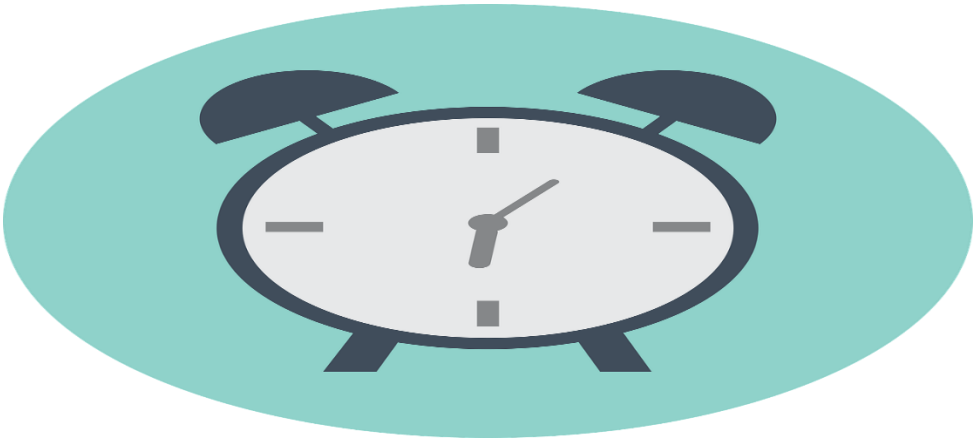
LES HORAIRES ATYPIQUES

Bulletin de veille scientifique : Janvier 2024



Objectifs : réaliser une veille scientifique sur les horaires atypiques

La validation des informations fournies (exactitude, fiabilité, pertinence par rapport aux principes de prévention, etc.) est du ressort des auteurs des articles signalés dans la veille. Les informations ne sont pas le reflet de la position de l'INRS. Les éléments issus de cette veille sont founis sans garantie d'exhaustivité. Les liens mentionnés dans le bulletin donnent accès aux documents sous réserve d'un abonnement à la ressource.

Les bulletins de veille sont disponibles sur le portail documentaire de l'INRS. L'abonnement permet de recevoir une alerte mail lors de la publication d'un nouveau bulletin (bouton « M'abonner » disponible après connection à son compte).

Horaires atypiques (HA)

Généralités et prévention

Shift schedule effects on firefighter health and fitness.

Garrett LR, Harveson AT, Ayars C. *Work*. 2023 Dec 18.

BACKGROUND: Firefighter health is of utmost importance both to first responders and the individuals they serve daily. The impact of shift schedule on firefighter health remains poorly understood. OBJECTIVE: The purpose of this study was to examine differences in health and performance outcomes in firefighters across two different shift schedules. METHODS: Firefighter (N = 1995) body composition, muscular strength, endurance, flexibility, and cardiorespiratory endurance were assessed and described. A Mann-Whitney U test was conducted to compare differences between shift schedules (48/96 and 4's and 6's). RESULTS: There was a statistically significant difference in BMI (U = 70115, z=-1.988, p = .047), BF% (U = 67341, z=-2.779, p = .005), and trunk flexion score (U = 81362, z = 1.979, p = .048) favoring the 48/96 shift schedule. CONCLUSION: Firefighters following a 48/96 shift schedule exhibited improved body composition and fitness performance in comparison to peers who followed a 4's and 6's shift schedule. Findings may guide regional firefighter scheduling to optimize health and performance.

Lien vers l'article

Activités physiques

Aucun article dans ce bulletin.

Autres pathologies

Aucun article dans ce bulletin.

Cancers

Aucun article dans ce bulletin.

Risque routier, accidentologie

Aucun article dans ce bulletin.

RPS et QVT

Nurses' occupational physical activity and workload in a perioperative intensive care unit in Slovenia.

Fijačko N, Masterson Creber R, Metličar Š, Gosak L, Štiglic G. *Prev Med Rep*. 2024 Jan;37:102543.

The field of nursing includes heavy occupational physical demands, including walking and standing for longer periods of time, in addition to moving and lifting. As such, in the context of a typical work shift, many nurses generally achieve the World Health Organization's recommended 10,000 steps per day. This study aimed at estimating the daily physical activity and workload of nurses in a perioperative

intensive care unit. The data sources for this study included data from the hospital information system on various procedures and interventions, and the Silva Ex3 Plus pedometers for measuring steps, kilometers, calories, and activity time across various shifts in a perioperative intensive care unit. Twenty nurses from Slovenia volunteered to participate in this observational study. Over 13 weeks, a nurse working an 8-hour shift walked an average of 5,938 steps (4.4 km). However, nurses who worked a 12-hour weekend day shift came very close to the World Health Organization's recommendation with an average of 9,003 steps (6.5 km). A total of 227 patients were admitted and an average of 80 nursing interventions were performed per day and there was a positive relationship between physical activity, workload, and patient admissions in the perioperative intensive care unit (p = 0.001). Results of this study could help managers better understand nurses' physical activity and workload during various shifts in the perioperative intensive care unit.

Lien vers l'article

Non-standard employment and COVID-19 testing in South Korean workers.

Hwang S. *Public Health*. 2023 Dec;225:133-40.

OBJECTIVES: SARS-CoV-2 testing has been critical in monitoring and containing the COVID-19 pandemic, but there is a dearth of studies on how individuals' adherence to testing varies according to their working conditions. This study aimed to investigate the association between the type of employment contract and COVID-19 testing among wage workers in South Korea. STUDY DESIGN: We used a nationally representative sample of employees aged 20-65 years collected from March 24 to 31, 2022. To focus on individual responses when the test was recommended, our sample consisted of 1266 participants who had experienced symptoms of COVID-19 or had been exposed to a confirmed case in the household. METHODS: We used multivariate logistic regression to estimate the association between the odds of receiving a PCR test and the type of employment contract while controlling for other potential covariates. RESULTS: The percentage of participants who had a SARS-CoV-2 PCR test was 77.8%. After adjusting for all potential covariates, daily workers (OR = 0.35, 95% CI 0.18 to 0.70, P = 0.003) and part-time workers (OR = 0.58, 95% CI 0.39 to 0.86, P = 0.007) had significantly lower odds of being tested relative to standard workers. Other temporary or atypical workers showed no significant differences from standard workers. CONCLUSION: Our findings suggested that individuals in the most vulnerable job positions, with less job security and working hours, exhibited a decreased inclination to undergo COVID-19 testing. More effective job retention and income support policies are required to improve compliance.

Lien vers l'article

Association between unpredictable work schedule and work-family conflict in Korea.

Choi SM, Kim CW, Park HO, Park YT. *Ann Occup Environ Med*. 2023;35:e46.

BACKGROUND: As unpredictable work schedule (UWS) has increased worldwide, various studies have been conducted on the resulting health effects on workers. However, research on the effect of UWS on workers' well-being in Korea is still insufficient. This study aimed to investigate the relationship between UWS and work-family conflict (WFC) using 6th Korean Working Conditions Survey (KWCS). METHODS: Both UWS and WFC were measured using self-reported questionnaires, using data from the 6th KWCS conducted between 2020 and 2021, including 31,859 participants. UWS was measured by questions regarding the frequency of changes in work schedules and limited advanced notice. WFC was measured by questions regarding work to family and family to work conflicts. Logistic regression analysis was conducted to investigate the association between UWS and WFC. RESULTS: The prevalence of UWS was higher among men, those under 40 years old, service and sales workers and blue-collar workers, and those with higher salaries. Workplace size also influenced UWS prevalence, with smaller workplaces (less than 50 employees) showing a higher prevalence. The odds ratio (OR)

for WFC was significantly higher in workers with UWS compared to workers without UWS after adjusting for gender, age, marital status, occupation, salary, education, weekly working hours, shift work, company size, and having a child under the age of 18 years, employment status (OR: 3.71; 95% confidence interval: 3.23-4.25). CONCLUSIONS: The analysis of nationwide data revealed that UWS interferes with workers' performance of family roles, which can lead to WFC. Our findings suggest that it is crucial to implement policies to address unfair work schedule management, promoting a healthier work-life balance and fostering a conducive environment for family responsibilities.

Lien vers l'article

Santé psychique

Female workers with long working hours are more likely to have depressive symptoms when having family-to-work conflict.

Lee G, Kim JH, Kim SS. *Int Arch Occup Environ Health*. 2024 Jan 3.

PURPOSE: Workers' health can be influenced by risk factors from their family environments as well as their work environments. This paper sought to examine how the association between long working hours and depressive symptoms differs based on the level of FWC after being stratified by worker's gender. METHODS: We used the dataset of 20,384 full-time wage workers from the sixth Korean Working Conditions Survey (2020). Long working hours were defined as working 52 h or more per week. FWC was measured using a 2-item questionnaire, and depressive symptoms were measured using the WHO-5 well-being index. Applying modified Poisson regression, we evaluated how the association between long working hours and depressive symptoms differs by the level of FWC male and female workers separately. RESULTS: In the analysis of the female workers, long working hours were associated with depressive symptoms in the high FWC group (PR 1.35, 95% CI 1.17, 1.55) after adjusting for potential confounders whereas no association was observed in the low FWC group. Among the male workers, a statistically significant association was observed in both high FWC (PR 1.22, 95% CI 1.07, 1.38) and low FWC (PR 1.28, 95% CI 1.12, 1.47) groups. CONCLUSION: FWC may act as a workplace stressor that potentially amplifies the health impact of long working hours among female workers.

Lien vers l'article

Emotional regulation strategies (ER) used by trainees to overcome negative emotions.

Butt F, Mehboob U, Wajid G, Khan RA. *J Pak Med Assoc*. 2023 Dec;73(12):2337-47.

OBJECTIVE: To identify the use of different emotion regulation strategies by medical trainees, and to determine the frequency and the predominant pattern of emotional response in emotion-triggering situations. METHODS: The descriptive cross-sectional study was conducted at 2 public and 1 private medical college in Lahore, Pakistan, from March to September 2019, and comprised postgraduate medical trainees of either gender from all clinical disciplines from years 1-4. Data was collected using a questionnaire based on the Gross theory of emotional regulation and the Situational model of emotion. Emotion regulation strategies included situation selection, situation modification, cognitive change, attention deployment, and response modulation. Data was analysed using SPSS 25.. RESULTS: Of the 377 trainees approached, 308(81.69%) participated; 206(67%) females and 102(33%) males. The overall mean age was 27.8 ± 2.91 years. The majority of the trainees were from the Obstetrics and Gynaecology department 133(43.2%) and were in the first year of their training 116(37.7%). The most frequent emotiontriggering situation identified was prolonged working hours 292(95%), and the major emotional response was quietness in 5 out of ten situations (50%). The trainees used greater emotion regulation strategies in sad situations 3.49±1.79 ($p<0.01$). Trainees managed sad emotions by keeping

themselves involved in other activities 152 (49%); in anger, they blamed others 124(40.3%); in fear, they opted for suppression of emotions 71(22.7%); in disgust, they preferred avoidance 90(29.2%); and in shock, acceptance was a common strategy 21(12.7%). CONCLUSIONS: Postgraduate medical trainees struggled to manage emotions and used maladaptive strategies.

Lien vers l'article

Troubles cognitifs et de la vigilance

Aucun article dans ce bulletin.

Travail posté et de nuit

Généralités et prévention

Protecting Food Service Workers: Opportunities for Advocacy.

Ceryes C, Smith MN, Agnew J. *Workplace Health Saf*. 2024 Jan;72(1):39.

Lien vers l'article

Seasonal influence on cognitive and psycho-physiological responses to a single 11-h day of work in outdoor mine industry workers.

Taggart SM, Girard O, Landers GJ, Ecker UKH, Wallman KE. *Temperature (Austin)*. 2023;10(4):465-78.

This study investigated the seasonal effects that working outdoors had on various parameters in mining industry workers over the course of a work-shift. Workers (n = 27) were assessed in summer (33.3 ± 4.2°C, 38 ± 18% RH; n = 13, age = 46 ± 14 y, BMI = 29.1 ± 5.7 kg/m(2)) and winter (23.6 ± 5.1°C, 39 ± 20% RH; n = 14, age = 44 ± 12 y, BMI = 31.2 ± 4.1 kg/m(2)). Core temperature and heart-rate were measured continuously (analyzed at five time points), while perceptual measures, cognitive and manual dexterity performance were assessed at various times over an 11-h shift at the start of a 14-day swing. Hydration was assessed (urine specific gravity) pre- and post-shift. Working memory was impaired in summer compared to winter (-10%; p = 0.039), however did not change throughout the shift. Processing efficiency was significantly reduced at 12 pm (-12%; p = 0.005) and 5 pm (-21%; p < 0.001) compared to 9 am, irrespective of season (p > 0.05). Manual dexterity (dominant-hand) improved over the shift (+13%, p = 0.002), but was not different between seasons. Perceived fatigue had no main effect of season or shift. Core temperature, heart-rate, thermal sensation and rating of perceived exertion increased throughout the shift, with only core temperature and thermal sensation showing a seasonal effect (summer: +0.33°C, +18%, respectively; p < 0.002). Notably, 23% of workers in summer and 64% in winter started work significantly dehydrated, with 54% and 64% in summer and winter, respectively, finishing work with significant to serious dehydration. Impairment in working memory in summer combined with high levels of dehydration over the work-shift reinforces the need for workplace education on the importance of hydration and risk of occupation heat stress. Abbreviations: Core temperature: T(c); Fly-in fly-out: FIFO; Ratings of perceived exertion: RPE; Relative humidity: RH; Urinary specific gravity: USG; Wet bulb globe temperature: WBGT.

Lien vers l'article

Shift schedule effects on firefighter health and fitness.

Garrett LR, Harveson AT, Ayars C. *Work*. 2023 Dec 18.

BACKGROUND: Firefighter health is of utmost importance both to first responders and the individuals they serve daily. The impact of shift schedule on firefighter health remains poorly understood. OBJECTIVE: The purpose of this study was to examine differences in health and performance outcomes in firefighters across two different shift schedules. METHODS: Firefighter (N = 1995) body composition, muscular strength, endurance, flexibility, and cardiorespiratory endurance were assessed and described. A Mann-Whitney U test was conducted to compare differences between shift schedules (48/96 and 4's and 6's). RESULTS: There was a statistically significant difference in BMI (U = 70115, z=-1.988, p = .047), BF% (U = 67341, z=-2.779, p = .005), and trunk flexion score (U = 81362, z = 1.979, p = .048) favoring the 48/96 shift schedule. CONCLUSION: Firefighters following a 48/96 shift schedule exhibited improved body composition and fitness performance in comparison to peers who followed a 4's and 6's shift schedule. Findings may guide regional firefighter scheduling to optimize health and performance.

Lien vers l'article

Fifty years of research in the Scandinavian Journal of Work, Environment & Health.

Burdorf A, Rugulies R. *Scand J Work Environ Health*. 2023 Dec 6.

OBJECTIVE: The Scandinavian Journal of Work, Environment & Health was launched 50 years ago. In this paper we describe how research topics have changed over time. METHODS: A complete list of all 2899 articles in the past 50 years was compiled. Each article was coded for type of exposure, type of health outcome, research design, first author, and country of correspondence address. Count of citations was based on the Scopus database. RESULTS: Overall, the attention for chemical exposure in the first 30 years has shifted towards the psychosocial work environment, shift work, and physical work load. These shifts in exposure are mirrored by increased attention over time for mental disorders and musculoskeletal disorders. Cardiovascular disorders and cancer have been studied consistently over the past 50 years. Researchers from Scandinavian countries have been responsible for about 50% of the Journal's content, while authorship has broadened to about 30 countries in recent years. CONCLUSION: During the past 50 years, some research topics have consistently remained highly visible in the Journal, whereas other topics have gained or lost interest. In terms of authors' contribution, the Journal has its roots in research from the Nordic countries, but has evolved over time as a truly international periodical with a well-recognized position in research on occupational health.

Lien vers l'article

Hybrid effectiveness-implementation study of two novel spectrally engineered lighting interventions for shiftworkers on a high-security watchfloor.

Bessman SC, Harrison EM, Easterling AP, Snider MN, Preilipper SMM, Glickman GL. *Sleep Adv*. 2023;4(1):zpad051.

Shiftwork leads to myriad negative health and safety outcomes. Lighting countermeasures can benefit shiftworkers via physiological effects of light (e.g. alerting, circadian adjustment), and short-wavelength light is the most potent for eliciting those responses; however, limited work indicates it may not be required for alerting. We developed similar-appearing light boxes (correlated color temperature: 3000-3375 K; photopic illuminance: 260-296 lux), enriched (SW+, melanopic EDI: 294 lux) or attenuated (SW-, melanopic EDI: 103 lux) in short-wavelength energy, and implemented them on a high-security watchfloor. Efficacy and feasibility of these two novel lighting interventions were assessed in personnel working 12-hour night shifts (n = 47) in this within-participants, crossover study. For each intervention condition, light boxes were arranged across the front of the watchfloor and illuminated the entire shift; blue-blocking glasses were worn post-shift and before sleep; and sleep masks were used while sleeping. Comparisons between baseline and intervention conditions included alertness, sleep, mood, quality of life (QOL), and implementation measures. On-shift alertness (Karolinska Sleepiness Scale) increased in SW- compared to baseline, while changes in SW+ were more limited. Under SW+, both mood and sleep improved. Psychomotor vigilance task performance did not vary by condition; however, perceived performance and QOL were higher, and reported caffeine consumption and sleep onset latency were lower, under SW-. For both interventions, satisfaction and comfort were high, and fewer symptoms and negative feelings were reported. The addition of spectrally engineered lights to this unique work environment improved sleep, alertness, and mood without compromising visual comfort and satisfaction. This paper is part of the Sleep and Circadian Rhythms: Management of Fatigue in Occupational Settings Collection.

Lien vers l'article

Differences in shift and work-related patterns between metropolitan and regional/rural healthcare shift workers and the occupational health and safety risks.

Booker LA, Spong J, Hodge B, Deacon-Crouch M, Bish M, Mills J, Skinner TC. *Aust J Rural Health*. 2023 Dec 8.

OBJECTIVES: To explore if there are differences in shift patterns and work-related factors between metropolitan and regional/rural healthcare shift workers and their risk of poor sleep and mental health. Furthermore, explore whether these factors impact on medical errors, workplace and car/near car accidents. DESIGN: A cross-sectional study. SETTING: An anonymous online survey of healthcare shift workers in Australia. PARTICIPANTS: A total of 403 nurses, midwives and paramedics completed the survey. MAIN OUTCOME MEASURES: Sample characteristics, employment location, shift work-related features, sleep and mental health measurements, workplace accidents, medical errors and car/near car accident post shift. RESULTS: Regional/rural healthcare shift workers were significantly older, had more years' experience, worked more nights, on-call and hours per week. Those in metropolitan areas took significantly longer (minutes) to travel to work, had higher levels of anxiety, increased risk of shift work disorder, reported significantly more workplace accidents and were more likely to have a car/near car accident when commuting home post shift. Both groups reported ~25% having a medical error in the past year. Workplace accidents were related to more on-call shifts and poor sleep quality. Medical errors were associated with fewer years' experience, more evening shifts and increased stress. Car accidents were associated with metropolitan location and increased depression. CONCLUSION: Differences in work-related factors between metropolitan and regional/rural healthcare shift workers were observed. Some of these factors contributed to occupational health and safety risks. Further exploration is needed to understand how to reduce occupational health and safety risks, and improve employee and patient safety both in both regional/rural and metropolitan areas.

Lien vers l'article

Activités physiques

Aucun article dans ce bulletin.

Autres pathologies

Comparative analysis of effectiveness of obesity treatment in primary care using patient-oriented approach with motivational counseling for lifestyle correction and its combination with armodafinil therapy in patients with concomitant shift work sleep disorder.

Tkachenko VI, Bagro TO. *Pol Merkur Lekarski*. 2023;51(5):548-57.

OBJECTIVE: Aim: Conduct a comparative analysis of effectiveness of obesity treatment in primary care using patient-oriented approach with motivational counseling for lifestyle correction and its combination with armodafinil therapy in patients with concomitant shift work sleep disorder. PATIENTS AND METHODS: Materials and Methods: 75 patients with obesity were studied, 38 patients had shift work disorder. Patients were divided into 2 groups: I (37 patients with obesity treated with motivational counseling) and II (38 patients with obesity and shift work disorder treated additionally with armodafinil 150 mg daily). The examination was at baseline, after 1st, 3th and 6th months. Statistical analysis was provided. RESULTS: Results: After 1 month of treatment, there were improvement of eating behavior, level of anxiety and depression, prognosis of diabetes development. At 3rd month, more pronounced changes were observed in 2nd group: 10% body weight loss, changes

in eating behavior, sleep quality, anxiety level (p<0.05). After 6 months, examined indicators in both groups normalized, but dynamics in 2nd group was more significant; armodafinil-treated group had significantly better results in body weight loss, BMI, WC, HC, ConI, AVI, BPs, HOMA index, serotonin, leptin, levels of anxiety and depression, eating behavior, daytime dysfunction, level of sleepiness, quality of life and risk of developing diabetes. CONCLUSION: Conclusions: The use of armofafinil in addition to patientoriented motivational counseling in lifestyle correction ("5 As" and "5R") in patients with obesity connected with shift work disorder and excessive daytime sleepiness allows to reduce body weight by more than 16,52%, in contrast to isolated use of the same technique of motivational counseling in obese patients without sleep disorder (only 5,51%).

Lien vers l'article

Shift work, body mass index and associated breast cancer risks in postmenopausal women.

Świątkowska B, Szkiela M, Zajdel R, Gworys K, Kaleta D. *Ann Agric Environ Med*. 2023 Dec 22;30(4):699-704.

INTRODUCTION AND OBJECTIVE: Shift work increases the risk of breast cancer, but the mechanisms is still under discussion. This study evaluates the relationship between breast cancer and shift work on the basis of overweight and obesity among postmenopausal women. MATERIAL AND METHODS: We examined this association using data from a case-control study carried between 2015 and 2019. The study involved 111 postmenopausal women with breast cancer and the same number of control participants. A self-reporting questionnaire was used for data collection. Multivariate logistic regression was conducted to find correlations between variables and determine the strength of relationships. RESULTS: A 2.65-fold risk of breast cancer (OR=2.65; 95% CI: 1.34-5.22) was found among shift work women, compared with postmenopausal women not performing shift work. The association was modified by body mass index, showing a risk rate 9.84 times higher (OR=9.84; 95% CI: 2.14-45.19) among shift work and overweight women, compared to non-overweight women who had never been shift workers. CONCLUSIONS: About 49% of controls and 72% of cases had ever worked in a job that required shift work. The risk of breast cancer in postmenopausal women is associated with shift work, especially among overweight women. Some preventive measures to reduce the risk of breast cancer, in particular regarding a healthy lifestyle and weight control in this group of working women, should be implemented.

Lien vers l'article

Shift work and evening chronotype are associated with hepatic fat fraction and non-alcoholic fatty liver disease in 282,303 UK biobank participants.

Maidstone R, Rutter MK, Marjot T, Ray DW, Baxter M. *Endocr Connect*. 2023 Dec 1.

BACKGROUND AND AIMS: Non-alcoholic fatty liver disease (NAFLD) has rapidly become the most common liver disease world-wide. Modern lifestyles have been linked to this rise in prevalence with changes in rhythmic human behaviour emerging as a possible mechanism. We investigated how shift working patterns and chronotype were associated with hepatic fat fraction and NAFLD in 282,303 UK Biobank participants. METHODS: We stratified participants into day, irregular-shift, and permanent night-shift workers. We then utilized multiple methods of disease identification including: a) Dallas Steatosis Index (DSI), b) ICD10 codes, and c) hepatic proton density fat fraction (PDFF) and examined how shiftwork exposure impacted these variables. We further assessed the relationship of baseline chronotype with liver phenotypes using these same outcome measures. RESULTS: Compared to day workers, irregular-shift workers were more likely to have a high DSI (OR 1.29 [1.2-1.4]) after adjusting for major covariates with some attenuation after additional adjustment for BMI (OR 1.12 [1.03-1.22]). Likelihood of high DSI was also increased in permanent night-shift workers (OR 1.08 [0.9-1.29]) in the fully-adjusted model. Mediator analysis revealed that BMI was a significant mediator of the shiftwork

effect. Compared to participants with intermediate chronotype, those with extreme late chronotype had a higher likelihood of high DSI defined NAFLD (OR 1.45 [1.34 -1.56]) and a higher likelihood of NAFLD/NASH by ICD10 code (OR 1.23 [1.09-1.39]). Hepatic PDFF was elevated in irregular shift workers, but not permanent night shift workers. CONCLUSIONS: Irregular-shift work and extreme late chronotype are associated with pathological liver fat accumulation, suggesting circadian misalignment may have an underlying pathogenic role. These findings have implications for health interventions to mitigate the detrimental effect of shift work.

Lien vers l'article

Arterial hypertension in rotating shift workers: The role of hypertriglyceridemic waist and hypertriglyceridemic waist-to-height ratio phenotypes.

Machado GDS, Menezes-Júnior LAA, Neto R, Freitas SN, Oliveira FLP, Pimenta FAP, et al. *Clin Nutr ESPEN*. 2023 Dec;58:235-41.

OBJECTIVE: To examine the association of arterial hypertension and the hypertriglyceridemic waist phenotype (HWP) and hypertriglyceridemic waist-to-height phenotype (HWHP). METHODOLOGY: This cross-sectional study was conducted with 1422 male rotating shift workers in Brazil. The HWP was defined as having a waist circumference ≥94 cm and serum triglycerides ≥150 mg/dL, whereas the HWHP was determined by having a waist-to-height ratio ≥0.5 and serum triglycerides ≥150 mg/dL. To provide a characterization of the sample, data were presented in both absolute and relative values, and Pearson's chi-square test was employed. To investigate the potential association between arterial hypertension and the presence of HWP or HWHP, multivariate logistic regression was conducted, accounting for sociodemographic, behavioral, and clinical variables. Furthermore, we conducted a stratified multivariate logistic regression analysis, considering the duration of shift work, to assess whether the results remained consistent depending on the length of work experience in shifts. RESULTS: A noteworthy association was observed between arterial hypertension and both HWP and HWHP, with HWHP exhibiting a stronger association with the disease. Furthermore, a positive association between arterial hypertension and these phenotypes was identified in workers with five or more years of shift work. CONCLUSION: We recommend the utilization of HWHP as a screening tool, as it indicates a stronger association with arterial hypertension compared to HWP. Additionally, the duration of time spent working in shifts emerged as a significant factor influencing the presence of these phenotypes.

Lien vers l'article

Cancers

Association between night work and prostate cancer: a systematic review and meta-analysis.

Jahn A, Nielsen ML, Kyndi M, Dalbøge A. *Int Arch Occup Environ Health*. 2024 Jan 4.

OBJECTIVE: The aim was to conduct a systematic review and meta-analysis to study the association between night work and the development of prostate cancer. METHODS: A systematic literature search was conducted in CINAHL, Embase, MEDLINE, and Web of Science. Studies were included based on a PECOS; the population included men in/above the working age, exposure defined as night work, outcome defined as prostate cancer, and study design restricted to cohort studies. The exclusion of articles, risk-of-bias assessment, and data extraction were performed by two reviewers. A meta-analysis was conducted using a random-effects model, including a sensitivity analysis stratified based on the risk-of-bias assessment. We evaluated publication bias using a funnel plot and Egger´s test, and the level of evidence was assessed using GRADE. RESULTS: A total of 528 articles were identified, and eight cohort studies were included. Three studies had a moderate risk of bias, while five studies had a

high risk of bias. The meta-analysis showed a pooled hazard ratio (HR) of 1.0 (95% CI 0.6-1.7). In the sensitivity analysis, moderate vs. high risk-of-bias studies showed a pooled HR of 1.2 (95% CI 0.3-4.1) and 0.9 (95% CI 0.6-1.3), respectively. Based on GRADE, the level of evidence was rated low. CONCLUSION: We found no association between night work and the development of prostate cancer. The evidence was assessed as limited and inconsistent. Future studies encompassing consistent definitions of night work, including objective exposure data, are highly warranted.

Lien vers l'article

Shift work, body mass index and associated breast cancer risks in postmenopausal women.

Świątkowska B, Szkiela M, Zajdel R, Gworys K, Kaleta D. *Ann Agric Environ Med*. 2023 Dec 22;30(4):699-704.

INTRODUCTION AND OBJECTIVE: Shift work increases the risk of breast cancer, but the mechanisms is still under discussion. This study evaluates the relationship between breast cancer and shift work on the basis of overweight and obesity among postmenopausal women. MATERIAL AND METHODS: We examined this association using data from a case-control study carried between 2015 and 2019. The study involved 111 postmenopausal women with breast cancer and the same number of control participants. A self-reporting questionnaire was used for data collection. Multivariate logistic regression was conducted to find correlations between variables and determine the strength of relationships. RESULTS: A 2.65-fold risk of breast cancer (OR=2.65; 95% CI: 1.34-5.22) was found among shift work women, compared with postmenopausal women not performing shift work. The association was modified by body mass index, showing a risk rate 9.84 times higher (OR=9.84; 95% CI: 2.14-45.19) among shift work and overweight women, compared to non-overweight women who had never been shift workers. CONCLUSIONS: About 49% of controls and 72% of cases had ever worked in a job that required shift work. The risk of breast cancer in postmenopausal women is associated with shift work, especially among overweight women. Some preventive measures to reduce the risk of breast cancer, in particular regarding a healthy lifestyle and weight control in this group of working women, should be implemented.

Lien vers l'article

Response to comment by Erren and Morfeld on our paper 'Night work and breast cancer risk in a cohort of female healthcare employees in Stockholm, Sweden'.

Gustavsson P, Bigert C, Andersson T, Kader M, Härmä M, Selander J, et al. *Occup Environ Med*. 2023 Nov 22.

Lien vers l'article

Rotating Night Shift Work, Sleep, and Thyroid Cancer Risk in the Nurses' Health Study 2.

Papantoniou K, Konrad P, Haghayegh S, Strohmaier S, Eliassen AH, Schernhammer E. *Cancers (Basel)*. 2023 Nov 30;15(23).

Night shift work has been associated with breast, prostate, and colorectal cancer, but evidence on other types of cancer is limited. We prospectively evaluated the association of rotating night shift work, sleep duration, and sleep difficulty with thyroid cancer risk in the Nurses' Health Study 2 (NHS2). We assessed rotating night shift work duration (years) at baseline and throughout follow-up (1989-2015) and sleep characteristics in 2001. Cox proportional hazard models, adjusted for potential confounders, were used to calculate hazard ratios (HR) and 95% confidence intervals (CI) for (a) shift work duration, (b) sleep duration, and (c) difficulty falling or staying asleep. We stratified the analyses of night shift work by sleep duration and sleep difficulty. Over 26 years of follow-up, 588 incident cases were

identified among 114,534 women in the NHS2 cohort. We observed no association between night shift work and the risk of thyroid cancer. Difficulty falling or staying asleep was suggestively associated with a higher incidence of thyroid cancer when reported sometimes (HR 1.26, 95% CI 0.95, 1.66) and all or most of the time (HR 1.35, 95% CI 1.00, 1.81). Night shift workers (10+ years) with sleep difficulty all or most of the time (HR 1.47; 0.58-3.73) or with >7 h of sleep duration (HR 2.17; 95% CI, 1.21-3.92) had a higher risk of thyroid cancer. We found modest evidence for an increased risk of thyroid cancer in relation to sleep difficulty, which was more pronounced among night shift workers.

Lien vers l'article

Occupational and circadian epidemiology.

Erren TC, Morfeld P. *Occup Environ Med*. 2023 Nov 22.

With interest, we read the article by Gustavsson et al 1 on the breast cancer risk in a cohort with night work. “Night work and breast cancer risk in a cohort of female healthcare employees in Stockholm, Sweden”.

Lien vers l'article

Risque routier, accidentologie

Aucun article dans ce bulletin.

RPS et QVT

Nurses' occupational physical activity and workload in a perioperative intensive care unit in Slovenia.

Fijačko N, Masterson Creber R, Metličar Š, Gosak L, Štiglic G. *Prev Med Rep*. 2024 Jan;37:102543.

The field of nursing includes heavy occupational physical demands, including walking and standing for longer periods of time, in addition to moving and lifting. As such, in the context of a typical work shift, many nurses generally achieve the World Health Organization's recommended 10,000 steps per day. This study aimed at estimating the daily physical activity and workload of nurses in a perioperative intensive care unit. The data sources for this study included data from the hospital information system on various procedures and interventions, and the Silva Ex3 Plus pedometers for measuring steps, kilometers, calories, and activity time across various shifts in a perioperative intensive care unit. Twenty nurses from Slovenia volunteered to participate in this observational study. Over 13 weeks, a nurse working an 8-hour shift walked an average of 5,938 steps (4.4 km). However, nurses who worked a 12-hour weekend day shift came very close to the World Health Organization's recommendation with an average of 9,003 steps (6.5 km). A total of 227 patients were admitted and an average of 80 nursing interventions were performed per day and there was a positive relationship between physical activity, workload, and patient admissions in the perioperative intensive care unit ($p = 0.001$). Results of this study could help managers better understand nurses' physical activity and workload during various shifts in the perioperative intensive care unit.

Lien vers l'article

Heart rate variability and perception of mental stress among medical students and residents at an emergency department.

Schubert DUC, Serfaty FM, Cunha MR, Oigman W, Tarvainen MP, Neves MF. *Am J Emerg Med*. 2023 Dec 30;78:12-7.

BACKGROUND: When Medical Residents (MR) and Medical Students (MS) are assigned to the demanding environment of an Emergency they inevitably encounter stress. The aims of this study are to measure short-term heart rate variability (HRV) before and after shifts, estimate perceived stress levels, and assess the recovery patterns after their shifts. METHODS: We assessed HRV parameters in MS and MR using the wristband physiological monitor Polar® Verify Sense before and after day (DS) and night shifts (NS). Perceived stress levels were evaluated using the simplified State Trait Anxiety Inventory (STAI-S6) and the Subjective Units of Distress Scale. RESULTS: This study included 60 participants of which 55% were female with a mean age of 26 years. MS presented significant reduction in sympathetic nervous system index after DS [0.68 (0.01-2.42) vs -0.22 (-0.75-1.13), $p < 0.01$] and NS [0.87 (-0.28-1.45) vs 0.06 (-0.70-1.04), $p < 0.01$], while MR maintained the same levels of sympathetic activity [DS: 1.17 (0.04 -2.88) vs 0.93 (0.50-1.41), $p = 0.14$; NS: 1.37 (0.76-2.21) vs 1.29 (0.35-2.18), $p = 0.40$]. Psychological data from STAI-S6 showed statistically significant differences when comparing before and after DS in both groups, with more perceived stress after than before DS (MS: 12 ± 4 vs 14 ± 4, $p = 0.04$; MR: 14 ± 4 vs 16 ± 4, $p = 0.04$), which was not observed at NS (MS: 12 ± 3 vs 12 ± 3, $p = 0.84$; MR: 15 ± 3 vs 15 ± 4, $p = 0.40$). CONCLUSIONS: Short-term HRV recordings before and after day or night shifts among MR and MS revealed heightened sympathetic activity preceding each shift, with a more sustained increase observed in the MR population and more perceived stress after day shifts in both groups.

Lien vers l'article

The important factors nurses consider when choosing shift patterns: A cross-sectional study.

Emmanuel T, Griffiths P, Lamas-Fernandez C, Ejebu OZ, Dall'Ora C. *J Clin Nurs*. 2023 Dec 27.

AIM: To gain a deeper understanding of what is important to nurses when thinking about shift patterns and the organisation of working time. DESIGN: A cross-sectional survey of nursing staff working across the UK and Ireland collected quantitative and qualitative responses. METHODS: We recruited from two National Health Service Trusts and through an open call via trade union membership, online/print nursing profession magazines and social media. Worked versus preferred shift length/pattern, satisfaction and choice over shift patterns and nurses' views on aspects related to work and life (when working short, long, rotating shifts) were analysed with comparisons of proportions of agreement and crosstabulation. Qualitative responses on important factors related to shift preferences were analysed with inductive thematic analysis. RESULTS: Eight hundred and seventy-three survey responses were collected. When nurses worked long shifts and rotating shifts, lower proportions reported being satisfied with their shifts and working their preferred shift length and pattern. Limited advantages were realised when comparing different shift types; however, respondents more frequently associated 'low travel costs' and 'better ability to do paid overtime' with long shifts and 'healthy diet/exercise' with short shifts; aspects related to rotating shifts often had the lowest proportions of agreement. In the qualitative analysis, three themes were developed: 'When I want to work', 'Impacts to my life outside work' and 'Improving my work environment'. Reasons for nurses' shift preferences were frequently related to nurses' priorities outside of work, highlighting the importance of organising schedules that support a good work-life balance. RELEVANCE TO CLINICAL PRACTICE: General scheduling practices like adhering to existing shift work guidelines, using consistent and predictable shift patterns and facilitating flexibility over working time were identified by nurses as enablers for their preferences and priorities. These practices warrant meaningful consideration when establishing safe and efficient nurse rosters. PATIENT OR PUBLIC CONTRIBUTION: This survey was developed and tested with a diverse

group of stakeholders, including nursing staff, patients, union leads and ward managers. REPORTING METHOD: The Strengthening the Reporting of Observational Studies (STROBE) checklist for cross-sectional studies was used to guide reporting.

Lien vers l'article

Time-of-day effects on speed and accuracy performance during simulated shiftwork.

Pilcher JJ, Grandits JB, Wilkes MJ, Lindsey MM. *Chronobiol Int*. 2023 Dec 2;40(12):1529-45.

Performance on tasks involving speed and accuracy fluctuate throughout the 24-h day negatively affecting shift workers and organizations. Two simulated work shifts common in occupational settings were used to assess performance on a vigilance and math task. In study 1, 33 sleep-deprived participants completed a nightshift. In study 2, 32 partially sleep-deprived participants completed a dayshift. These studies found that performance differed between the type of task and the type of simulated shift where performance during the nightshift was worse than during the dayshift. In addition, collapsing speed and accuracy on the math task into inverse efficiency scores provided a unique measure that captured the impact of circadian rhythms during shiftwork. The current study also indicated that participants adopted cognitive strategies including speed-accuracy tradeoff and regulatory foci regarding work motivation (prevention focus and promotion focus) when completing the tasks depending on time-of-day, type of shift, circadian rhythms, and amount of sleep deprivation. This suggests that researchers and organizations should consider cognitive strategies in addition to the physiological components of sleep deprivation and circadian rhythms when investigating and documenting the impact of time-of-day due to different types of shiftwork conditions on performance and safety.

Lien vers l'article

Association between unpredictable work schedule and work-family conflict in Korea.

Choi SM, Kim CW, Park HO, Park YT. *Ann Occup Environ Med*. 2023;35:e46.

BACKGROUND: As unpredictable work schedule (UWS) has increased worldwide, various studies have been conducted on the resulting health effects on workers. However, research on the effect of UWS on workers' well-being in Korea is still insufficient. This study aimed to investigate the relationship between UWS and work-family conflict (WFC) using 6th Korean Working Conditions Survey (KWCS). METHODS: Both UWS and WFC were measured using self-reported questionnaires, using data from the 6th KWCS conducted between 2020 and 2021, including 31,859 participants. UWS was measured by questions regarding the frequency of changes in work schedules and limited advanced notice. WFC was measured by questions regarding work to family and family to work conflicts. Logistic regression analysis was conducted to investigate the association between UWS and WFC. RESULTS: The prevalence of UWS was higher among men, those under 40 years old, service and sales workers and blue-collar workers, and those with higher salaries. Workplace size also influenced UWS prevalence, with smaller workplaces (less than 50 employees) showing a higher prevalence. The odds ratio (OR) for WFC was significantly higher in workers with UWS compared to workers without UWS after adjusting for gender, age, marital status, occupation, salary, education, weekly working hours, shift work, company size, and having a child under the age of 18 years, employment status (OR: 3.71; 95% confidence interval: 3.23-4.25). CONCLUSIONS: The analysis of nationwide data revealed that UWS interferes with workers' performance of family roles, which can lead to WFC. Our findings suggest that it is crucial to implement policies to address unfair work schedule management, promoting a healthier work-life balance and fostering a conducive environment for family responsibilities.

Lien vers l'article

Non-standard employment and COVID-19 testing in South Korean workers.

Hwang S. *Public Health*. 2023 Dec;225:133-40.

OBJECTIVES: SARS-CoV-2 testing has been critical in monitoring and containing the COVID-19 pandemic, but there is a dearth of studies on how individuals' adherence to testing varies according to their working conditions. This study aimed to investigate the association between the type of employment contract and COVID-19 testing among wage workers in South Korea. STUDY DESIGN: We used a nationally representative sample of employees aged 20-65 years collected from March 24 to 31, 2022. To focus on individual responses when the test was recommended, our sample consisted of 1266 participants who had experienced symptoms of COVID-19 or had been exposed to a confirmed case in the household. METHODS: We used multivariate logistic regression to estimate the association between the odds of receiving a PCR test and the type of employment contract while controlling for other potential covariates. RESULTS: The percentage of participants who had a SARS-CoV-2 PCR test was 77.8%. After adjusting for all potential covariates, daily workers (OR = 0.35, 95% CI 0.18 to 0.70, P = 0.003) and part-time workers (OR = 0.58, 95% CI 0.39 to 0.86, P = 0.007) had significantly lower odds of being tested relative to standard workers. Other temporary or atypical workers showed no significant differences from standard workers. CONCLUSION: Our findings suggested that individuals in the most vulnerable job positions, with less job security and working hours, exhibited a decreased inclination to undergo COVID-19 testing. More effective job retention and income support policies are required to improve compliance.

Lien vers l'article

Relationships among meal time, break time, and workplace characteristics of nurses who work day, evening, and night shifts: A cross-sectional study.

Chang He Rn MPHPAP. *Int J Occup Saf Ergon*. 2023 Dec 20:1-27.

PURPOSE: To examine the relationships among shift-working nurses' meal time, break time, and workplace characteristics. MATERIALS AND METHODS: This cross-sectional study analyzed 351 questionnaires from 117 nurses who worked three shifts, drawn from eight nursing units in two tertiary hospitals located in South Korea. Meal time and break time during work were investigated through a questionnaire that participants completed immediately after the end of each shift. Regression analysis was conducted to investigate the associations between nurses' work characteristics and meal time and break time. RESULTS: Meal time and break time were less than 30 minutes on all shifts and significantly longer on the night shift than on the other shifts. As patients' average length of stay increased, meal time increased on day and night shifts, while break time decreased on evening shifts. Overall, a higher nursing staff-to-patient ratio was associated with shorter meal and break times. CONCLUSIONS: It was found that nurses were not able to take proper time for meals and breaks while working. A realistic and specific strategy should be prepared to address this issue, with appropriate consideration of the specific characteristics of nurse staffing, patients' conditions, and shifts.

Lien vers l'article

Santé psychique

Independent and joint trajectories of depression and anxiety symptoms among Chinese male sailors throughout a prolonged non-24-h rotating shift schedule at sea: a parallel-process growth mixture modeling approach.

Tu Z, Tian F, He J, Wang C, Tian J, Shen X. *BMC Psychiatry*. 2023 Dec 11;23(1):934.

BACKGROUND: The predictive and protective effect of hardiness on mental health remains unclear among shift workers on non-24-h working schedules. The present study aimed to investigate the independent and joint trajectories of depression and anxiety symptoms and the role of hardiness during a prolonged period of non-24-h shift working schedule. METHODS: Four hundred nine Chinese male sailors (working on 18-h watchstanding schedule) were recruited and completed all 5-wave tests through online questionnaires (at Day 1, 14, 28, 42, 55, respectively) during a 55-day sailing. The questionnaires included sociodemographic variables, hardiness, depression and anxiety symptoms. Independent and joint trajectories of depression and anxiety symptoms were estimated by latent growth mixture models. The effect of hardiness on trajectories was examined by logistic regression models. RESULTS: 2 and 3 latent trajectories were identified for depression and anxiety symptoms, respectively. Based on initial levels and development trends, 3 distinct joint trajectories of depression and anxiety were identifed and named as: "Low-Inverted U" group (73.6%), "Moderate-Deterioration" group (6.9%), and "High-Stable" group (9.5%). Sailors with higher levels of hardiness were more likely to follow the "Low-Inverted U" trajectory of depression and anxiety symptoms (all $p < 0.001$). CONCLUSIONS: There existed individual differences in the trajectories of depression and anxiety. Hardiness may have a protective effect that can prevent and alleviate depression and anxiety symptoms. Therefore, hardiness-based intervention programs are encouraged among the shift workers on non-24-h working and rest schedules.

Lien vers l'article

Troubles cognitifs et de la vigilance

Field-based longitudinal evaluation of multimodal worker fatigue assessments in offshore shiftwork.

Kang J, Payne SC, Sasangohar F, Mehta RK. *Appl Ergon*. 2024 Feb;115:104164.

Fatigue in offshore environments is a critical safety hazard, yet the utility of daily fatigue assessments has not been longitudinally examined in these environments. The aim of this exploratory longitudinal field study across two drillships in the Gulf of Mexico was to determine the changes in subjective, performance-based, and physiological fatigue measures over time across different shift types (day, night, and swing) and to identify correlations between these multimodal fatigue assessments. Repeated measures correlation analyses of daily fatigue data from seventy offshore workers revealed that while total sleep time remained unaffected by time on rig, workers' performances on the psychomotor vigilance test (PVT) deteriorated over time across all shift types. Several correlations between the various multimodal measures were consistent with the extant literature on worker fatigue symptoms and perceptual and physiological manifestations. These findings emphasize the utility of PVT and single item self-reports to capture worker fatigue in offshore shiftwork.

Lien vers l'article

Effects of a simulated maritime shift schedule on vigilance, sleep, and sleepiness.

Wang Z, Xu H, Teng C, Wang C. *Chronobiol Int*. 2023 Dec 26:1-11.

Shift work is associated with circadian misalignment, which causes sleep loss, impairs performance, and increases the risk of accidents. Shorter, more frequently shifting watch schedules, widely used in industries such as maritime operation, defense, and mining, may mitigate these risks by reducing shift length and providing sleep opportunities for all workers across the biological night. However, the effects of frequently shifting work on sleep and performance still need to be clarified. The current study investigated the vigilance, sleepiness, and sleep patterns of fifteen participants who lived in a controlled and confined laboratory that mimicked a maritime environment for 14 d following a simulating frequent shift schedule. The results of psychomotor vigilance tasks (PVT) suggest that this shift schedule may lead to an accumulation of vigilance detrimental across watch days, with both reaction speed impairment and error growth. Furthermore, the circadian phase significantly affects PVT performance, with the afternoon shift section showing relatively better performance. Overall, more working hours per day resulted in poorer PVT performance. As the shift progressed, total sleep duration reduced slightly, and wake after sleep onset (WASO) increased. Sleep during the biological night was generally longer than sleep in the daytime. Less on-watch time was linked to longer overall sleep duration. Additionally, although the subjective sleepiness obtained by the Karolinska Sleepiness Scale (KSS) varied insignificantly across days, the KSS score was negatively correlated with PVT performance. This research can serve as a foundation for developing countermeasures to mitigate frequently shifting schedules' potentially detrimental effects and safety risks.

Lien vers l'article

Sleep quality, sleep duration, and sleep disturbances among hospital night workers: a prospective cohort study.

van Elk F, Loef B, Proper KI, Burdorf A, Robroek SJW, Oude Hengel KM. *Int Arch Occup Environ Health*. 2023 Dec 28.

PURPOSE: This study aimed to assess among hospital night workers (i) to what extent sleep quality, sleep duration and sleep disturbances overlap, and (ii) associations between sociodemographic factors, lifestyle factors and work characteristics and sleep components. METHODS: Data were used from 467 hospital night workers participating in the Klokwerk + study, a prospective cohort study with two measurements. Sleep quality was measured by the Pittsburgh Sleep Quality Index, sleep duration and sleep disturbances were measured by the Medical Outcomes Study Sleep Scale. The overlap between the three sleep measures was visualized with a Venn diagram and the proportions of overlap was calculated. Associations between independent variables (sociodemographic factors, lifestyle factors and work characteristics) and the three sleep outcomes were estimated using between-within Poisson regression models. RESULTS: About 50% of the hospital night workers had at least one poor sleep outcome. Overlap in poor sleep outcomes was apparent for 36.8% of these workers, while the majority had a poor outcome in one of the sleep components only (63.1%). Former smoking had a significant association with poor sleep quality. For most independent variables no associations with poor sleep outcomes were observed. CONCLUSION: Our findings suggest that sleep quality, sleep duration and sleep disturbances are separate entities and should be studied separately. Lifestyle factors and work characteristics were generally not associated with poor sleep. Since these factors can have an acute effect on sleep, future research should consider ecological momentary assessment to examine how exposure and outcomes (co)vary within-persons, over time, and across contexts. Trial registration Netherlands Trial Register trial number NL56022.041.16.

Lien vers l'article

Comparative analysis of effectiveness of obesity treatment in primary care using patient-oriented approach with motivational counseling for lifestyle correction and its combination with armodafinil therapy in patients with concomitant shift work sleep disorder.

Tkachenko VI, Bagro TO. *Pol Merkur Lekarski*. 2023;51(5):548-57.

OBJECTIVE: Aim: Conduct a comparative analysis of effectiveness of obesity treatment in primary care using patient-oriented approach with motivational counseling for lifestyle correction and its combination with armodafinil therapy in patients with concomitant shift work sleep disorder. PATIENTS AND METHODS: Materials and Methods: 75 patients with obesity were studied, 38 patients had shift work disorder. Patients were divided into 2 groups: I (37 patients with obesity treated with motivational counseling) and II (38 patients with obesity and shift work disorder treated additionally with armodafinil 150 mg daily). The examination was at baseline, after 1st, 3th and 6th months. Statistical analysis was provided. RESULTS: Results: After 1 month of treatment, there were improvement of eating behavior, level of anxiety and depression, prognosis of diabetes development. At 3rd month, more pronounced changes were observed in 2nd group: 10% body weight loss, changes in eating behavior, sleep quality, anxiety level ($p<0.05$). After 6 months, examined indicators in both groups normalized, but dynamics in 2nd group was more significant; armodafinil-treated group had significantly better results in body weight loss, BMI, WC, HC, ConI, AVI, BPs, HOMA index, serotonin, leptin, levels of anxiety and depression, eating behavior, daytime dysfunction, level of sleepiness, quality of life and risk of developing diabetes. CONCLUSION: Conclusions: The use of armofafinil in addition to patientoriented motivational counseling in lifestyle correction ("5 As" and "5R") in patients with obesity connected with shift work disorder and excessive daytime sleepiness allows to reduce body weight by more than 16,52%, in contrast to isolated use of the same technique of motivational counseling in obese patients without sleep disorder (only 5,51%).

Lien vers l'article

Hybrid effectiveness-implementation study of two novel spectrally engineered lighting interventions for shiftworkers on a high-security watchfloor.

Bessman SC, Harrison EM, Easterling AP, Snider MN, Preilipper SMM, Glickman GL. *Sleep Adv*. 2023;4(1):zpad051.

Shiftwork leads to myriad negative health and safety outcomes. Lighting countermeasures can benefit shiftworkers via physiological effects of light (e.g. alerting, circadian adjustment), and short-wavelength light is the most potent for eliciting those responses; however, limited work indicates it may not be required for alerting. We developed similar-appearing light boxes (correlated color temperature: 3000-3375 K; photopic illuminance: 260-296 lux), enriched (SW+, melanopic EDI: 294 lux) or attenuated (SW-, melanopic EDI: 103 lux) in short-wavelength energy, and implemented them on a high-security watchfloor. Efficacy and feasibility of these two novel lighting interventions were assessed in personnel working 12-hour night shifts (n = 47) in this within-participants, crossover study. For each intervention condition, light boxes were arranged across the front of the watchfloor and illuminated the entire shift; blue-blocking glasses were worn post-shift and before sleep; and sleep masks were used while sleeping. Comparisons between baseline and intervention conditions included alertness, sleep, mood, quality of life (QOL), and implementation measures. On-shift alertness (Karolinska Sleepiness Scale) increased in SW- compared to baseline, while changes in SW+ were more limited. Under SW+, both mood and sleep improved. Psychomotor vigilance task performance did not vary by condition; however, perceived performance and QOL were higher, and reported caffeine consumption and sleep onset latency were lower, under SW-. For both interventions, satisfaction and comfort were high, and fewer symptoms and negative feelings were reported. The addition of spectrally engineered lights to this unique work environment improved sleep, alertness, and mood

without compromising visual comfort and satisfaction. This paper is part of the Sleep and Circadian Rhythms: Management of Fatigue in Occupational Settings Collection.

Lien vers l'article

Shift work is associated with extensively disordered sleep, especially when working nights.

Boersma GJ, Mijnster T, Vantyghem P, Kerkhof GA, Lancel M. *Front Psychiatry*. 2023;14:1233640.

BACKGROUND: Shift work is generally associated with working and sleeping out of phase with the endogenous, circadian sleep-wake cycle. This exerts detrimental effects on sleep health. The present study aimed at evaluating the presence of short and long sleep as well as sleep disorders within a broad range of shift work schedules and elucidating the role of sociodemographic factors therein. METHODS: A large dataset containing information on sleep was collected through advertisement in a Belgium newspaper (De Standaard). Adult, working individuals were selected (n = 37,662) and categorized based on their work schedule (regular day, early morning, evening, night, and rotating shift). In this cross-sectional study, prevalence rates of short sleep (≤6 h), long sleep (≥9 h) and sleep disorders (screened with Holland Sleep Disorders Questionnaire), and associations between these sleep variables and sociodemographics (age, sex, education, living companion(s)) were analyzed using binominal logistic regression analyses. RESULTS: In the total sample all sociodemographic factors affected prevalences of short, long and disordered sleep, consistent with previous studies. Compared to day workers, shift workers more frequently reported short sleep, most prominently night workers (26 vs. 50%) ($p < 0.001$). Furthermore, all sleep disorders as well as sleep disorder comorbidity were more common in shift workers, again most pronounced in night workers (all $p < 0.05$). In night shift workers the level of education had the strongest associations with disturbed sleep with a two-fold higher prevalence of short and disordered sleep in low relative to academic educated groups (all $p < 0.02$). CONCLUSION: Shift work is related not only to curtailed sleep and shift work disorder, but also to a plethora of sleep disorders, including insomnia, sleep-related breathing disorders and sleep-related movement disorders. Our findings imply that education on coping strategies may be especially important for young and/or lower educated shift workers.

Lien vers l'article

Time-of-day effects on speed and accuracy performance during simulated shiftwork.

Pilcher JJ, Grandits JB, Wilkes MJ, Lindsey MM. *Chronobiol Int*. 2023 Dec 2;40(12):1529-45.

Performance on tasks involving speed and accuracy fluctuate throughout the 24-h day negatively affecting shift workers and organizations. Two simulated work shifts common in occupational settings were used to assess performance on a vigilance and math task. In study 1, 33 sleep-deprived participants completed a nightshift. In study 2, 32 partially sleep-deprived participants completed a dayshift. These studies found that performance differed between the type of task and the type of simulated shift where performance during the nightshift was worse than during the dayshift. In addition, collapsing speed and accuracy on the math task into inverse efficiency scores provided a unique measure that captured the impact of circadian rhythms during shiftwork. The current study also indicated that participants adopted cognitive strategies including speed-accuracy tradeoff and regulatory foci regarding work motivation (prevention focus and promotion focus) when completing the tasks depending on time-of-day, type of shift, circadian rhythms, and amount of sleep deprivation. This suggests that researchers and organizations should consider cognitive strategies in addition to the physiological components of sleep deprivation and circadian rhythms when investigating and documenting the impact of time-of-day due to different types of shiftwork conditions on performance and safety.

Lien vers l'article

A preliminary framework for managing sleep inertia in occupational settings.

Kovac K, Vincent GE, Paterson JL, Hilditch CJ, Ferguson SA. *Sleep Adv*. 2023;4(1):zpad050.

Sleep inertia, the temporary period of impairment experienced upon waking, is a safety hazard that has been implicated in serious work-related incidents resulting in injuries as well as the loss of life and assets. As such, sleep inertia warrants formal management in industries where personnel are required to undertake their role soon after waking (e.g. emergency services, engineers, and health care). At present, there is a lack of practical, evidence-based guidance on how sleep inertia could be formally managed at an organizational level. We propose a preliminary framework for managing sleep inertia based on the translation of research findings into specific work procedure modifications/control mechanisms. Within the framework, work procedure modifications/control mechanisms to manage sleep inertia are organized into three levels: (1) modifications/controls that eliminate the chance of sleep inertia, (2) modifications/controls that reduce sleep inertia severity, and (3) modifications/controls that manage the risk of errors during sleep inertia. Practical considerations, limitations, and areas of further research are highlighted for each modification/control to help determine how readily each control measure could be implemented by industries at present. A guide for organizations to use this preliminary framework of sleep inertia management is put forward, as well as the next research priorities to strengthen the utility and evidence base of the framework. This paper is part of the Sleep and Circadian Rhythms: Management of Fatigue in Occupational Settings Collection.

Lien vers l'article

Rotating Night Shift Work, Sleep, and Thyroid Cancer Risk in the Nurses' Health Study 2.

Papantoniou K, Konrad P, Haghayegh S, Strohmaier S, Eliassen AH, Schernhammer E. *Cancers (Basel)*. 2023 Nov 30;15(23).

Night shift work has been associated with breast, prostate, and colorectal cancer, but evidence on other types of cancer is limited. We prospectively evaluated the association of rotating night shift work, sleep duration, and sleep difficulty with thyroid cancer risk in the Nurses' Health Study 2 (NHS2). We assessed rotating night shift work duration (years) at baseline and throughout follow-up (1989-2015) and sleep characteristics in 2001. Cox proportional hazard models, adjusted for potential confounders, were used to calculate hazard ratios (HR) and 95% confidence intervals (CI) for (a) shift work duration, (b) sleep duration, and (c) difficulty falling or staying asleep. We stratified the analyses of night shift work by sleep duration and sleep difficulty. Over 26 years of follow-up, 588 incident cases were identified among 114,534 women in the NHS2 cohort. We observed no association between night shift work and the risk of thyroid cancer. Difficulty falling or staying asleep was suggestively associated with a higher incidence of thyroid cancer when reported sometimes (HR 1.26, 95% CI 0.95, 1.66) and all or most of the time (HR 1.35, 95% CI 1.00, 1.81). Night shift workers (10+ years) with sleep difficulty all or most of the time (HR 1.47; 0.58-3.73) or with >7 h of sleep duration (HR 2.17; 95% CI, 1.21-3.92) had a higher risk of thyroid cancer. We found modest evidence for an increased risk of thyroid cancer in relation to sleep difficulty, which was more pronounced among night shift workers.

Lien vers l'article

HA comme facteur de risque

Généralités et prévention

Aucun article dans ce bulletin.

Activités physiques

Aucun article dans ce bulletin.

Autres pathologies

Unveiling the Global Surge: Unraveling the Factors Fueling the Spread of Karoshi Syndrome.

Al-Madhagi HA. *Risk Manag Healthc Policy*. 2023;16:2779-82.

Karoshi syndrome, also known as "death by overwork", has been a topic of study and concern in Japan since the 1980s. World Health Organization (WHO) and International Labour Organization (ILO) joint unveiled that in 2021, approximately 750.000 deaths due to Karoshi syndrome globally. The joint defined long working as having > 55 h work/week. Karoshi nowadays is no longer limited to Japan and has become a global issue. Karoshi is primarily attributed to factors such as long working hours, job-related stress, and poor work-life balance. This perspective was sought to provide a short overview of Karoshi syndrome, the underlying mechanisms and the state-of-art preventive measures.

Lien vers l'article

Cancers

Aucun article dans ce bulletin.

Risque routier, accidentologie

Aucun article dans ce bulletin.

RPS et QVT

Factors associated with the lifestyle of state basic education teachers of state during the pandemic.

Vieira ADR, Andrade Junior JLB, Costa LL, Teixeira RB, Vieira VPA, Magalhães TA, et al. *Rev Gaucha Enferm*. 2023;44:e20230068.

OBJECTIVE: To analyze the prevalence and factors associated with the lifestyle profile of public basic education teachers in Minas Gerais during the COVID-19 pandemic. METHOD: Epidemiological websurvey carried out with public basic education teachers in Minas Gerais. Data collection took place from August to September2020 via digital form. Anthropometric, sociodemographic, work, and lifestyle characteristics were evaluated. Poisson Regression was used. RESULTS: 15,641 teachers participated and 31.1% had inadequate health habits. There was a higher prevalence among men (PR=1.38; 95%CI:1.31;1.45), older age (PR=1.20; 95%CI: 1.07;1.34), greater weekly workload (RP=1.10; 95%CI:1.03;1.17) and those dissatisfied with work (RP=1.21; 95%CI:1.15;1.27). As a protective factor, professors with longer teaching experience (RP=0.92; 95%CI:0.87;0.98) and those hired or appointed

(PR=0.89; 95%CI:0.85) ;0.94). CONCLUSION: Lifestyle inadequacy was found among older male teachers, with longer working hours and job dissatisfaction.

Lien vers l'article

Working environment of health care professionals - focus on occupational stress.

Saparniene D, Strukcinskiene B, Mineviciute G, Cizauskaite A, Rapoliene L, Grigoliene R, et al. *Ann Agric Environ Med*. 2023 Dec 22;30(4):721-8.

INTRODUCTION AND OBJECTIVE: Healthcare professionals most often encounter occupational stress. The aim of the study was to investigate the working environment of health care professionals with the focus on expression of occupational stress, and oversee the possibilities of stress management and prevention. MATERIAL AND METHODS: 326 representatives from five different healthcare institutions were surveyed in Siauliai city, Lithuania. The validated questionnaires HSE Management Standards Indicator Tool and the SF-36 questionnaire were used. RESULTS: The study revealed that the most important organizational factors were lack of communication, inappropriate relations with authorities and colleagues, big workload and long working hours, quick decision-making, and manifestations of mobbing. Financial support was reported as one of the main motivators in stress management. The most frequent individual factors were emotional relations with patients and their relatives. The healthcare professionals who experienced stress at work more often felt aches that disturbed their work routine, and their health interfered more their ordinary social activities. The main stress prevention measures are involvement of employees in decision-making, annual interviews with authorities, education, assurance of a safe work environment, and elimination of manifestations of mobbing. CONCLUSIONS: More attention must be paid to occupational stress management. It appeared that there is a lack of knowledge by institutions about the models of occupational stress management and internal stress management policy of organization. Therefore, this stimulates the search for measures that could help to change the situation.

Lien vers l'article

Would you choose to be a psychiatrist again? A large-sample nationwide survey of psychiatrists and psychiatry residents in China.

Gu M, Zheng L, Gu J, Wang S, Shi Y, Jiang F, et al. *Int J Ment Health Syst*. 2023 Dec 5;17(1):43.

BACKGROUND: The mental health workforce sustainability in China suffers high rates of attrition and the intention to leave. Among current professionals, the intention to choose the same career is an interesting way to gauge their job satisfaction and other factors, and it may affect the career choices of younger generations. We aimed to survey the intention of psychiatrists and psychiatry residents to choose the same career if they could start over and to identify associated factors. METHODS: We conducted an anonymous survey of psychiatrists in 41 tertiary psychiatric hospitals in China. We collected demographic data, work-related information, the sense of professional identity, job satisfaction, and burnout (Maslach Burnout Inventory), and we specifically asked each participant whether they would choose to be a psychiatrist again if they could. RESULTS: Among 3,783 psychiatrists we surveyed, one-quarter responded that they would not choose to be a psychiatrist again if they had a choice, with less than half (47.2%) saying they would. Those who would not choose psychiatry again were more likely to have a negative (relative to positive) professional identity (OR = 7.47, P＜0.001, 95%CI: 4.587-12.164); experience job burnout (OR = 2.945, P＜0.001, 95%CI: 2.356-3.681); be dissatisfied with their job (OR = 2.739, P＜0.001, 95%CI: 2.102-3.569) and excessive regulation (OR = 1.819, P＜0.001, 95%CI: 1.487-2.226); have a heavy workload (OR = 1.749, P＜0.001, 95%CI: 1.423-2.149) or a lower income (OR = 1.748, P＜0.001, 95%CI: 1.415-2.161); be married (relative to single) (OR = 1.604, P = 0.004, 95%CI: 1.165-2.208); be dissatisfied with strained doctor-

patient relationship (OR = 1.333, P = 0.005, 95%CI: 1.089-1.632); have more night shifts per month (OR = 1.055, P = 0.021, 95%CI: 1.008-1.104) or work longer hours per week (OR = 1.016, P = 0.001, 95%CI: 1.006-1.025). CONCLUSION: Among psychiatrists in tertiary hospitals in China, those with a heavier workload, poor sense of professional identity, job dissatisfaction, and burnout were less likely to choose psychiatry again. Policymakers and hospital administrators need to take effective measures to improve psychiatrists' sense of professional identity and increase their intention to stay.

Lien vers l'article

Santé psychique

Work-related burnout and its associated factors among midwives working at public hospitals in northwest Ethiopia: a multi-centered study.

Mengistie BA, Azene ZN, Haile TT, Abiy SA, Abegaz MY, Taye EB, et al. *Front Psychiatry*. 2023;14:1256063.

INTRODUCTION: Work-related burnout (WRB) is defined as the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to work. Midwives are vulnerable to work-related burnout due to their physically and emotionally demanding nature of their job. It affects the health of professionals and the quality of care provided. However, there is limited evidence on the burden and predictors associated with work-related burnout among midwives in developing countries, including Ethiopia. This study investigated the burden and contributing factors of work-related burnout among midwives in northwest Ethiopia. METHODS: A facility-based cross-sectional study was conducted from February 7 to April 30, 2022. A simple random sampling method was used to enroll 640 study participants. The Copenhagen burnout inventory tool was used to assess the magnitude of work-related burnout. A self-administered questionnaire was used to collect data, which was then entered into Epi Data 4.6 software and exported to SPSS version 25 for analysis. A multivariable logistic regression analysis model was fitted to identify factors associated with work-related burnout. The Adjusted Odds Ratio (AOR) with 95% confidence interval (CI) was reported to declare the factors that are significantly associated with work-related burnout. RESULTS: The prevalence of work-related burnout was found to be 60.47% (95% CI = 56.6-64.2). Workplace violence (AOR = 3.33, CI: 2.02, 5.48), working hours over 60 h a week (AOR = 4.55, CI: 2.78, 7.43), emotional demand of the job (AOR = 8.85, 95% CI: 4.48, 17.47), exposure to blood and body fluids/sharp injuries (AOR = 5.13, CI: 3.12, 7.13), good superior support (AOR = 0.38, CI: 0.23, 0.63), Job rotation of ≤6 months (AOR = 2.30, CI: 1.28, 4.14) and being stressed (AOR = 2.64, CI: 1.63, 4.26) were all found to be strongly linked to work-related burnout. CONCLUSION AND RECOMMENDATION: This study found a significant level of work-related burnout among midwives working in public hospitals. Experiencing workplace violence, a job rotation of less than or equals to six months, working hours over 60 h a week, good superior support, exposure to blood and body fluids or needle stick injuries and experiencing stress were significant factors that influenced work-related burnout. Therefore, reducing prolonged working hours, promoting supportive management, creating a safe working environment, and applying effective stress prevention strategies are some of the interventions to prevent or alleviate work-related burnout.

Lien vers l'article

Troubles cognitifs et de la vigilance

Sleep Quality and Associated Factors among Firefighters in Bangkok, Thailand: A Cross-sectional Study.

Piyachaiseth N, Sithisarankul P, Ratanachina J. *J Prev Med Public Health*. 2023 Dec 9.

OBJECTIVES: Professional firefighters face various health hazards and are required to maintain both physical and mental fitness to effectively mitigate crises and respond to emergencies. Moreover, the long working hours and shift work of this profession impact sleep quality. This study investigated the quality of sleep and its associated factors among firefighters in Bangkok, Thailand. METHODS: This was a cross-sectional study of firefighters affiliated with the Bangkok Fire and Rescue Department, Bangkok Metropolitan Administration, Thailand between January and March 2023. A cluster random sampling technique was utilized to distribute 600 questionnaires to firefighters in 15 fire stations. The questionnaire addressed demographic, work-related, and environmental factors. Sleep quality was assessed using the Thai version of the Pittsburgh Sleep Quality Index (PSQI). Data analysis involved both descriptive and inferential statistics. Bivariate and multiple logistic regressions were performed. RESULTS: The response rate was 78.7% (n=472), and 44.1% of the firefighters reported poor sleep quality (PSQI score >5). Sleep quality was statistically associated with conflicting family relationships (odds ratio [OR]=1.8; 95% confidence interval [CI], 1.1-2.9), additional part-time jobs (daytime, OR=2.4; 95% CI, 1.1-2.9; or nighttime, OR=4.3; 95% CI, 1.1-16.7), noisy sleeping areas (OR=1.7; 95% CI, 1.1-2.8), and the availability of adequate bedding (OR=3.0; 95% CI, 1.8-4.9). CONCLUSIONS: Poor sleep quality among firefighters was associated with various personal, work-related, and environmental factors. Organizations should promote policies that improve sleep quality through good sleep hygiene practices and facilities.

Lien vers l'article

Travail posté et de nuit facteur de risque

Généralités et prévention

Aucun article dans ce bulletin.

Activités physiques

Aucun article dans ce bulletin.

Autres pathologies

Prevalence of and factors associated with symptoms consistent with a diagnosis of irritable bowel syndrome among resident physicians in standardised training in China: a cross-sectional study.

Zhao J, Li X, Yang J, Hao X, Tian J, Wang X, et al. *BMJ Open*. 2023 Dec 18;13(12):e079874.

OBJECTIVES: This study aims to investigate the incidence of and factors associated with irritable bowel syndrome (IBS) among resident physicians in standardised training at eight traditional Chinese medicine (TCM) hospitals in China. DESIGN: A cross-sectional survey was administered to resident physicians in their first to third years of standardised training at eight TCM hospitals. PARTICIPANTS AND SETTING: A total of 514 resident physicians in standardised training were included. MEASURES: The questionnaire consisted of two sections, namely: section A collected basic information, and section B included the four-item Perceived Stress Scale (PSS-4), the Patient Health Questionnaire-4 (PHQ-4), the Pittsburgh Sleep Quality Index (PSQI) and the Rome IV criteria for IBS. Univariate and multivariate logistic regression models were constructed to assess the associations of age, sex, body mass index, stress, depression, anxiety, sleep quality and IBS. RESULTS: Of the included resident doctors, 77.2% were female, 20.4% were obese or underweight and 8.6% had symptoms consistent with a diagnosis of IBS. There were no statistically significant differences in lifestyle factors (night shift work, overtime work or working efficiency during the COVID-19 pandemic) between patients with IBS and participants without IBS (hereafter, non-IBS participants) (p=0.429, p=0.572 or p=0.464, respectively). Notably, compared with non-IBS participants, patients with IBS had significantly higher mean scores on the PSS-4 and PHQ-4 (p=0.028 and p=0.012, respectively); however, there was not a significant difference in PSQI scores between these two groups (p=0.079). Depression symptoms were significantly associated with IBS (unadjusted OR 0.498, 95% CI 0.265 to 0.935, p=0.030). CONCLUSION: These findings suggest that IBS is common among resident physicians in standardised training. Future studies should investigate emotional distress, especially stress and depression, in the development of prevention or treatment of IBS.

Lien vers l'article

Cancers

Increased breast cancer incidence among nurses in a tertiary university hospital in South Korea.

Choi J, Lee DW, Choi BY, Ryoo SW, Kim T, Hong YC. *Ann Occup Environ Med*. 2023;35:e44.

BACKGROUND: A series of breast cancer cases were recently reported in a tertiary university hospital in South Korea. Nurses are generally exposed to risk factors for breast cancer such as night shift work, antineoplastic agents, and job strain. However, the epidemiological evidence of excess incidence among nurses remains lacking. This study aims to investigate the excess incidence of breast cancer among nurses in a tertiary university hospital and provide epidemiological evidence of occupational

risk factors. METHODS: A retrospective cohort was developed using personnel records of female workers in the nursing department who worked from January 2011 to June 2021 in a tertiary university hospital in South Korea. Sick leave records were used to identify cases of breast cancer. The standardized incidence ratio of breast cancer among nurses was compared to the general population. RESULTS: A total of 5,509 nurses were followed up for 30,404 person-years, and 26 breast cancer cases were identified. This study revealed a significantly increased breast cancer incidence among all included nurses, with a standardized incidence ratio of 1.65 (95% confidence interval [CI]: 1.08-2.41), compared to the general population. Workers, who handle antineoplastic agents in their representative department and current and/or former department, had significantly elevated breast cancer standardized incidence ratios of 2.73 (95% CI: 1.008-5.94) and 3.39 (95% CI: 1.46-6.68), respectively. CONCLUSIONS: This study provides significant evidence of increased breast cancer risk among nursing staff in a hospital setting, particularly those who handle antineoplastic drugs. Measures that reduce exposure to risk factors should be implemented, especially anticancer drugs, to protect healthcare professionals. Further research at a national level that focuses on healthcare workers is necessary to validate breast cancer incidence and its contributing factors.

Lien vers l'article

Risque routier, accidentologie

Aucun article dans ce bulletin.

RPS et QVT

Use of rational subgrouping to understand variation and opportunity for improvement in time to ultrasound.

Ma K, Thull-Freedman J. *Cjem*. 2024 Jan 3.

OBJECTIVE: To understand factors that contribute to variation in time to abdominal and/or pelvic ultrasound in pediatric patients in an emergency department (ED) by utilizing rational subgrouping to assess opportunity for improvement. METHODS: All abdominal and pelvic ultrasounds conducted in the Alberta Children's Hospital ED from May 2019 to April 2021 were included. Time of study order and time of study completion were obtained from the electronic health record. Statistical process control (SPC) I-charts were used to analyze the quarterly median number of minutes from ultrasound order to completion. Rational subgrouping was used to stratify the data based on sex, age, and ED shift type, and identify special cause variation between groups. Findings were used to inform local decision-making. RESULTS: Special cause variation was detected among subgroups for sex, age group, and shift type. The median time from order of an abdominal and/or pelvic ultrasound to completion of study was 155 min. Females had a median order to completion time of 178 min, while males had a completion time of 131 min. From age 0 to 3, the median time was 110 min, compared to 149 min for ages 4 to 11 and 171 min for ages 12 and older. Day shifts had a median order to completion time of 145 min, compared to 129 min for evening shifts and 269 min for night shifts. CONCLUSIONS: Longer time to study completion was observed in female patients, older patients, and during night shifts. Use of rational subgrouping supported understanding of variation among subgroups of patients evaluated with abdominal and/or pelvic ultrasound. This allowed informed decision-making regarding opportunities for improvement. Rational subgrouping is a useful methodology in planning QI initiatives as it identifies sources of variation within a nonhomogeneous population and allows for judicious decision-making in a context of limited resources.

Lien vers l'article

Characterization of risk factors for obstructive sleep apnea and its association with absenteeism among nurses.

Sadeghniiat-Haghighi K, Najafi A, Eftekhari S, Behkar A, Tarkhan S. *Nursing*. 2024 Jan 1;54(1):49-54.

PURPOSE: To characterize risk factors associated with obstructive sleep apnea (OSA) and its relationship with nurses' absenteeism. METHODS: A cross-sectional study was conducted from 2018 to 2020 at a 1,000-bed academic hospital complex and biomedical research facility in Tehran, Iran. Participants were selected through consecutive sampling after obtaining ethical approval and informed consent. Data on demographics, medical conditions, occupational characteristics, and absenteeism were collected through face-to-face interviews. The STOP-Bang questionnaire was utilized to assess the probability of OSA. Statistical tests included the Mann-Whitney U, t-test, Chi-square, and multivariable regression. RESULTS: In this study involving 304 nurses, the majority were female (81.3%), with an average age of 35. About 27 participants (8.9%) had a high probability of OSA, with male sex, older age, higher body mass index, neck circumference, and diastolic BP identified as the main determinants of OSA. Additionally, shift work and night shifts were associated with increased absenteeism, while sex showed no significant association with absenteeism rates among nurses. CONCLUSION: Male sex, neck circumference (obesity), night shifts, and diastolic BP can predict OSA risk. However, unauthorized absence from work is not associated with a high risk for OSA (STOP-BANG ≥3) or the individual risk factors of OSA.

Lien vers l'article

Uneven distribution of stressful working conditions among Japanese nurses: a secondary analysis of nurses with and without children.

Kida R, Ogata Y, Nagai S. *Ind Health*. 2023 Dec 27.

Supportive measures for employees raising children may have increased workloads on other nurses, causing psychological stress. This study aimed to clarify the differences in working conditions and psychological status among female Japanese nurses based on child-rearing attributes. We used data from 1,600 female nurses at 10 Japanese hospitals collected by the study of the Work Environment for Hospital Nurses in Japan conducted in 2016. The variables included work conditions (number of night shifts per month, daily overtime, number of paid holidays per year, and social support received), psychological status (sense of coherence, emotional exhaustion, and work engagement), and sociodemographic characteristics. An analysis of covariance was performed on the differences between the three groups (without children, with preschool-age children, and with children of other ages groups). The group without children had a relatively higher workload ($p<0.01$) and lower social support ($p<0.01$ and $p<0.05$). Additionally, they had higher emotional exhaustion and lower work engagement ($p<0.01$). This study confirmed the uneven distribution of work environment by work-life balance measures.

Lien vers l'article

Psychological capital among clinical nurses: A latent profile analysis.

Teng M, Wang J, Jin M, Yuan Z, He H, Wang S, Ren Q. *Int Nurs Rev*. 2023 Dec 5.

AIM: To determine the psychological capital level of nurses and explore the latent profiles of nurses regarding their psychological capital scores. BACKGROUND: The use of individual-centered analysis for the connotation of nurses' psychological capital structure is less studied and still needs to be further explored. METHODS: By the convenience sampling method, 494 clinical nurses from 7 general hospitals in Sichuan province were selected. The study was conducted from December 2022 to February 2023. Latent profile analysis was used for data analysis. We followed STROBE guidelines in this research.

RESULTS: The total mean score of nurses' psychological capital is 5.17 (SD = 0.8). The following four latent profiles were identified: "poor" (4.5%), "medium" (22.9%), "well-off" (41.5%), and "rich" (31.1%). Multiple logistic regression showed that the number of hours worked per day and the number of night shifts per month were negative predictors of psychological capital, and psychological training and job satisfaction were protective factors of psychological capital. DISCUSSION: Our study found that the four profiles can be distinguished by "poor," "well-off," "medium," and "rich" levels of psychological capital. Among them, more than 70% of the nurses belonged to the well-off and rich profiles, and the number of the poor profile was the lowest. CONCLUSION: The overall psychological capital of clinical nurses is at a medium-high level. Each profile is influenced by multiple sociodemographic factors (i.e., age, working hours, monthly income, psychological training, and job satisfaction). IMPLICATIONS FOR NURSING AND HEALTH POLICY: Administrators should develop enhancement strategies to improve the mental health of nurses based on the characteristics of their psychological capital profiles.

Lien vers l'article

Rationing of nursing care in Internal Medicine Departments-a cross-sectional study.

Jędrzejczyk M, Guzak B, Czapla M, Ross C, Vellone E, Juzwiszyn J, et al. *BMC Nurs*. 2023 Dec 4;22(1):455.

BACKGROUND: Implicit rationing of nursing care refers to a situation in which necessary nursing care is not performed to meet all of the patients' needs. PURPOSE: To examine the factors influencing the rationing of nursing care, nurses' assessment of the quality of patient care, and their job satisfaction in Internal Medicine Departments. METHODS: A cross-sectional descriptive study was undertaken. The study included 1164 nurses working in the Internal Medicine Departments in 8 hospitals (Lower Silesia, Poland). The Perceived Implicit Rationing of Nursing Care instrument was used. RESULTS: Respondents rarely ration nursing care, with a mean score of 1.12 (SD = 0.68). The mean score for quality of patient care was 6.99 (SD = 1.92). In contrast, the mean job satisfaction score was 6.07 points (SD = 2.22). The most important predictors of high rates of rationing of nursing care were work experience of 16-20 years (regression parameter: 0.387) and a Bachelor's degree in nursing (regression parameter: 0.139). Nurses' assessment of the quality of patient care ratings were increased by having a Master's degree in nursing (regression parameter: 0.41), and significantly decreased by work experience of 16-20 years (regression parameter: -1.332). Independent predictors of job satisfaction ratings in both univariate and multivariate analysis were Master's degree and long-shift working patterns. CONCLUSION: The factors that influence an increased level of nursing care rationing on medical wards are nurse seniority, exceeding 16 years and female gender. Obtaining a Master's degree in nursing indicates improved nurses' assessment of the quality of patient care.

Lien vers l'article

Would you choose to be a psychiatrist again? A large-sample nationwide survey of psychiatrists and psychiatry residents in China.

Gu M, Zheng L, Gu J, Wang S, Shi Y, Jiang F, et al. *Int J Ment Health Syst*. 2023 Dec 5;17(1):43.

BACKGROUND: The mental health workforce sustainability in China suffers high rates of attrition and the intention to leave. Among current professionals, the intention to choose the same career is an interesting way to gauge their job satisfaction and other factors, and it may affect the career choices of younger generations. We aimed to survey the intention of psychiatrists and psychiatry residents to choose the same career if they could start over and to identify associated factors. METHODS: We conducted an anonymous survey of psychiatrists in 41 tertiary psychiatric hospitals in China. We collected demographic data, work-related information, the sense of professional identity, job satisfaction, and burnout (Maslach Burnout Inventory), and we specifically asked each participant whether they would choose to be a psychiatrist again if they could. RESULTS: Among 3,783

psychiatrists we surveyed, one-quarter responded that they would not choose to be a psychiatrist again if they had a choice, with less than half (47.2%) saying they would. Those who would not choose psychiatry again were more likely to have a negative (relative to positive) professional identity (OR = 7.47, P＜0.001, 95%CI: 4.587-12.164); experience job burnout (OR = 2.945, P＜0.001, 95%CI: 2.356-3.681); be dissatisfied with their job (OR = 2.739, P＜0.001, 95%CI: 2.102-3.569) and excessive regulation (OR = 1.819, P＜0.001, 95%CI: 1.487-2.226); have a heavy workload (OR = 1.749, P＜0.001, 95%CI: 1.423-2.149) or a lower income (OR = 1.748, P＜0.001, 95%CI: 1.415-2.161); be married (relative to single) (OR = 1.604, P = 0.004, 95%CI: 1.165-2.208); be dissatisfied with strained doctor-patient relationship (OR = 1.333, P = 0.005, 95%CI: 1.089-1.632); have more night shifts per month (OR = 1.055, P = 0.021, 95%CI: 1.008-1.104) or work longer hours per week (OR = 1.016, P = 0.001, 95%CI: 1.006-1.025). CONCLUSION: Among psychiatrists in tertiary hospitals in China, those with a heavier workload, poor sense of professional identity, job dissatisfaction, and burnout were less likely to choose psychiatry again. Policymakers and hospital administrators need to take effective measures to improve psychiatrists' sense of professional identity and increase their intention to stay.

Lien vers l'article

The pattern of emergency department length of stay in Saudi Arabia: an epidemiological Nationwide analyses of secondary surveillance data.

Alharbi AA, Muhayya M, Alkhudairy R, Alhussain AA, Muaddi MA, Alqassim AY, et al. *Front Public Health*. 2023;11:1265707.

BACKGROUND: Emergency department length of stay is a vital performance indicator for quality and efficiency in healthcare. This research aimed to evaluate the length of stay patterns in emergency departments across Saudi Arabia and to identify predictors for extended stays. The study used secondary data from the Ministry of Health's Ada'a program. METHODS: Using a retrospective approach, the study examined data from the Ada'a program on emergency department length of stay from September 2019 to December 2021. These data covered 1,572,296 emergency department visits from all regions of Saudi Arabia. Variables analyzed included quality indicators, year of visit, shift time, hospital type, and data entry method. The analysis was conducted using multiple linear regression. RESULTS: The study found that the median length of stay was 61 min, with significant differences among related predictors. All associations were significant with a value of p of less than 0.001. Compared to 2019, the length of stay was notably shorter by 28.5% in 2020 and by 44.2% in 2021. Evening and night shifts had a shorter length of stay by 5.9 and 7.8%, respectively, compared to the morning shift. Length of stay was lower in winter, summer, and fall compared to spring. Patients in levels I and II of the Canadian Triage and Acuity Scales had longer stays than those in level III, with those in level I reaching an increase of 20.5% in length of stay. Clustered hospitals had a longer length of stay compared to the non-clustered ones. Pediatric hospitals had a 15.3% shorter stay compared to general hospitals. Hospitals with data entered automatically had a 14.0% longer length of stay than those entered manually. Patients admitted to the hospital had a considerably longer length of stay, which was 54.7% longer compared to non-admitted patients. Deceased patients had a 20.5% longer length of stay than patients discharged alive. CONCLUSION: Data at the national level identified several predictors of prolonged emergency department length of stay in Saudi Arabia, including shift time, season, severity level, and hospital type. These results underline the necessity of continuous monitoring and improvement efforts in emergency departments, in line with policy initiatives aiming to enhance patient outcomes in Saudi Arabia.

Lien vers l'article

Association between physical activity and health in healthcare professionals : Results from the nationwide AMADEUS survey.

Fond G, Smith L, Boussat B, Lucas G, Yon DK, Tran B, et al. *Rev Epidemiol Sante Publique*. 2023 Dec;71(6):102183.

OBJECTIVE: The objective of this study was to assess the prevalence of healthcare professionals engaging in insufficient levels of physical activity (PA) and to identify sociodemographic, professional and health characteristics associated with insufficient PA levels. METHODS: We conducted a nationwide online cross-sectional study targeting healthcare professionals in France from May 2021 to June 2021. Participant recruitment involved outreach through social networks, professional networks, and email invitations. PA levels were assessed using the International Physical Activity Questionnaire (IPAQ), with insufficient PA defined as weekly PA totaling less than 600 mets/week. RESULTS: The study included a total of 10,325 participants, of whom 3939 (38.1%, 95% confidence interval 37.1-39.0%) exhibited insufficient levels of PA. In the multivariable analysis, we identified factors associated with insufficient PA: ages between 35-44 (aOR=1.58, 95%CI [1.21-2.06], p=.001) and 45-54 years (aOR=1.40, 95%CI [1.07-1.83], p =.015), gender (female aOR=1.47, 95%CI [1.12-1.44], p<.001), and professions including health executive (aOR=1.27, 95%CI [1.32-1.64], p<.001), nurse assistant (aOR=1.25, 95%CI [1.07-1.47], p=.006), and physician (aOR=1.18, 95%CI [1.03-1.34], p=.015). Additionally, burnout (aOR=1.32, 95%CI [1.21-1.44], p<.001), tobacco use (aOR=1.33, 95%CI [1.20-1.58], p<.001), being overweight (aOR=1.39, 95%CI [1.28-1.52], p<.001), major depression (aOR=1.44, 95%CI [1.20-1.47], p<.001), and sleep disorders (aOR=1.14, 95%CI [1.05-1.25], p=.002) were associated with insufficient PA. Work night shifts was associated with sufficient PA. CONCLUSION: Our study has revealed a substantial prevalence of healthcare professionals with insufficient PA levels. This prevalence, coupled with various associated health-damaging behaviors and mental health issues, underscores the importance of acknowledging the barriers they encounter in adopting a physically active lifestyle.

Lien vers l'article

Santé psychique

Aucun article dans ce bulletin.

Troubles cognitifs et de la vigilance

Characterization of risk factors for obstructive sleep apnea and its association with absenteeism among nurses.

Sadeghniiat-Haghighi K, Najafi A, Eftekhari S, Behkar A, Tarkhan S. *Nursing*. 2024 Jan 1;54(1):49-54.

PURPOSE: To characterize risk factors associated with obstructive sleep apnea (OSA) and its relationship with nurses' absenteeism. METHODS: A cross-sectional study was conducted from 2018 to 2020 at a 1,000-bed academic hospital complex and biomedical research facility in Tehran, Iran. Participants were selected through consecutive sampling after obtaining ethical approval and informed consent. Data on demographics, medical conditions, occupational characteristics, and absenteeism were collected through face-to-face interviews. The STOP-Bang questionnaire was utilized to assess the probability of OSA. Statistical tests included the Mann-Whitney U, t-test, Chi-square, and multivariable regression. RESULTS: In this study involving 304 nurses, the majority were female (81.3%), with an average age of 35. About 27 participants (8.9%) had a high probability of OSA, with male sex, older age, higher body mass index, neck circumference, and diastolic BP identified as

the main determinants of OSA. Additionally, shift work and night shifts were associated with increased absenteeism, while sex showed no significant association with absenteeism rates among nurses. CONCLUSION: Male sex, neck circumference (obesity), night shifts, and diastolic BP can predict OSA risk. However, unauthorized absence from work is not associated with a high risk for OSA (STOP-BANG ≥3) or the individual risk factors of OSA.

Lien vers l'article

Sleep quality of nurses who worked in coping with COVID-19: an integrative review.

Ribeiro Í AP, Oliveira A, Feitosa CDA, Pillon SC, Marziale MHP, Fernandes MA. *Rev Bras Enferm*. 2023;76(6):e20230007.

OBJECTIVE: to analyze sleep quality of nurses who worked coping with COVID-19 in scientific evidence. METHODS: an integrative review, carried out in seven databases, including studies between December 2021 and June 2022, without language restrictions. The sample consisted of 15 primary studies. RESULTS: nurses working in hospital, intensive care, outpatient care and teaching institutions constitute a vulnerable group for sleep disorders: latency, duration, efficiency and quality. The disorders identified involved insomnia at varying levels of severity: daytime dysfunction and morning sleepiness. Night work and low capacity for self-care were determinants of impaired sleep patterns. FINAL CONSIDERATIONS: the COVID-19 pandemic contributed to greater vulnerability of nurses to changes in sleep, requiring strategies for risk management and well-being promotion.

Lien vers l'article

Sleep Quality and Associated Factors among Firefighters in Bangkok, Thailand: A Cross-sectional Study.

Piyachaiseth N, Sithisarankul P, Ratanachina J. *J Prev Med Public Health*. 2023 Dec 9.

OBJECTIVES: Professional firefighters face various health hazards and are required to maintain both physical and mental fitness to effectively mitigate crises and respond to emergencies. Moreover, the long working hours and shift work of this profession impact sleep quality. This study investigated the quality of sleep and its associated factors among firefighters in Bangkok, Thailand. METHODS: This was a cross-sectional study of firefighters affiliated with the Bangkok Fire and Rescue Department, Bangkok Metropolitan Administration, Thailand between January and March 2023. A cluster random sampling technique was utilized to distribute 600 questionnaires to firefighters in 15 fire stations. The questionnaire addressed demographic, work-related, and environmental factors. Sleep quality was assessed using the Thai version of the Pittsburgh Sleep Quality Index (PSQI). Data analysis involved both descriptive and inferential statistics. Bivariate and multiple logistic regressions were performed. RESULTS: The response rate was 78.7% (n=472), and 44.1% of the firefighters reported poor sleep quality (PSQI score >5). Sleep quality was statistically associated with conflicting family relationships (odds ratio [OR]=1.8; 95% confidence interval [CI], 1.1-2.9), additional part-time jobs (daytime, OR=2.4; 95% CI, 1.1-2.9; or nighttime, OR=4.3; 95% CI, 1.1-16.7), noisy sleeping areas (OR=1.7; 95% CI, 1.1-2.8), and the availability of adequate bedding (OR=3.0; 95% CI, 1.8-4.9). CONCLUSIONS: Poor sleep quality among firefighters was associated with various personal, work-related, and environmental factors. Organizations should promote policies that improve sleep quality through good sleep hygiene practices and facilities.

Lien vers l'article

Chronobiologie

Animal

DAYWAKE implicates novel roles for circulating lipid-binding proteins as extracerebral regulators of daytime wake-sleep behavior.

Villegas G, Pereira MT, Love CR, Edery I. *FEBS Lett*. 2023 Dec 19.

Sleep during the midday, commonly referred to as siesta, is a common trait of animals that mainly sleep during the night. Work using Drosophila led to the identification of the daywake (dyw) gene, found to have anti-siesta activity. Herein, we show that the DYW protein undergoes signal peptide-dependent secretion, is present in the circulatory system, and accumulates in multiple organs, but, surprisingly, it is not detected in the brain where wake-sleep centers are located. The abundance of DYW in adult flies is regulated by age, sex, temperature, and the splicing efficiency of a nearby thermosensitive intron. We suggest that DYW regulates daytime wake-sleep balance in an indirect, extracerebral manner, via a multi-organ network that interfaces with the circulatory system.

Lien vers l'article

d-Alanine Affects the Circadian Clock to Regulate Glucose Metabolism in Kidney.

Sakai S, Tanaka Y, Tsukamoto Y, Kimura-Ohba S, Hesaka A, Hamase K, et al. *Kidney360*. 2023 Dec 15.

BACKGROUND: The aberrant glucose circadian rhythm is associated with the pathogenesis of diabetes. Similar to glucose metabolism in kidney and liver, d-alanine, a rare enantiomer of alanine, shows circadian alteration, although the effect of d-alanine on glucose metabolism has not been explored. Here we show that d-alanine acts on the circadian clock and affects glucose metabolism in the kidney. METHODS: The blood and urinary levels of d-alanine in mice were measured using two-dimensional high performance liquid chromatography system. Metabolic effects of d-alanine were analysed in mice and in primary culture of kidney proximal tubular cells from mice. Behavioural and gene expression analyses of circadian rhythm were performed using mice bred under constant darkness. RESULTS: d-Alanine levels in blood exhibited a clear intrinsic circadian rhythm. Since this rhythm was regulated by the kidney through urinary excretion, we examined the effect of d-alanine on kidney. In kidney, d-alanine induced expressions of genes involved in gluconeogenesis and circadian rhythm. Treatment of d-alanine mediated glucose production in mice. Ex vivo glucose production assay demonstrated that treatment of d-alanine induced glucose production in primary culture of kidney proximal tubular cells, where d-amino acids are known to be reabsorbed, but not in that of liver cells. Gluconeogenetic effect of d-alanine has an intraday variation, and this effect was in part mediated through circadian transcriptional network. Under constant darkness, treatment of d-alanine normalized the circadian cycle of behaviour and kidney gene expressions. CONCLUSIONS: d-Alanine induces gluconeogenesis in the kidney and adjusts the period of the circadian clock. Normalization of circadian cycle by d-alanine may provide the therapeutic options for life style-related diseases and shift workers.

Lien vers l'article

Melatonin Does Not Affect the Stress-Induced Phase Shifts of Peripheral Clocks in Male Mice.

Kong X, Meerlo P, Hut RA. *Endocrinology*. 2023 Nov 20;165(1).

Repeated or chronic stress can change the phase of peripheral circadian rhythms. Melatonin (Mel) is thought to be a circadian clock-controlled signal that might play a role in synchronizing peripheral rhythms, in addition to its direct suppressing effects on the stress axis. In this study we test whether Mel can reduce the social-defeat stress-induced phase shifts in peripheral rhythms, either by modulating circadian phase or by modulating the stress axis. Two experiments were performed with male Mel-deficient C57BL/6J mice carrying the circadian reporter gene construct (PER2::LUC). In the

first experiment, mice received night-restricted (ZT11-21) Mel in their drinking water, resulting in physiological levels of plasma Mel peaking in the early dark phase. This treatment facilitated re-entrainment of the activity rhythm to a shifted light-dark cycle, but did not prevent the stress-induced (ZT21-22) reduction of activity during stress days. Also, this treatment did not attenuate the phase-delaying effects of stress in peripheral clocks in the pituitary, lung, and kidney. In a second experiment, pituitary, lung, and kidney collected from naive mice (ZT22-23), were treated with Mel, dexamethasone (Dex), or a combination of the two. Dex application affected PER2 rhythms in the pituitary, kidney, and lung by changing period, phase, or both. Administering Mel did not influence PER2 rhythms nor did it alleviate Dex-induced delays in PER2 rhythms in those tissues. We conclude that exogenous Mel is insufficient to affect peripheral PER2 rhythms and reduce stress effects on locomotor activity and phase changes in peripheral tissues.

Lien vers l'article

Astrocytic insulin receptor controls circadian behavior via dopamine signaling in a sexually dimorphic manner.

González-Vila A, Luengo-Mateos M, Silveira-Loureiro M, Garrido-Gil P, Ohinska N, González-Domínguez M, et al. *Nat Commun*. 2023 Dec 9;14(1):8175.

Mammalian circadian clocks respond to feeding and light cues, adjusting internal rhythms with day/night cycles. Astrocytes serve as circadian timekeepers, driving daily physiological rhythms; however, it's unknown how they ensure precise cycle-to-cycle rhythmicity. This is critical for understanding why mistimed or erratic feeding, as in shift work, disrupts circadian physiology- a condition linked to type 2 diabetes and obesity. Here, we show that astrocytic insulin signaling sets the free-running period of locomotor activity in female mice and food entrainment in male mice. Additionally, ablating the insulin receptor in hypothalamic astrocytes alters cyclic energy homeostasis differently in male and female mice. Remarkably, the mutants exhibit altered dopamine metabolism, and the pharmacological modulation of dopaminergic signaling partially restores distinct circadian traits in both male and female mutant mice. Our findings highlight the role of astrocytic insulin-dopaminergic signaling in conveying time-of-feeding or lighting cues to the astrocyte clock, thus governing circadian behavior in a sex-specific manner.

Lien vers l'article

Homme

Utility of salivary cortisol profile as a predictive biomarker in nurses' turnover risk: a preliminary study.

Yamaguchi S, Fujita T, Kato S, Yoshimitsu Y, Ito YM, Yano R. *J Physiol Anthropol*. 2024 Jan 2;43(1):1.

BACKGROUND: Predicting nurse turnover risk is crucial due to the global nursing shortage; however, existing predictors, such as fatigue and burnout, lack objectivity. Salivary cortisol is a non-invasive marker of stress and fatigue, but its utility in predicting nurse turnover risk is unknown. We examined whether salivary cortisol profiles across three different day shifts in a month are predictors of the extent of nurses' reluctance to stay in their current jobs. METHODS: This preliminary longitudinal study followed forty female nurses who engaged in shift work at a university hospital for 3 months. Data at enrollment were collected including demographics, working conditions, chronic fatigue (the Japanese version of the Occupational Fatigue/Exhaustion Recovery Scale), and burnout (Japanese Burnout scale). Salivary cortisol was measured before the three different day shifts (after awakening) during the first month, and the means of these measurements were used as the cortisol profile. The extent of reluctance to stay was assessed using the numerical rating scale at 3 months. RESULTS: Among the

forty female nurses (mean [SD] age, 28.3 [5.1]), all completed follow-up and were included in the analysis. The cortisol profile was associated with the extent of reluctance to stay (P = 0.017), and this association was significant despite adjustments for chronic fatigue and burnout (P = 0.005). A multiple regression model with chronic fatigue, burnout, and job tenure explained 41.5% of the variation in reluctance to stay. When the cortisol profile was added to this model, the association of the cortisol profile was significant (P = 0.006) with an R(2) of 0.529 (ΔR(2) = 0.114). CONCLUSIONS: This preliminary study conducted in an actual clinical setting indicated the potential of the salivary cortisol profile across three different day shifts in a month to predict nurses' reluctance to stay in their current jobs. The combination of subjective indicators and the cortisol profile would be useful in predicting nurses' turnover risk.

Lien vers l'article

The interrelationships between sleep regularity, obstructive sleep apnea and hypertension in a middle-aged community population.

Sansom K, Reynolds A, Windred D, Phillips A, Dhaliwal SS, Walsh J, et al. *Sleep*. 2024 Jan 5.

STUDY OBJECTIVES: Little is known about the inter-relationships between sleep regularity, obstructive sleep apnea (OSA) and important health markers. This study examined whether irregular sleep is associated with OSA and hypertension, and if this modifies the known association between OSA and hypertension. METHODS: 602 adults (age mean(SD) =56.96(5.51) years, female=60%) from the Raine Study who were not evening or night shift workers were assessed for OSA (in-laboratory polysomnography; apnea hypopnea index (AHI) ≥15events/hour), hypertension (doctor diagnosed; or systolic blood pressure ≥140mmHg and/or diastolic ≥90mmHg) and sleep (wrist actigraphy for ≥5 days). A sleep regularity index (SRI) was determined from actigraphy. Participants were categorised by tertiles as severely irregular, mildly irregular, or regular sleepers. Logistic regression models examined the interrelationships between SRI, OSA and hypertension. Covariates included age, sex, body mass index, actigraphy sleep duration, insomnia, depression, activity, alcohol, smoking, and anti-hypertensive medication. RESULTS: Compared to regular sleepers, participants with mildly irregular (OR 1.97, 95% CI 1.20-3.27) and severely irregular (OR 2.06, 95% CI 1.25-3.42) sleep had greater odds of OSA. Compared to those with no OSA and regular sleep, OSA and severely irregular sleep combined had the highest odds of hypertension (OR 2.34 95% CI 1.07-5.12; p for interaction=0.02) while those with OSA and regular/mildly irregular sleep were not at increased risk (p for interaction=0.20). CONCLUSIONS: Sleep irregularity may be an important modifiable target for hypertension among those with OSA.

Lien vers l'article

Catch-up sleep on free days and body mass index: results from the seventh Korea National Health and Nutrition Examination Survey, 2016.

Lee HJ, Cho S, Lee SH, Kim SJ, Kim KM, Chu MK. *J Clin Sleep Med*. 2024 Jan 1;20(1):39-47.

STUDY OBJECTIVES: We aimed to identify the relationship between duration of categorized catch-up sleep on free days (CUS) and measured body mass index (BMI) in adults using the data from the seventh Korean National Health and Nutrition Examination Survey (KNHANES VII), 2016. METHODS: CUS duration was classified as ≤ 0, > 0-1, > 1-2, and > 2 hours. Being overweight or obese was defined as having a BMI ≥ 25.0 kg/m(2) or ≥ 30.0 kg/m(2), respectively. RESULTS: Of 6,382 participants aged 19-80 years in the KNHANES VII survey of 2016, 201 and 583 participants were excluded because of shift-working and insufficient data, respectively. Of 5,598 participants, CUS was observed in 2,274 (44.9%) participants, of which 3,324 (55.1%), 1,043 (19.4%), 724 (14.7%), and 507 (10.8%) had CUS of ≤ 0, > 0-1, > 1-2, and > 2 hours, respectively; the prevalence of obesity was 5.6%, 5.6%, 4.8%, and 6.1%, respectively. The association between BMI and CUS duration showed a significant negative association

in the CUS ≤ 0 hours group (beta [95% confidence interval], -0.394 [-0.646, -0.143], P = .002); however, other CUS groups did not show any significant association with BMI (CUS > 0-1 hours: -0.196 [-1.258, 0.865], P = .716; CUS > 1-2 hours, -0.542 [-1.625, 0.541], P = .325; CUS > 2 hours, -0.113 [-0.459, 0.233], P = .519). CONCLUSIONS: Our findings provide an understanding of the relationship between CUS and BMI and can serve as an instructive basis for the management of BMI. CITATION: Lee HJ, Cho S, Lee SH, Kim SJ, Kim KM, Chu MK. Catch-up sleep on free days and body mass index: results from the seventh Korea National Health and Nutrition Examination Survey, 2016. J Clin Sleep Med. 2024;20(1):39-47.

Lien vers l'article

Towards improving the prognosis of stroke through targeting the circadian clock system.

Khan S, Siddique R, Liu Y, Yong VW, Xue M. *Int J Biol Sci*. 2024;20(2):403-13.

Rhythmicity of the circadian system is a 24-hour period, driven by transcription-translation feedback loops of circadian clock genes. The central circadian pacemaker in mammals is located in the hypothalamic suprachiasmatic nucleus (SCN), which controls peripheral circadian clocks. In general, most physiological processes are regulated by the circadian system, which is modulated by environmental cues such as exposure to light and/or dark, temperature, and the timing of sleep/wake and food intake. The chronic circadian disruption caused by shift work, jetlag, and/or irregular sleep-wake cycles has long-term health consequences. Its dysregulation contributes to the risk of psychiatric disorders, sleep abnormalities, hypothyroidism and hyperthyroidism, cancer, and obesity. A number of neurological conditions may be worsened by changes in the circadian clock via the SCN pacemaker. For stroke, different physiological activities such as sleep/wake cycles are disrupted due to alterations in circadian rhythms. Moreover, the immunological processes that affect the evolution and recovery processes of stroke are regulated by the circadian clock or core-clock genes. Thus, disrupted circadian rhythms may increase the severity and consequences of stroke, while readjustment of circadian clock machinery may accelerate recovery from stroke. In this manuscript, we discuss the relationship between stroke and circadian rhythms, particularly on stroke development and its recovery process. We focus on immunological and/or molecular processes linking stroke and the circadian system and suggest the circadian rhythm as a target for designing effective therapeutic strategies in stroke.

Lien vers l'article

Attention to Innate Circadian Rhythm and the Impact of Its Disruption on Diabetes.

Lee DY, Jung I, Park SY, Yu JH, Seo JA, Kim KJ, et al. *Diabetes Metab J*. 2024 Jan 3.

Novel strategies are required to reduce the risk of developing diabetes and/or clinical outcomes and complications of diabetes. In this regard, the role of the circadian system may be a potential candidate for the prevention of diabetes. We reviewed evidence from animal, clinical, and epidemiological studies linking the circadian system to various aspects of the pathophysiology and clinical outcomes of diabetes. The circadian clock governs genetic, metabolic, hormonal, and behavioral signals in anticipation of cyclic 24-hour events through interactions between a "central clock" in the suprachiasmatic nucleus and "peripheral clocks" in the whole body. Currently, circadian rhythmicity in humans can be subjectively or objectively assessed by measuring melatonin and glucocorticoid levels, core body temperature, peripheral blood, oral mucosa, hair follicles, rest-activity cycles, sleep diaries, and circadian chronotypes. In this review, we summarized various circadian misalignments, such as altered light-dark, sleep-wake, rest-activity, fasting-feeding, shift work, evening chronotype, and social jetlag, as well as mutations in clock genes that could contribute to the development of diabetes and poor glycemic status in patients with diabetes. Targeting critical components of the circadian system could deliver potential candidates for the treatment and prevention of type 2 diabetes mellitus in the future.
Lien vers l'article

Artificial intelligence in sleep medicine: Present and future.

Verma RK, Dhillon G, Grewal H, Prasad V, Munjal RS, Sharma P, et al. *World J Clin Cases*. 2023 Dec 6;11(34):8106-10.

Artificial intelligence (AI) has impacted many areas of healthcare. AI in healthcare uses machine learning, deep learning, and natural language processing to analyze copious amounts of healthcare data and yield valuable outcomes. In the sleep medicine field, a large amount of physiological data is gathered compared to other branches of medicine. This field is primed for innovations with the help of AI. A good quality of sleep is crucial for optimal health. About one billion people are estimated to have obstructive sleep apnea worldwide, but it is difficult to diagnose and treat all the people with limited resources. Sleep apnea is one of the major contributors to poor health. Most of the sleep apnea patients remain undiagnosed. Those diagnosed with sleep apnea have difficulty getting it optimally treated due to several factors, and AI can help in this situation. AI can also help in the diagnosis and management of other sleep disorders such as insomnia, hypersomnia, parasomnia, narcolepsy, shift work sleep disorders, periodic leg movement disorders, etc. In this manuscript, we aim to address three critical issues about the use of AI in sleep medicine: (1) How can AI help in diagnosing and treating sleep disorders? (2) How can AI fill the gap in the care of sleep disorders? and (3) What are the ethical and legal considerations of using AI in sleep medicine?

Lien vers l'article

Latest advances in the study of non-coding RNA-mediated circadian rhythm disorders causing endometrial cancer.

Zheng LT, Chen SR, Zhou LY, Huang QY, Chen JM, Chen WH, et al. *Front Oncol*. 2023;13:1277543.

Endometrial cancer (EC) is one of the most common gynecological cancers, and its risk factors include obesity and metabolic, genetic, and other factors. Recently, the circadian rhythm has also been shown to be associated with EC, as the severity of EC was found to be related to night work and rhythm disorders. Therefore, circadian rhythm disorders (CRDs) may be one of the metabolic diseases underlying EC. Changes in the circadian rhythm are regulated by clock genes (CGs), which in turn are regulated by non-coding RNAs (ncRNAs). More importantly, the mechanism of EC caused by ncRNA-mediated CRDs is gradually being unraveled. Here, we review existing studies and reports and explore the relationship between EC, CRDs, and ncRNAs.

Lien vers l'article

Hepatic Vagal Afferents Convey Clock-Dependent Signals to Regulate Circadian Food Intake.

Woodie LN, Melink LC, Midha M, de Araújo AM, Geisler CE, Alberto AJ, et al. *bioRxiv*. 2023 Dec 1.

Circadian desynchrony induced by shiftwork or jetlag is detrimental to metabolic health, but how synchronous/desynchronous signals are transmitted among tissues is unknown. Here we report that liver molecular clock dysfunction is signaled to the brain via the hepatic vagal afferent nerve (HVAN), leading to altered food intake patterns that are corrected by ablation of the HVAN. Hepatic branch vagotomy also prevents food intake disruptions induced by high-fat diet feeding and reduces body weight gain. Our findings reveal a previously unrecognized homeostatic feedback signal that relies on synchrony between the liver and the brain to control circadian food intake patterns. This identifies the hepatic vagus nerve as a therapeutic target for obesity in the setting of chrono-disruption. ONE SENTENCE SUMMARY: The hepatic vagal afferent nerve signals internal circadian desynchrony between the brain and liver to induce maladaptive food intake patterns.

Lien vers l'article

Effects of a simulated maritime shift schedule on vigilance, sleep, and sleepiness.

Wang Z, Xu H, Teng C, Wang C. *Chronobiol Int*. 2023 Dec 26:1-11.

Shift work is associated with circadian misalignment, which causes sleep loss, impairs performance, and increases the risk of accidents. Shorter, more frequently shifting watch schedules, widely used in industries such as maritime operation, defense, and mining, may mitigate these risks by reducing shift length and providing sleep opportunities for all workers across the biological night. However, the effects of frequently shifting work on sleep and performance still need to be clarified. The current study investigated the vigilance, sleepiness, and sleep patterns of fifteen participants who lived in a controlled and confined laboratory that mimicked a maritime environment for 14 d following a simulating frequent shift schedule. The results of psychomotor vigilance tasks (PVT) suggest that this shift schedule may lead to an accumulation of vigilance detrimental across watch days, with both reaction speed impairment and error growth. Furthermore, the circadian phase significantly affects PVT performance, with the afternoon shift section showing relatively better performance. Overall, more working hours per day resulted in poorer PVT performance. As the shift progressed, total sleep duration reduced slightly, and wake after sleep onset (WASO) increased. Sleep during the biological night was generally longer than sleep in the daytime. Less on-watch time was linked to longer overall sleep duration. Additionally, although the subjective sleepiness obtained by the Karolinska Sleepiness Scale (KSS) varied insignificantly across days, the KSS score was negatively correlated with PVT performance. This research can serve as a foundation for developing countermeasures to mitigate frequently shifting schedules' potentially detrimental effects and safety risks.

Lien vers l'article

Time-of-day effects on speed and accuracy performance during simulated shiftwork.

Pilcher JJ, Grandits JB, Wilkes MJ, Lindsey MM. *Chronobiol Int*. 2023 Dec 2;40(12):1529-45.

Performance on tasks involving speed and accuracy fluctuate throughout the 24-h day negatively affecting shift workers and organizations. Two simulated work shifts common in occupational settings were used to assess performance on a vigilance and math task. In study 1, 33 sleep-deprived participants completed a nightshift. In study 2, 32 partially sleep-deprived participants completed a dayshift. These studies found that performance differed between the type of task and the type of simulated shift where performance during the nightshift was worse than during the dayshift. In addition, collapsing speed and accuracy on the math task into inverse efficiency scores provided a unique measure that captured the impact of circadian rhythms during shiftwork. The current study also indicated that participants adopted cognitive strategies including speed-accuracy tradeoff and regulatory foci regarding work motivation (prevention focus and promotion focus) when completing the tasks depending on time-of-day, type of shift, circadian rhythms, and amount of sleep deprivation. This suggests that researchers and organizations should consider cognitive strategies in addition to the physiological components of sleep deprivation and circadian rhythms when investigating and documenting the impact of time-of-day due to different types of shiftwork conditions on performance and safety.

Lien vers l'article

Multi-modal sleep intervention for community-dwelling people living with dementia and primary caregiver dyads with sleep disturbance: protocol of a single-arm feasibility trial.

Verma S, Varma P, Brown A, Bei B, Gibson R, Valenta T, et al. *PeerJ*. 2023;11:e16543.

BACKGROUND: Disturbed sleep is common among people living with dementia and their informal caregivers, and is associated with negative health outcomes. Dyadic, multi-modal interventions

targeting caregiver and care-recipient sleep have been recommended yet remain limited. This protocol details the development of a single-arm feasibility trial of a multi-modal, therapist-led, six-week intervention targeting sleep disturbance in dyads of people living with dementia and their primary caregiver. METHODS: We aim to recruit 24 co-residing, community-dwelling dyads of people living with dementia and their primary informal caregiver (n = 48) with sleep concerns (Pittsburgh Sleep Quality Index ≥5 for caregivers, and caregiver-endorsed sleep concerns for the person living with dementia). People who live in residential care settings, are employed in night shift work, or are diagnosed with current, severe mental health conditions or narcolepsy, will be excluded. Participants will wear an actigraph and complete sleep diaries for two weeks prior, and during the last two weeks, of active intervention. The intervention is therapist-led and includes a mix of weekly small group video sessions and personalised, dyadic sessions (up to 90 min each) over six weeks. Sessions are supported by a 37-page workbook offering strategies and spaces for reflections/notes. Primary feasibility outcomes are caregiver: session attendance, attrition, and self-reported project satisfaction. Secondary outcomes include dyadic self-reported and objectively-assessed sleep, depression and anxiety symptoms, quality of life, and social support. Self-report outcomes will be assessed at pre- and post-intervention. DISCUSSION: If feasible, this intervention could be tested in a larger randomised controlled trial to investigate its efficacy, and, upon further testing, may potentially represent a non-pharmacological approach to reduce sleep disturbance among people living with dementia and their caregivers. ANZCTR TRIAL REGISTRATION: ACTRN12622000144718: https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=382960&showOriginal=true&isReview=true.

Lien vers l'article

Shift work and evening chronotype are associated with hepatic fat fraction and non-alcoholic fatty liver disease in 282,303 UK biobank participants.

Maidstone R, Rutter MK, Marjot T, Ray DW, Baxter M. *Endocr Connect*. 2023 Dec 1.

BACKGROUND AND AIMS: Non-alcoholic fatty liver disease (NAFLD) has rapidly become the most common liver disease world-wide. Modern lifestyles have been linked to this rise in prevalence with changes in rhythmic human behaviour emerging as a possible mechanism. We investigated how shift working patterns and chronotype were associated with hepatic fat fraction and NAFLD in 282,303 UK Biobank participants. METHODS: We stratified participants into day, irregular-shift, and permanent night-shift workers. We then utilized multiple methods of disease identification including: a) Dallas Steatosis Index (DSI), b) ICD10 codes, and c) hepatic proton density fat fraction (PDFF) and examined how shiftwork exposure impacted these variables. We further assessed the relationship of baseline chronotype with liver phenotypes using these same outcome measures. RESULTS: Compared to day workers, irregular-shift workers were more likely to have a high DSI (OR 1.29 [1.2-1.4]) after adjusting for major covariates with some attenuation after additional adjustment for BMI (OR 1.12 [1.03-1.22]). Likelihood of high DSI was also increased in permanent night-shift workers (OR 1.08 [0.9-1.29]) in the fully-adjusted model. Mediator analysis revealed that BMI was a significant mediator of the shiftwork effect. Compared to participants with intermediate chronotype, those with extreme late chronotype had a higher likelihood of high DSI defined NAFLD (OR 1.45 [1.34 -1.56]) and a higher likelihood of NAFLD/NASH by ICD10 code (OR 1.23 [1.09-1.39]). Hepatic PDFF was elevated in irregular shift workers, but not permanent night shift workers. CONCLUSIONS: Irregular-shift work and extreme late chronotype are associated with pathological liver fat accumulation, suggesting circadian misalignment may have an underlying pathogenic role. These findings have implications for health interventions to mitigate the detrimental effect of shift work.

Lien vers l'article

Arterial hypertension in rotating shift workers: The role of hypertriglyceridemic waist and hypertriglyceridemic waist-to-height ratio phenotypes.

Machado GDS, Menezes-Júnior LAA, Neto R, Freitas SN, Oliveira FLP, Pimenta FAP, et al. *Clin Nutr ESPEN*. 2023 Dec;58:235-41.

OBJECTIVE: To examine the association of arterial hypertension and the hypertriglyceridemic waist phenotype (HWP) and hypertriglyceridemic waist-to-height phenotype (HWHP). METHODOLOGY: This cross-sectional study was conducted with 1422 male rotating shift workers in Brazil. The HWP was defined as having a waist circumference ≥94 cm and serum triglycerides ≥150 mg/dL, whereas the HWHP was determined by having a waist-to-height ratio ≥0.5 and serum triglycerides ≥150 mg/dL. To provide a characterization of the sample, data were presented in both absolute and relative values, and Pearson's chi-square test was employed. To investigate the potential association between arterial hypertension and the presence of HWP or HWHP, multivariate logistic regression was conducted, accounting for sociodemographic, behavioral, and clinical variables. Furthermore, we conducted a stratified multivariate logistic regression analysis, considering the duration of shift work, to assess whether the results remained consistent depending on the length of work experience in shifts. RESULTS: A noteworthy association was observed between arterial hypertension and both HWP and HWHP, with HWHP exhibiting a stronger association with the disease. Furthermore, a positive association between arterial hypertension and these phenotypes was identified in workers with five or more years of shift work. CONCLUSION: We recommend the utilization of HWHP as a screening tool, as it indicates a stronger association with arterial hypertension compared to HWP. Additionally, the duration of time spent working in shifts emerged as a significant factor influencing the presence of these phenotypes.

Lien vers l'article

The intersection between ghrelin, metabolism and circadian rhythms.

Kulkarni SS, Singh O, Zigman JM. *Nat Rev Endocrinol*. 2023 Dec 20.

Despite the growing popular interest in sleep and diet, many gaps exist in our scientific understanding of the interaction between circadian rhythms and metabolism. In this Review, we explore a promising, bidirectional role for ghrelin in mediating this interaction. Ghrelin both influences and is influenced by central and peripheral circadian systems. Specifically, we focus on how ghrelin impacts outputs of circadian rhythm, including neuronal activity, circulating growth hormone levels, locomotor activity and eating behaviour. We also consider the effects of circadian rhythms on ghrelin expression and the consequences of disrupted circadian patterns, such as shift work and jet lag, on ghrelin secretion. Our Review is aimed at both the casual reader interested in gaining more insight into the scientific context surrounding the trending topics of sleep and metabolism, as well as experienced scientists in the fields of ghrelin and circadian biology seeking inspiration and a comprehensive overview of how these fields are related.

Lien vers l'article

A preliminary framework for managing sleep inertia in occupational settings.

Kovac K, Vincent GE, Paterson JL, Hilditch CJ, Ferguson SA. *Sleep Adv*. 2023;4(1):zpad050.

Sleep inertia, the temporary period of impairment experienced upon waking, is a safety hazard that has been implicated in serious work-related incidents resulting in injuries as well as the loss of life and assets. As such, sleep inertia warrants formal management in industries where personnel are required to undertake their role soon after waking (e.g. emergency services, engineers, and health care). At present, there is a lack of practical, evidence-based guidance on how sleep inertia could be formally

managed at an organizational level. We propose a preliminary framework for managing sleep inertia based on the translation of research findings into specific work procedure modifications/control mechanisms. Within the framework, work procedure modifications/control mechanisms to manage sleep inertia are organized into three levels: (1) modifications/controls that eliminate the chance of sleep inertia, (2) modifications/controls that reduce sleep inertia severity, and (3) modifications/controls that manage the risk of errors during sleep inertia. Practical considerations, limitations, and areas of further research are highlighted for each modification/control to help determine how readily each control measure could be implemented by industries at present. A guide for organizations to use this preliminary framework of sleep inertia management is put forward, as well as the next research priorities to strengthen the utility and evidence base of the framework. This paper is part of the Sleep and Circadian Rhythms: Management of Fatigue in Occupational Settings Collection.

Lien vers l'article

Outdoor light at night and mortality in the UK Biobank: a prospective cohort study.

Liang X, Wang Z, Cai H, Zeng YQ, Chen J, Wei X, et al. *Occup Environ Med*. 2023 Nov 22.

BACKGROUND: More than 83% of the world's population lives under light-polluted skies while information about health effects of outdoor light at night (LAN) is limited. We examined the association of LAN with natural cause (NC) and cardiovascular disease (CVD) mortality using the UK Biobank. METHODS: We included 273 335 participants recruited between 2006 and 2010. Level of LAN was estimated at each participant's address using time-varying satellite data for a composite of persistent night-time illumination at ~1 km(2) scale. Information on causes of death until 12 November 2021 was obtained through record linkage. Cox proportional hazards regression was used. RESULTS: In the follow-up with an average of 12.4 years, 14 864 NC and 3100 CVD deaths were identified. Compared with the participants exposed to the first quartile of LAN, participants exposed to the highest quartile showed an 8% higher risk of NC mortality (HR: 1.08, 95% CI 1.03 to 1.13) after adjusting for age, sex, social-economic status, shift work, lifestyle factors and body mass index. However, the association disappeared after further adjustment for PM(2.5) and evening noise, with HRs (95% CIs) of 1.02 (0.97 to 1.07), 1.01 (0.97 to 1.06) and 1.03 (0.97 to 1.08), respectively, for the participants exposed to the second, third and fourth quartiles of LAN. No significant associations were observed between LAN and CVD mortality, either. CONCLUSIONS: We did not observe significant associations of LAN with NC and CVD mortality in this large nationwide cohort. The health effects of LAN remain unclear. Further studies are warranted to address this public health concern.

Lien vers l'article

Effectiveness of caffeine and blue-enriched light on cognitive performance and electroencephalography correlates of alertness in a spaceflight robotics simulation.

Flynn-Evans EE, Rueger M, Liu AM, Galvan-Garza RC, Natapoff A, Oman CM, Lockley SW. *NPJ Microgravity*. 2023 Dec 19;9(1):93.

Human cognitive impairment associated with sleep loss, circadian misalignment and work overload is a major concern in any high stress occupation but has potentially catastrophic consequences during spaceflight human robotic interactions. Two safe, wake-promoting countermeasures, caffeine and blue-enriched white light have been studied on Earth and are available on the International Space Station. We therefore conducted a randomized, placebo-controlled, cross-over trial examining the impact of regularly timed low-dose caffeine (0.3 mg per kg per h) and moderate illuminance blue-enriched white light (~90 lux, ~88 melEDI lux, 6300 K) as countermeasures, separately and combined, in a multi-night simulation of sleep-wake shifts experienced during spaceflight among 16 participants (7 F, ages 26-55). We find that chronic administration of low-dose caffeine improves subjective and

objective correlates of alertness and performance during an overnight work schedule involving chronic sleep loss and circadian misalignment, although we also find that caffeine disrupts subsequent sleep. We further find that 90 lux of blue-enriched light moderately reduces electroencephalogram (EEG) power in the theta and delta regions, which are associated with sleepiness. These findings support the use of low-dose caffeine and potentially blue-enriched white light to enhance alertness and performance among astronauts and shiftworking populations.

Lien vers l'article

Stories from a life studying circadian rhythms and sleep.

Eastman C. *Sleep Adv*. 2023;4(1):zpad040.

Lien vers l'article

Current Perspective on Circadian Function of the Kidney.

Benjamin JI, Pollock DM. *Am J Physiol Renal Physiol*. 2023 Dec 22.

Behavior and function of living systems are synchronized by the 24-hour rotation of the earth that guides physiology according to time of day. However, when behavior becomes misaligned from the light/dark cycle, such as in rotating shift work, jet lag, and even unusual eating patterns, adverse health consequences such as cardiovascular or cardiometabolic disease can arise. The discovery of cell autonomous molecular clocks expanded interest in regulatory systems that control circadian physiology including within the kidney where function varies along a 24-hour cycle. Our understanding of the mechanisms for circadian control of physiology is in the early stages and so the current review provides an overview of what is known and the many gaps in our current understanding. We include a particular focus on the impact of eating behaviors, especially meal timing. A better understanding of the mechanisms guiding circadian function of the kidney are expected to reveal new insights into causes and consequences of a wide range of disorders involving the kidney including hypertension, obesity, and chronic kidney disease.

Lien vers l'article

Conduites addictives

Aucun article dans ce bulletin.

Reproduction

Aucun article dans ce bulletin.

Polyexposition

Aucun article dans ce bulletin.

Pathologies cardiovasculaires

The interrelationships between sleep regularity, obstructive sleep apnea and hypertension in a middle-aged community population.

Sansom K, Reynolds A, Windred D, Phillips A, Dhaliwal SS, Walsh J, et al. *Sleep*. 2024 Jan 5.

STUDY OBJECTIVES: Little is known about the inter-relationships between sleep regularity, obstructive sleep apnea (OSA) and important health markers. This study examined whether irregular sleep is associated with OSA and hypertension, and if this modifies the known association between OSA and hypertension. METHODS: 602 adults (age mean(SD) =56.96(5.51) years, female=60%) from the Raine Study who were not evening or night shift workers were assessed for OSA (in-laboratory polysomnography; apnea hypopnea index (AHI) ≥15events/hour), hypertension (doctor diagnosed; or systolic blood pressure ≥140mmHg and/or diastolic ≥90mmHg) and sleep (wrist actigraphy for ≥5 days). A sleep regularity index (SRI) was determined from actigraphy. Participants were categorised by tertiles as severely irregular, mildly irregular, or regular sleepers. Logistic regression models examined the interrelationships between SRI, OSA and hypertension. Covariates included age, sex, body mass index, actigraphy sleep duration, insomnia, depression, activity, alcohol, smoking, and anti-hypertensive medication. RESULTS: Compared to regular sleepers, participants with mildly irregular (OR 1.97, 95% CI 1.20-3.27) and severely irregular (OR 2.06, 95% CI 1.25-3.42) sleep had greater odds of OSA. Compared to those with no OSA and regular sleep, OSA and severely irregular sleep combined had the highest odds of hypertension (OR 2.34 95% CI 1.07-5.12; p for interaction=0.02) while those with OSA and regular/mildly irregular sleep were not at increased risk (p for interaction=0.20). CONCLUSIONS: Sleep irregularity may be an important modifiable target for hypertension among those with OSA.

Lien vers l'article

Towards improving the prognosis of stroke through targeting the circadian clock system.

Khan S, Siddique R, Liu Y, Yong VW, Xue M. *Int J Biol Sci*. 2024;20(2):403-13.

Rhythmicity of the circadian system is a 24-hour period, driven by transcription-translation feedback loops of circadian clock genes. The central circadian pacemaker in mammals is located in the hypothalamic suprachiasmatic nucleus (SCN), which controls peripheral circadian clocks. In general, most physiological processes are regulated by the circadian system, which is modulated by environmental cues such as exposure to light and/or dark, temperature, and the timing of sleep/wake and food intake. The chronic circadian disruption caused by shift work, jetlag, and/or irregular sleep-wake cycles has long-term health consequences. Its dysregulation contributes to the risk of psychiatric disorders, sleep abnormalities, hypothyroidism and hyperthyroidism, cancer, and obesity. A number of neurological conditions may be worsened by changes in the circadian clock via the SCN pacemaker. For stroke, different physiological activities such as sleep/wake cycles are disrupted due to alterations in circadian rhythms. Moreover, the immunological processes that affect the evolution and recovery processes of stroke are regulated by the circadian clock or core-clock genes. Thus, disrupted circadian rhythms may increase the severity and consequences of stroke, while readjustment of circadian clock machinery may accelerate recovery from stroke. In this manuscript, we discuss the relationship between stroke and circadian rhythms, particularly on stroke development and its recovery process. We focus on immunological and/or molecular processes linking stroke and the circadian system and suggest the circadian rhythm as a target for designing effective therapeutic strategies in stroke.

Lien vers l'article

Heart rate variability and perception of mental stress among medical students and residents at an emergency department.

Schubert DUC, Serfaty FM, Cunha MR, Oigman W, Tarvainen MP, Neves MF. *Am J Emerg Med*. 2023 Dec 30;78:12-7.

BACKGROUND: When Medical Residents (MR) and Medical Students (MS) are assigned to the demanding environment of an Emergency they inevitably encounter stress. The aims of this study are to measure short-term heart rate variability (HRV) before and after shifts, estimate perceived stress levels, and assess the recovery patterns after their shifts. METHODS: We assessed HRV parameters in MS and MR using the wristband physiological monitor Polar® Verify Sense before and after day (DS) and night shifts (NS). Perceived stress levels were evaluated using the simplified State Trait Anxiety Inventory (STAI-S6) and the Subjective Units of Distress Scale. RESULTS: This study included 60 participants of which 55% were female with a mean age of 26 years. MS presented significant reduction in sympathetic nervous system index after DS [0.68 (0.01-2.42) vs -0.22 (-0.75-1.13), $p < 0.01$] and NS [0.87 (-0.28-1.45) vs 0.06 (-0.70-1.04), $p < 0.01$], while MR maintained the same levels of sympathetic activity [DS: 1.17 (0.04 -2.88) vs 0.93 (0.50-1.41), $p = 0.14$; NS: 1.37 (0.76-2.21) vs 1.29 (0.35-2.18), $p = 0.40$]. Psychological data from STAI-S6 showed statistically significant differences when comparing before and after DS in both groups, with more perceived stress after than before DS (MS: 12 ± 4 vs 14 ± 4, $p = 0.04$; MR: 14 ± 4 vs 16 ± 4, $p = 0.04$), which was not observed at NS (MS: 12 ± 3 vs 12 ± 3, $p = 0.84$; MR: 15 ± 3 vs 15 ± 4, $p = 0.40$). CONCLUSIONS: Short-term HRV recordings before and after day or night shifts among MR and MS revealed heightened sympathetic activity preceding each shift, with a more sustained increase observed in the MR population and more perceived stress after day shifts in both groups.

Lien vers l'article

Arterial hypertension in rotating shift workers: The role of hypertriglyceridemic waist and hypertriglyceridemic waist-to-height ratio phenotypes.

Machado GDS, Menezes-Júnior LAA, Neto R, Freitas SN, Oliveira FLP, Pimenta FAP, et al. *Clin Nutr ESPEN*. 2023 Dec;58:235-41.

OBJECTIVE: To examine the association of arterial hypertension and the hypertriglyceridemic waist phenotype (HWP) and hypertriglyceridemic waist-to-height phenotype (HWHP). METHODOLOGY: This cross-sectional study was conducted with 1422 male rotating shift workers in Brazil. The HWP was defined as having a waist circumference ≥94 cm and serum triglycerides ≥150 mg/dL, whereas the HWHP was determined by having a waist-to-height ratio ≥0.5 and serum triglycerides ≥150 mg/dL. To provide a characterization of the sample, data were presented in both absolute and relative values, and Pearson's chi-square test was employed. To investigate the potential association between arterial hypertension and the presence of HWP or HWHP, multivariate logistic regression was conducted, accounting for sociodemographic, behavioral, and clinical variables. Furthermore, we conducted a stratified multivariate logistic regression analysis, considering the duration of shift work, to assess whether the results remained consistent depending on the length of work experience in shifts. RESULTS: A noteworthy association was observed between arterial hypertension and both HWP and HWHP, with HWHP exhibiting a stronger association with the disease. Furthermore, a positive association between arterial hypertension and these phenotypes was identified in workers with five or more years of shift work. CONCLUSION: We recommend the utilization of HWHP as a screening tool, as it indicates a stronger association with arterial hypertension compared to HWP. Additionally, the duration of time spent working in shifts emerged as a significant factor influencing the presence of these phenotypes.

Lien vers l'article

Outdoor light at night and mortality in the UK Biobank: a prospective cohort study.

Liang X, Wang Z, Cai H, Zeng YQ, Chen J, Wei X, et al. *Occup Environ Med*. 2023 Nov 22.

BACKGROUND: More than 83% of the world's population lives under light-polluted skies while information about health effects of outdoor light at night (LAN) is limited. We examined the association of LAN with natural cause (NC) and cardiovascular disease (CVD) mortality using the UK Biobank. METHODS: We included 273 335 participants recruited between 2006 and 2010. Level of LAN was estimated at each participant's address using time-varying satellite data for a composite of persistent night-time illumination at ~1 km(2) scale. Information on causes of death until 12 November 2021 was obtained through record linkage. Cox proportional hazards regression was used. RESULTS: In the follow-up with an average of 12.4 years, 14 864 NC and 3100 CVD deaths were identified. Compared with the participants exposed to the first quartile of LAN, participants exposed to the highest quartile showed an 8% higher risk of NC mortality (HR: 1.08, 95% CI 1.03 to 1.13) after adjusting for age, sex, social-economic status, shift work, lifestyle factors and body mass index. However, the association disappeared after further adjustment for PM(2.5) and evening noise, with HRs (95% CIs) of 1.02 (0.97 to 1.07), 1.01 (0.97 to 1.06) and 1.03 (0.97 to 1.08), respectively, for the participants exposed to the second, third and fourth quartiles of LAN. No significant associations were observed between LAN and CVD mortality, either. CONCLUSIONS: We did not observe significant associations of LAN with NC and CVD mortality in this large nationwide cohort. The health effects of LAN remain unclear. Further studies are warranted to address this public health concern.

Lien vers l'article

Shift schedule effects on firefighter health and fitness.

Garrett LR, Harveson AT, Ayars C. *Work*. 2023 Dec 18.

BACKGROUND: Firefighter health is of utmost importance both to first responders and the individuals they serve daily. The impact of shift schedule on firefighter health remains poorly understood. OBJECTIVE: The purpose of this study was to examine differences in health and performance outcomes in firefighters across two different shift schedules. METHODS: Firefighter (N = 1995) body composition, muscular strength, endurance, flexibility, and cardiorespiratory endurance were assessed and described. A Mann-Whitney U test was conducted to compare differences between shift schedules (48/96 and 4's and 6's). RESULTS: There was a statistically significant difference in BMI (U = 70115, z=-1.988, p = .047), BF% (U = 67341, z=-2.779, p = .005), and trunk flexion score (U = 81362, z = 1.979, p = .048) favoring the 48/96 shift schedule. CONCLUSION: Firefighters following a 48/96 shift schedule exhibited improved body composition and fitness performance in comparison to peers who followed a 4's and 6's shift schedule. Findings may guide regional firefighter scheduling to optimize health and performance.

Lien vers l'article