

## The importance of nutrition in physician performance and well-being

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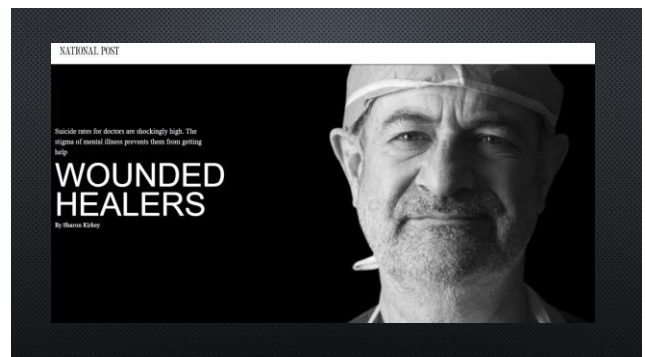
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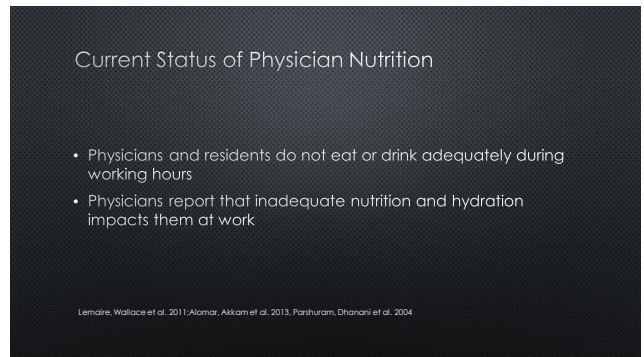
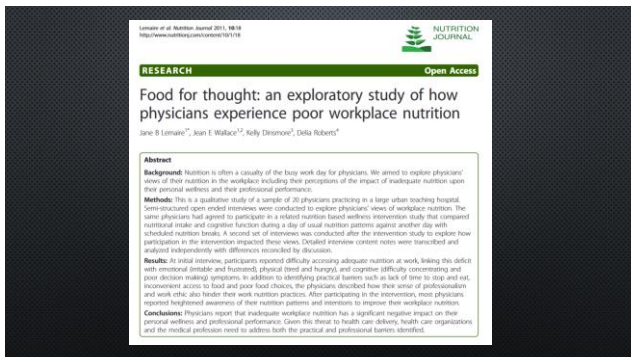
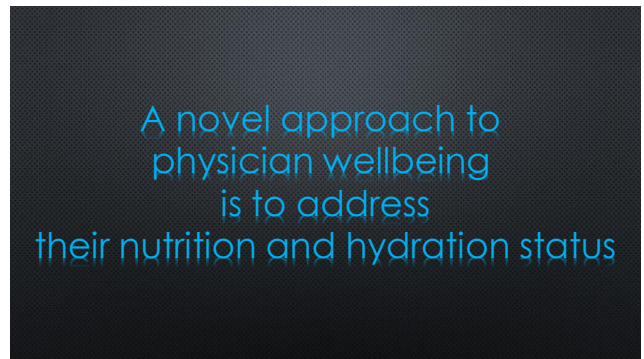
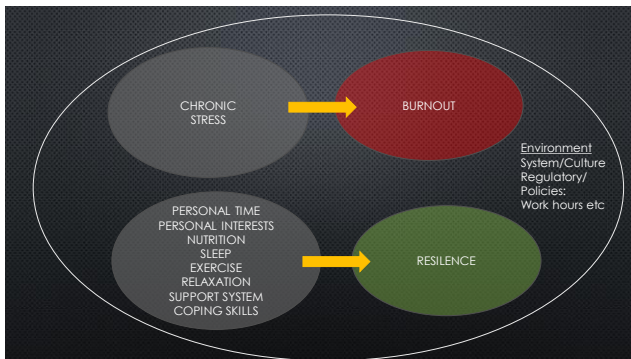
## Conflicts of Interest

None to declare

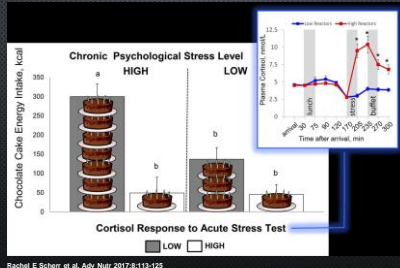
## Agenda

- Current status of physician well-being and physician nutrition
- Barriers to healthy eating by physicians in training and practice
- Recognition of the importance of proper nutrition in the wellness of physicians
- Some dietary tips to improve work performance





Higher chronic stress exposure, as measured by the Wheaton Chronic Stress Questionnaire, and stress-induced cortisol hyporesponsiveness as associated with greater consumption of highly palatable food (e.g., chocolate cake) from a voluntary snack food buffet.

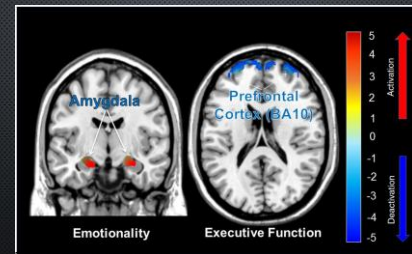


Rachael E. Schrier et al. *Adv. Nutr.* 2017;8:113-125

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Advances in Nutrition

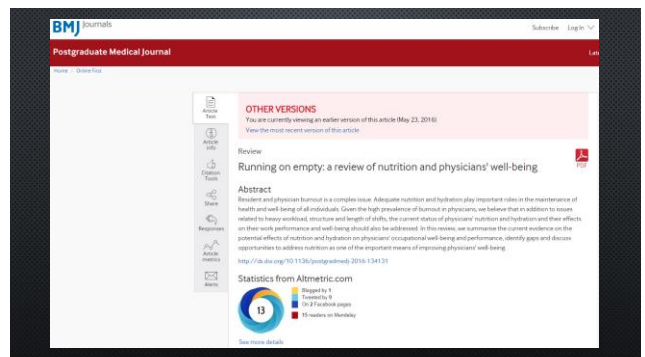
In response to viewing pictures of high-calorie foods, compared with low-calorie foods and nonfood control images, women with more chronic stress and hypocortisolemia showed enhanced activation in brain regions linked to emotionality (e.g., amygdala) and deactivation in executive brain regions (e.g., Brodmann's area 10, BA10, Brodmann's area 10). Adapted from reference 28 with permission.



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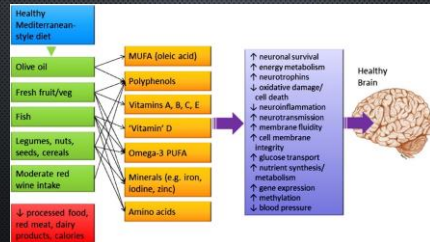
## Barriers to Healthy Eating by Physicians

- Lack of nutrition breaks
- A sense of duty to put clinical work ahead of their own well-being
- Limited access to healthy food options at workplaces, food storage areas or areas to eat food





## Dietary Factors Impact Cognitive Performance & Brain Health



Overview of links between Mediterranean-style diet and healthy brain function via plant compounds/nutrients. (Palfetta, Kille et al. 2013)

Levine et al. *BMC Health Services Research* 2010, 10:241  
http://www.biomedcentral.com/1471-2466/10/241

BMC Health Services Research

RESEARCH ARTICLE Open Access

### Physician nutrition and cognition during work hours: effect of a nutrition based intervention

Jane B Levine<sup>1\*</sup>, Jean E Wallace<sup>2</sup>, Kelly Dismore<sup>3</sup>, Adriane M Lewin<sup>4</sup>, William A Ghali<sup>5</sup>, Della Roberts<sup>6</sup>

**Abstract**

**Background:** Physicians are often unable to eat and drink properly during their work day. Nutrition has been linked to cognition. We aimed to examine the effect of a nutrition based intervention, that of scheduled nutrition breaks during the work day, upon physician cognition, glucose, and hypoglycemic symptoms.

**Methods:** A volunteer sample of twenty staff physicians from a large urban teaching hospital were recruited from the doctors' lounge. During both the baseline and the intervention day, we measured subjects' cognitive function, capillary blood glucose, "hypoglycemic" nutrition-related symptoms, fluid and nutrient intake, level of physical activity, weight, and urinary output.

**Results:** **Cognition scores as measured by a composite score of speed and accuracy (Task number seven, speed)** on the intervention day on simple (220 vs. 209,  $p = 0.01$ ) and complex (52 vs. 85,  $p < 0.001$ ) reaction time tests. Group mean glucose was 93 mmol/L, lower ( $p = 0.03$ ) and less variable (coefficient of variation 12.2% vs. 18.0%) on the intervention day. Although not statistically significant, there was also a trend toward the reporting of fewer hypoglycemic type symptoms. There was higher nutrient intake on intervention versus baseline days as measured by mean caloric intake (1345 vs. 955 kilocalories,  $p = 0.006$ ), and improved hydration as measured by mean change in body mass (+352 vs. -364 grams,  $p < 0.001$ ).

**Conclusions:** Our study provides **evidence in support of adequate hydration/nutrition as a contributable to improved physician cognition**, adding to the body of research suggesting that physician wellness may ultimately benefit not only the physicians themselves but also their patients and the health care systems in which they work.

## Nutrition and Short-term Cognitive Performance

- Hydration
- Meal timing
- Meal composition
- Meal size
- Strategic use of caffeine

## Hydration

### Signs of mild dehydration

- Impaired vigilance, short-term memory, concentration & decision making
- Increased perception of task difficulty
- Increased frequency of errors during a prolonged, monotonous driving task (Watson, Whale et al. 2015)
- Lowered self-reported alertness and ability to concentrate
- Sleepiness, tiredness
- Dizziness, light headedness, headache



## Hydration

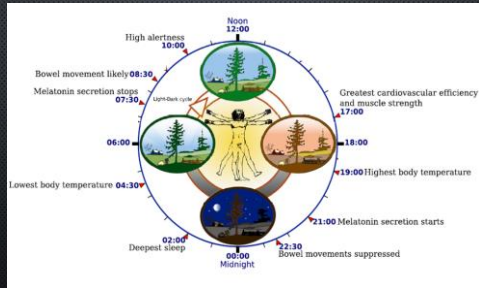
- Among doctors and nurses dehydration was associated with small impairments in short-term functional working memory
- Drinking Recommended Daily Levels of water improves:
  - Visual and working memory
  - Executive function
  - Perceived energy levels.
  - Memory
  - Focused attention



El-Sharkawy, Bragg et al. 2016; Stachenfeld, Leone et al. 2018; Benton, Jenkins et al. 2016



National athletic trainers' association position statement: fluid replacement for athletes. *J Athl Train.* 2000 Apr;35(2):212-24.



## Meal Timing

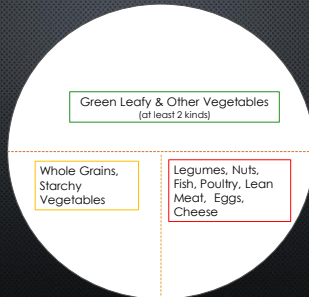
### When working 2 to 6 am

- Avoid meals
- Keep hydrated
- Drink tea/coffee
- Chewing gum

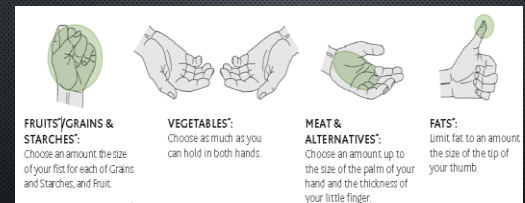
### When sitting & working 2 to 6 pm

- Light snacks (protein+ carbs)
- Keep hydrated
- Drink tea/coffee
- Chewing gum

## Ideal Plate/Meal Composition



## Portions Sizes



\*The Canadian Diabetes Association

Let's discuss which meal is more likely to keep you awake and alert:

- Grilled salmon salad: Green salad, grilled salmon, oil & vinegar dressing
- Lentil soup: Lentils, olive oil, lemon juice, salt, spices & herbs
- Chicken sandwich: Bread, grilled chicken breast, tomatoes, lettuce, avocado, mustard
- Hummus and baby carrots

## Caffeine

- Effective dose : 40- 400 mg



- 15-30 min to enter the blood stream
- Effects peak about 75-90 min after ingestion & last about 3-6 hrs
- Optimal time
  - Before a nap (Caf-Nap)
  - Waking up before 5 am
  - After lunch

## Summary

- Physician burnout is at a historical high, and physician wellness is an important topic
- Many physicians do not get adequate hydration and nutrition at work
- The main barriers are:
  - Lack of time for nutrition and hydration breaks
  - Limited access to drinking water and healthy food options
  - A medical culture that deemphasizes self-care
- Interventions at the individual, professional, and organizational levels are needed to improve physicians' nutrition

## Thank you

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**FIGURE 1** The Social Ecological Model provides a framework for considering what and how to evaluate the impact of a community-based nutrition intervention. Adapted from reference 1 with permission.

Centers for Disease Control and Prevention, Division of Cancer Prevention and Control, Social Ecological Model for the Colorectal Cancer Control Program, 2015. Available from: <http://www.cdc.gov/colorectalcccp/summaries>