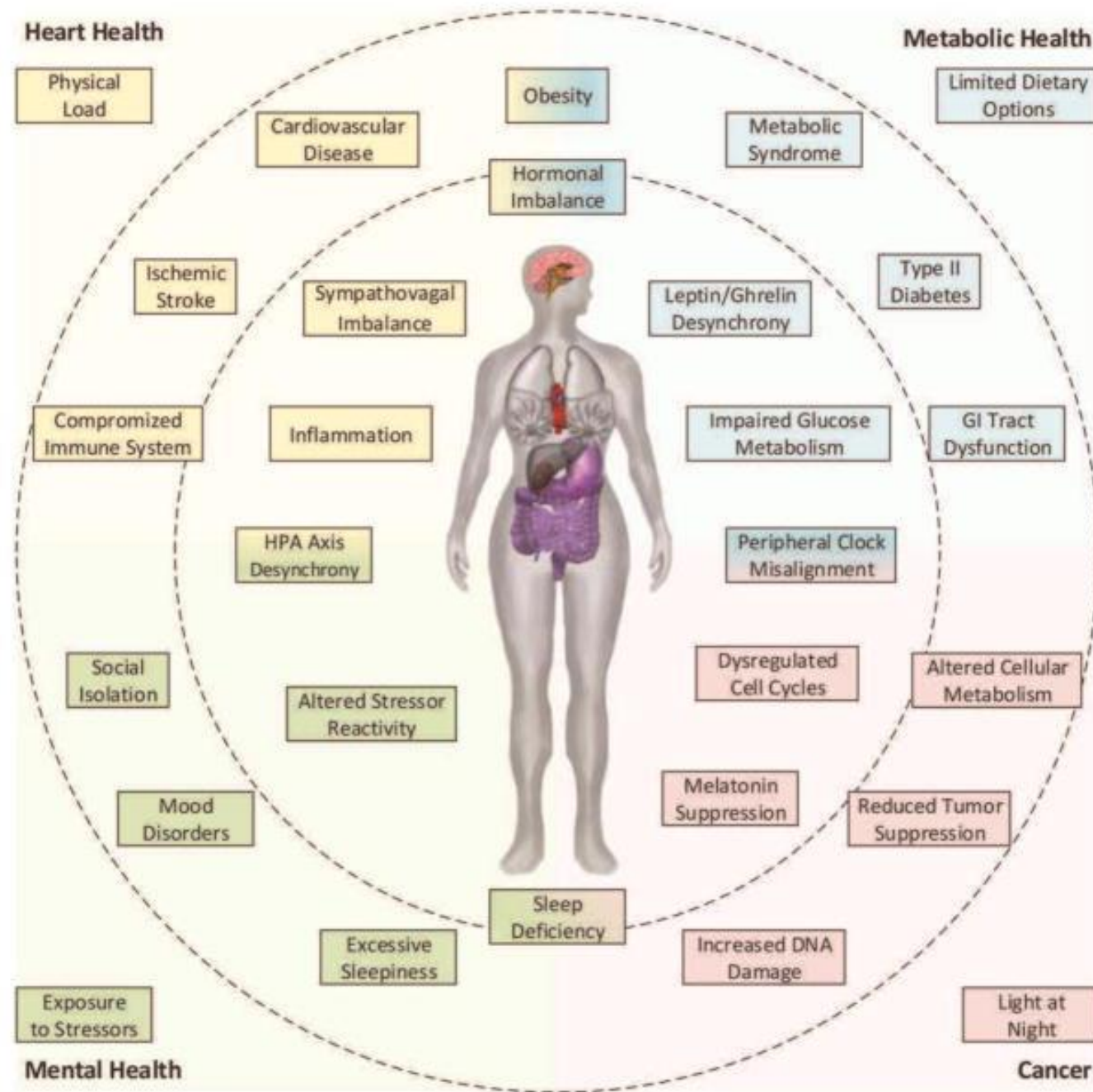
Human pathophysiology due to shift work.

James et al: Shift Work: Disrupted Circadian Rhythms and Sleep—Implications for Health and Well-Being. *Curr Sleep Med Rep.* 2017 Jun; 3(2): 104–112.



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Shift & night work

A link exists between shift work and

- Accidents and weight gain,
- Type 2 diabetes (relative risk range 1.09-1.40),
- Coronary heart disease (relative risk 1.23),
- Stroke (relative risk 1.05), and
- Cancer (relative risk range 1.01-1.32), although the original studies showed mixed results

Kecklund and Axelsson: Health consequences of shift work and insufficient sleep. *BMJ* 2016;355:i5210



Shift & night work

- The risk of any cardio vascular disease (CVD) event was 17% higher among shift workers than day workers.
- The risk of coronary heart disease (CHD) morbidity was 26% higher (1.26, 95% CI 1.10–1.43).
- The risk of CVD and CHD mortality among shift workers was 20% higher (1.22, 95% CI 1.09–1.37 and 1.18, 95% CI 1.06–1.32, respectively).
- After the first five years of shift work, there was a 7.1% increase in risk of CVD events for every additional five years of exposure (95% CI 1.05–1.10).

Torquati et al.: Shift work and the risk of cardiovascular disease. A systematic review and meta-analysis including dose–response relationship. *Scand J Work Environ Health*. 2018;44(3):229–238.



Sedentary behavior

Summary of Key Findings:

Sedentary Behavior and CVD and Diabetes Mellitus risk.

Prospective evidence is accumulating that sedentary behavior could be a risk factor for CVD and diabetes mellitus morbidity and mortality and for all-cause mortality. The degree to which this is independent of the effects of MVPA (moderate-to-vigorous physical activity) needs further study.

A Science Advisory From the American Heart Association.
Circulation. 2016;134:e262–e279



Conclusions

- Age issue is not black and white
- Different views also within the pilot community
- Not only technical issue, but also industrial
- Occupational health issues both in the individual and group level should be considered
- Needs to have individual risk assessment taking into account the incapacitation risk, decline in physiology and the occupational health issues

