

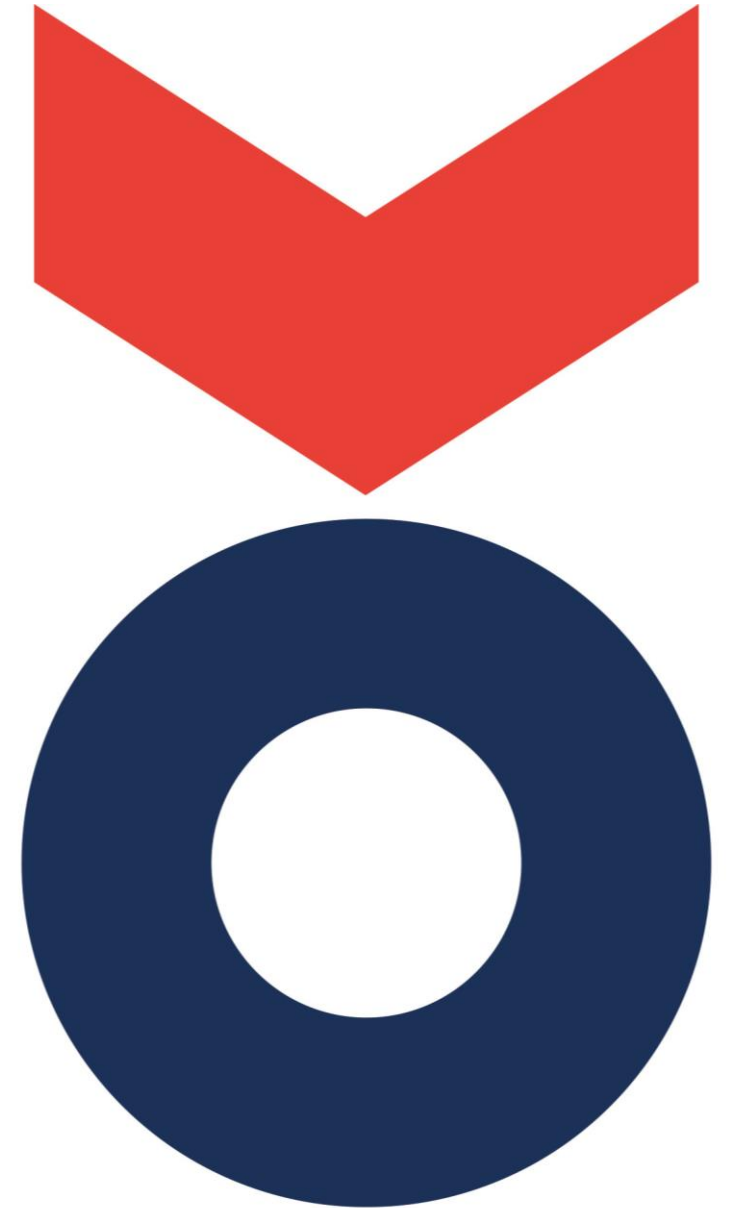
Oscar Kilo – The National Police Wellbeing Service

Shift Work and Metabolic Syndrome:
A Peripatetic Support Programme for the Police

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www.oscarkilo.org.uk



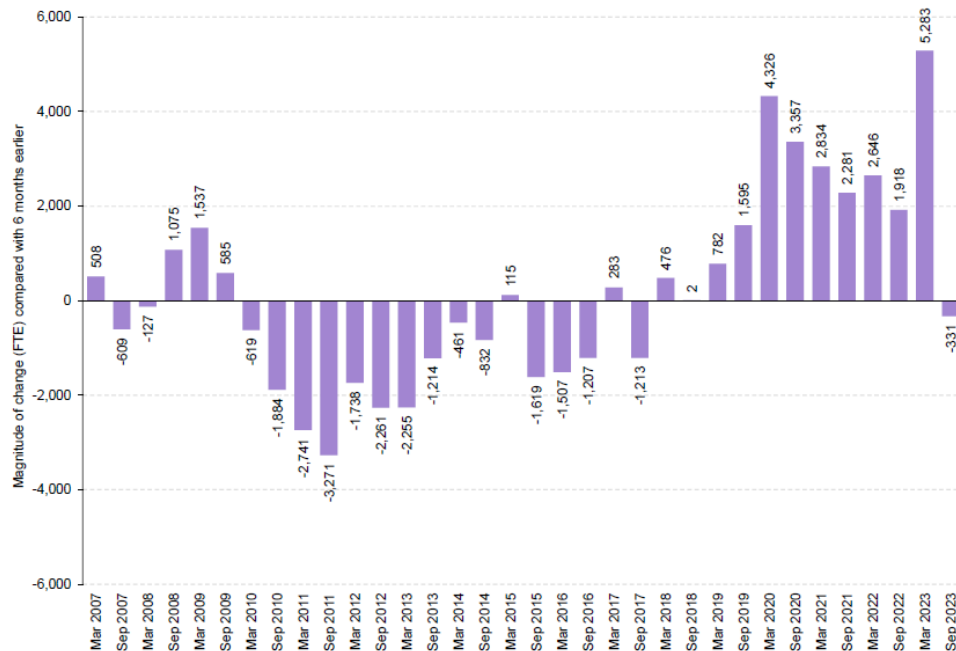


Police Covenant



The Police workforce 2023

234,438 full-time equivalents



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Police: Emergency Service



What is shift work and who does it?

Organization of daily working hours in which different teams work in succession to cover more or all of the 24 hours.*

19% of workers performed night work, and 21% worked in shifts.
(EU-28; 2015)

In the USA, according to the National Health Interview Survey (NHIS 2015), about 26% of workers worked in shifts, whether in the evening, at night, or on rotating shifts.

Shift work and health

Health condition	Strength of association	Dose / response
Diabetes Mellitus	Highly suggestive	Increments of 5 years exposure
Diabetes Mellitus	Suggestive	Shift work v No shift work
Myocardial infarction	Highly suggestive	Shift work v No shift work
Prostatic cancer incidence	Weak	Shift work v No shift work
Prostatic cancer incidence	Weak	Rotating night shifts v daytime
Colorectal cancer incidence	Weak	Longest time v shortest time

JCSM 2022. doi.org/10.5664/jcsm.9642

Shift work and health

- 8 publications (2012 – 2020)
 - 16 meta-analyses;
 - 120 individual studies
 - 83% cohort studies; 17% case control studies
 - Median no. of patients 8,365
 - Median populations studies 458,762
 - 4 different type of shift work:
 - Shift work, rotating night shift work, fixed night shift work, night shift work
 - Umbrella review

11 major health outcomes:

- Melanoma skin cancer
- Diabetes mellitus incidence
- Prostate cancer incidence
- Breast cancer incidence
- Colorectal cancer incidence
- Myocardial infarction incidence
- Coronary mortality
- Cerebrovascular mortality
- Cardiovascular events
- Cardiovascular mortality
- All-cause mortality

Shift work – the 2019 evidence base

- Europe (35.7%); North America (28.7%); Asia (27.9%)
 - USA (15.5%); South Korea (10.1%)
- Occupational sector: Health (47.3%); Industry (14.7%)
- Gender: Women (66+%)
- Type of work pattern: Fixed night work (18%), remainder impacts of shift work.
- Sample sizes: 10 – 631,418
- Types of variables categories:
 - Health (references n=136; 83.4%)
 - Organizational (references n=15; 9.2%)
 - Family (references n=12; 7.4%)

Shift work and nursing


- Sleep disturbance
 - 2 x 12 hours v 3 x 8 hours
 - Sleep disturbance v Work intensity / fatigue / chronotypes
 - Direction of rotation
 - Shift work and commuting
 - Impact of ageing / family responsibilities
- Metabolic syndrome
 - Excessive secretion of cortisol & interleukins / fat disorders / insulin resistance
 - Levels of leptin and ghrelin (appetite)
- Healthy ageing
 - Rotating night shift work decreases likelihood of healthy ageing in US nurses
 - Survival to at least 70 AND:
 - No major chronic disease
 - No impairment of cognition, physical function or mental health
 - 8% met all the criteria of healthy ageing
 - 10+ years of RNSW = 20% decreased odds of healthy ageing (Comparator – no history of RNSW)

Shift work and the police

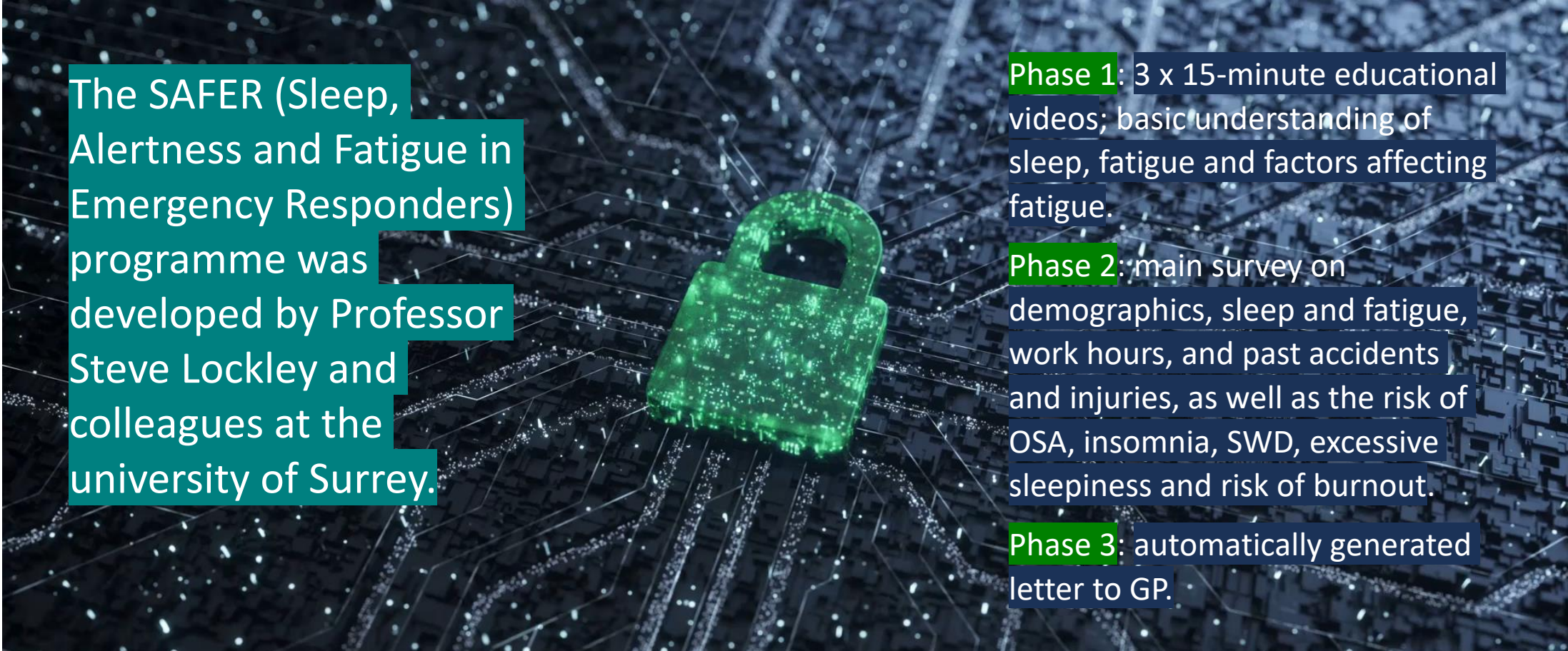
- Overview
- SAFER programme
- Cardiovascular risks / Metabolic syndrome



Health concerns relating to shift work among police officers

- 
- Poor sleep quality
 - Job-related injuries and accidents
 - Mental ill health
 - Effects on the immune system
 - Increased risk of heart disease

SAFER programme



The SAFER (Sleep, Alertness and Fatigue in Emergency Responders) programme was developed by Professor Steve Lockley and colleagues at the university of Surrey.

Phase 1: 3 x 15-minute educational videos; basic understanding of sleep, fatigue and factors affecting fatigue.

Phase 2: main survey on demographics, sleep and fatigue, work hours, and past accidents and injuries, as well as the risk of OSA, insomnia, SWD, excessive sleepiness and risk of burnout.

Phase 3: automatically generated letter to GP.

Findings

Sleep Disorders & other screening outcomes

- The programme found a high prevalence of potential undiagnosed sleep disorders that are associated with high risk of mental health problems, sleepiness, poor health and impaired workplace performance. Many participants potentially had more than one disorder.
- Screening positive for at least one disorder increased the risk of:
 - reporting excessive sleepiness (x7)
 - poor health (x3)
 - depression or burnout (x2)



Metabolic syndrome and cardiovascular risks in policing

- BCOPS* findings of similar overweight BMI, systolic blood pressure, and lower levels of glucose intolerance, with comparator populations (NHANES, NHIS & MESA).
- Prevalence of Metabolic syndrome 8% higher.

“a constellation of interrelated risk factors of metabolic origin—*metabolic risk factors*—that appear to directly promote the development of atherosclerotic cardiovascular disease (ASCVD). Patients with the metabolic syndrome also are at increased risk for developing type 2 diabetes mellitus.”
- Smoking 3.1% higher.
- Obesity 8% higher.
- Serum total cholesterol levels higher.

Shift Work and Biomarkers of Subclinical Cardiovascular Disease: The BCOPS Study*

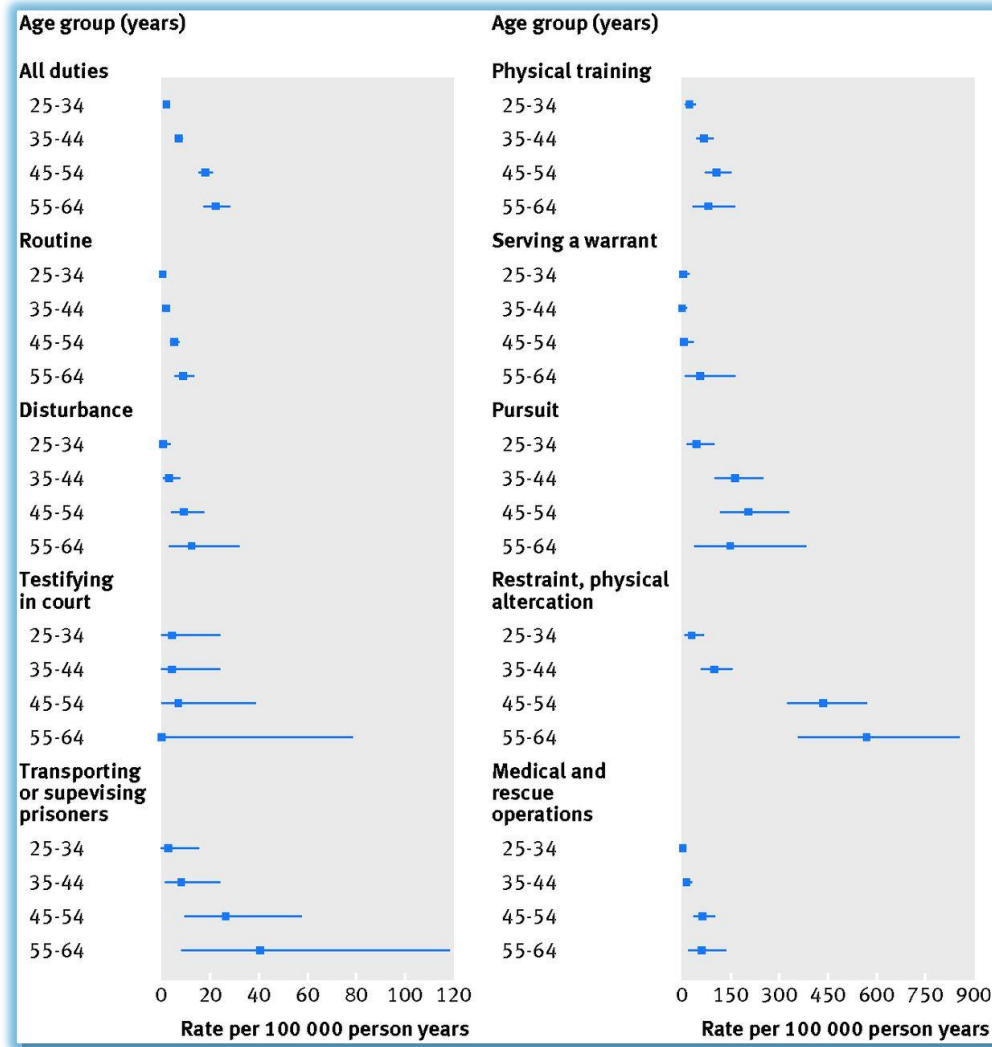
- Shift work as a causative agent for deregulating inflammatory markers.
- Officers on night shifts had higher levels of total leukocytes, TNF- α , and homocysteine compared to the day shift.
- Higher levels of IL-6 were observed in the evening shift compared to the day shift.
- Higher levels of CRP in the evening shift group versus the day shift group.
- Higher levels of CRP in the evening shift group versus the night shift group for those with a BMI ≥ 30 kg/m².
- Elevated BMI is associated with high levels of proinflammatory cytokines and with elevated leukocyte counts.

Sudden cardiac death among police officers



- 441 sudden cardiac deaths (1984–2010)
- Risk compared to normal duties:
 - Restraint / altercations (34-69x)
 - Pursuit of suspects (32-51x)
 - Physical training (20-23x)
 - Medical rescue operations (6-9x)
- Estimate risk of sudden cardiac death (O/E) based on proportion of time spent on duties.

Incidence rates of sudden cardiac death among male law enforcement officers by age and type of duty.



So what is metabolic syndrome?

- Originally called ‘syndrome X’ or insulin resistance syndrome.
 - Multiple criteria exist to define it.
 - The precise pathogenic mechanisms unifying all the components are, as yet, unknown.
 - Obesity, an atherogenic diet and physical inactivity are the strongest risk factors for the development of MS.
 - Key diagnostic factors:
 - Presence of risk factors; hypertension; increased BMI; increased waist and hip circumferences
 - Any three of the following:*
 - Waist circumference ≥ 102 cm (men) or ≥ 88 cm (women)
 - Triglycerides ≥ 1.7 mmol/L
 - HDL-cholesterol < 1.04 mmol/L (men) or < 1.29 mmol/L (women)
 - BP $\geq 130/85$ mmHg
 - Fasting glucose ≥ 5.6 mmol/L
- *American Heart Association / National Heart, Lung, and Blood Institute (AHA/NHLBI) criteria (2005)

So what is metabolic syndrome?

- The prevalence of MS increases with age:
 - 20 – 29 years: 6.7%
 - 60 – 69 years: 43.5%
- US study using the AHA/NHLBI criteria found the prevalence increased from 1999/2000 to 2017/2018 (36.2% to 47.3%). Only 6.8% US adults had optimal cardiometabolic health in 2018.

Hypertension (US)

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

[Hypertension (UK) – See [NICE CKS](#)]

Peripatetic Police Support Programme



- Fatigue risk management
- Identification and support of sleep disorders
- 1:1 clinical assessments
- Wrap-around healthy living package

Wellbeing outreach service

 Oscar Kilo @OscarKiloUK - Jul 8
Feedback from recent Response Week of Action
'Op staff explained due to the nature of their job and shift patterns that they haven't been to the doctors in a long time - so the visit to the van was a blessing
All brilliant and we really appreciate the service that you provide'



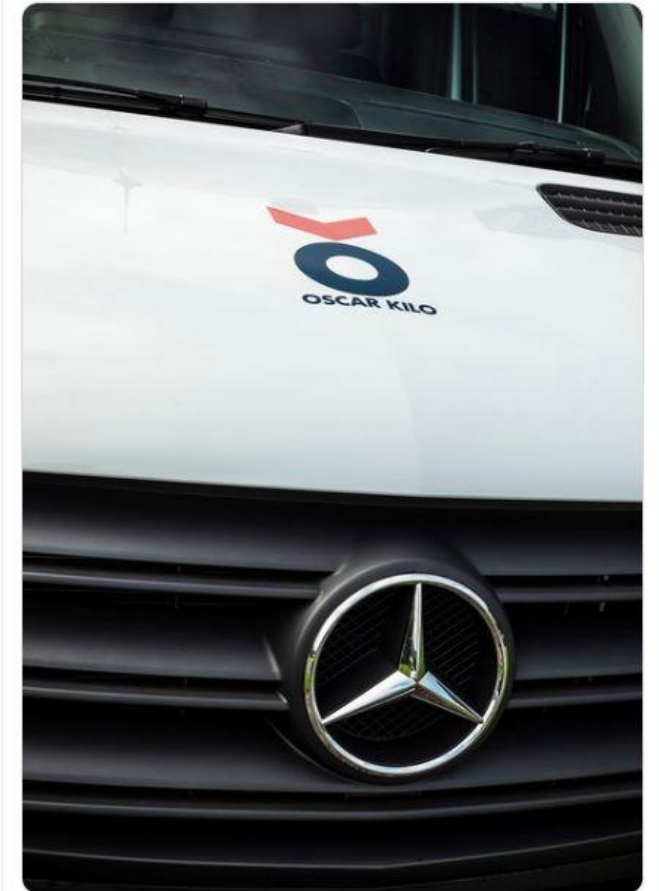
Visited by over **74,000** officers and staff
540 deployments

health checks | vaccinations |
major incident response | policing ops

 Oscar Kilo
@OscarKiloUK

'Officers recognised the symbol on the van, knew what it stood for and that whatever was inside was for their welfare. That went down well'
Planning #CommonwealthGames2022

Been great supporting @WMPolice . Next @Glos_Police @kent_police @warkspolice @LancsPolice @Humberbeat



Peripatetic clinical support



- Physical and psychological assessments at the front line
- Insomnia, fatigue, sleepiness on duty
- Metabolic syndrome:
 - Clinical history
 - Symptoms of type 2 diabetes mellitus
 - Cardiovascular disease
 - Non-alcoholic fatty liver disease
 - Polycystic ovary syndrome
 - Sleep apnoea
 - Family history / social history
 - Physical examination
 - Blood tests? (Must be fasting)

Online access



Better sleep webinars

Register for one of our online events

Welcome to the new look Oscar Kilo website

We've made some exciting new improvements and additions so you can find what you need, when you need it.

You can; read the latest wellbeing news and blogs, book a wellbeing van, take a mindfulness course, download materials, book on to one of our events, and much, much more - so take a look around.



Oscar Kilo website

- Information about our services
- Wellbeing resources and guidance for your force
- Blue Light Wellbeing Framework access
- Self-help resources for you and your teams
- Webinars, short films, animations
- Communication and campaign materials
- Online booking systems (Vans / events/ training)
- Member areas for our national networks
- Online contact form

Login area – self register to access policing only material – everything else open access



Healthy living

Sleep, **nutrition** and **physical health** are deeply intertwined and contribute heavily to overall health and wellbeing. Each has a direct impact on the other and all three are equally as important. In organisations where many of us work irregular, long hours or rotating shifts, it is key that we look for ways to keep them in balance. Healthy living brings together the work Oscar Kilo is doing in these three key areas and provides access to:

Toolkits | online learning | evidence based research



Resources – available online

Toolkits

Toolkits and similar resources
Below is a range of toolkits and resources brought to you by the National Police Wellbeing Service that can help with your wellbeing.

<p>Suicide prevention toolkit for policing</p> <p>This toolkit has been developed with guidance from the National Police Wellbeing Service to provide policing staff, including the national staff, with the tools and resources to help them with their wellbeing.</p> <p style="text-align: center;">Go to toolkit</p>	<p>Wellbeing of investigators toolkit</p> <p>This Wellbeing of Investigators Toolkit has been developed for the NPI's members and staff. It provides a range of resources to help investigators and their families and colleagues with their wellbeing.</p> <p style="text-align: center;">Go to toolkit</p>	<p>Better sleep toolkit</p> <p>We have teamed up with The Sleep Disorders Centre to create a range of digital resources to help police officers and staff with their sleep problems.</p> <p style="text-align: center;">Go to toolkit</p>
<p>Wellbeing toolkit</p> <p>Police officers and staff can find a range of wellbeing resources on this page. The toolkit is a collection of guidance and resources that will help you look after yourself and others.</p> <p style="text-align: center;">Go to toolkit</p>	<p>Resilience</p> <p>Our series of Resilience Hub webinars and resources are designed to help police officers and staff with their mental health and emotional wellbeing.</p> <p style="text-align: center;">Go to webinars</p>	<p>Long covid rehabilitation programme</p> <p>This programme is designed to help police officers and staff with their long-term health and wellbeing.</p> <p style="text-align: center;">Go to programme</p>
<p>Mindfulness</p> <p>DC Kieran Breen from the Wellbeing Service has created a range of resources to help you look after your mental health and wellbeing.</p> <p style="text-align: center;">Go to sessions</p>	<p>Your physical health</p> <p>On this page, you will find a range of information and resources to help you look after your physical health and find out what you can do to help you stay healthy and fit.</p> <p style="text-align: center;">Go to physical health</p>	<p>Physical wellbeing</p> <p>If you want to improve your physical wellbeing, you can find a range of resources on this page. These include a range of information and resources to help you stay healthy and fit.</p> <p style="text-align: center;">Go to page</p>





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Sleep, alertness and fatigue in emergency responders programme (SAFER)

We have teamed up with experts at the University of Surrey to launch a new sleep disorders education and screening programme aimed at reducing fatigue and sleep problems in police officers and staff.

We invited officers and staff from within UK policing to get involved – the programme is now closed, but we will be revisiting it in the future.



The sleep, alertness and fatigue in emergency responders programme (SAFER), has been developed and designed by Professor Steven Lockley of the University of Surrey who has been studying sleep and circadian rhythms for over 25 years.

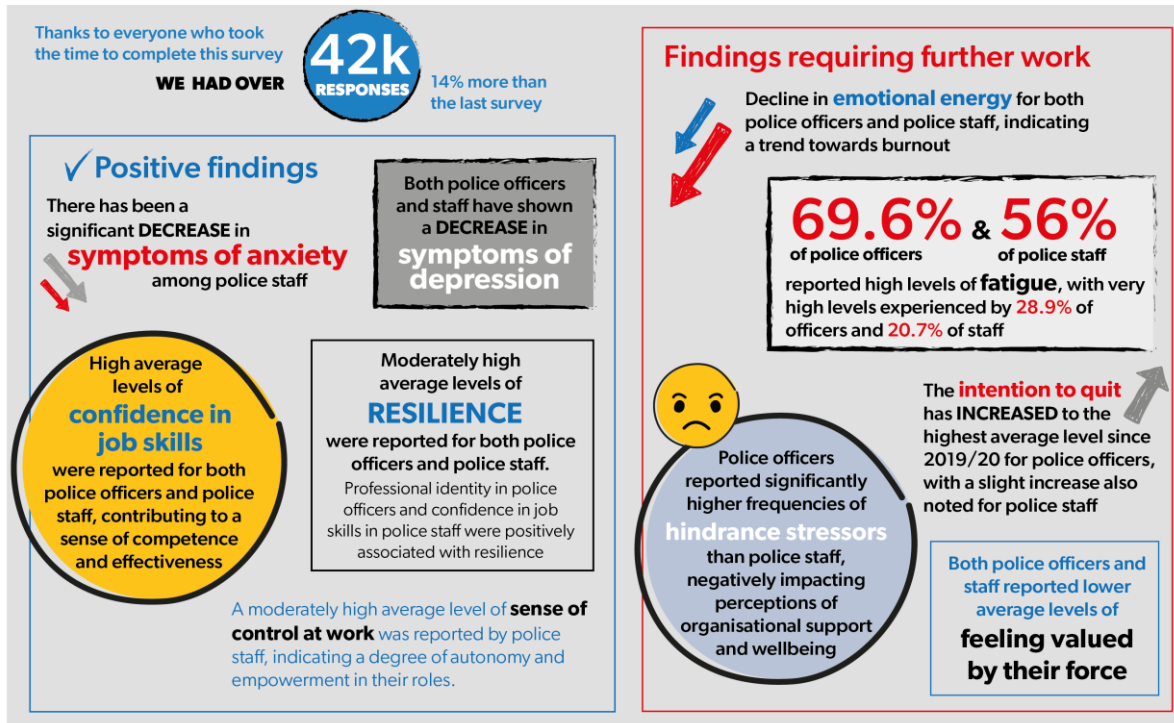
While working at Harvard Medical School, he and his colleagues implemented similar education and screening programmes in police officers and firefighters and found that over a third of active duty personnel were at risk of at least one sleep disorder without knowing it.

In follow-up studies, these programmes resulted in many hundreds of police officers seeking treatment for their sleep disorder, helping their long-term health and, in one fire department study, led to nearly a 50% reduction in long-term disability days and a 24% lower odds of having an accident or injury on duty.

National police wellbeing survey

National Police Wellbeing Survey 2023

Main Findings



➤ Over 42,000 officers and staff took part last year to tell us how they feel at work

➤ We respond to the findings every year to develop resources, training and research in the key areas such as:

- Sleep and fatigue
- Trauma intervention
- Hindrance stressors
- Occupational health

Thank you

Any questions?

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us on:



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@OscarKiloNine
and follow our
OK9 network on X



Website
oscarkilo.org.uk

