

## Fueling for Finals

Sheila Tucker, MA, RD, CSSD, LDN

When exam time rolls around, remember to feed your mind. The brain consumes a proportionately higher amount of energy for its size compared with all the other organs in the body (Peters et al, 2004). The brain's fuel of choice is glucose, which is most efficiently derived from carbohydrate-containing foods. Maintenance of a steady supply of energy to the brain is not only crucial for survival, it has been shown to positively affect cognitive tests of working memory (Nilsson, Radeborg, & Bjorck, 2007). Studies on children have long demonstrated that academic performance is improved when breakfast is consumed rather than skipped. Specifically, memory and test grades benefit (Rampersaud et al, 2005). Breakfasts that contain high fiber carbohydrates (like oatmeal or whole-grain cereal) versus sugary types (like kiddy cereals) may have further benefit because they sustain blood glucose levels over a longer time contrasted with the quick rise and fall seen with the sugary version (Mahoney et al, 2005).

So, what is the take-away message here? Feed your mind, feed it often, and feed it well.

- Have regular meals and snacks to keep both your body and brain fueled. The brain does not have a large capacity to store energy; be sure to eat every three to four hours to keep up blood glucose levels.
- Consume complex carbohydrates, like fruits, vegetables, whole grain breads and cereals, and beans to help sustain blood glucose to the brain. Milk and yogurt have carbohydrates, too.
- Try to not depend on caffeine for “energy”. Too much caffeine can cause headaches, insomnia, anxiety, and overstimulate the central nervous system. Plus, it is not a source of real energy.
- Stay hydrated. A body water deficit as little as 2% can impair cognitive function, attention, and arithmetic efficiency (IOM, 2004).

Institute of Medicine (IOM) Food and Nutrition Board (2004). *Dietary reference intakes for water, potassium, sodium, chloride and sulfate*. Washington, DC: National Academy Press.

Mahoney, C.R., Taylor, H.A., Kanarek, R.B., Samuel, P. (2005). Effect of breakfast consumption on cognitive processes in elementary school children. *Physiology & Behavior*, 85, 635-645.

Nilsson, A., Radeborg, K., Bjorck, I. (2007). Effects of differences in postprandial glycaemia on cognitive function in healthy middle-aged subjects. *European Journal of Clinical Nutrition*, advanced on-line publication, doi:10.1038/sj.ejcn.1602900.

Peters, A., Schweiger, U., Pellerin, L., Hubold, C., Oltmanns, K., Conrad, M., et al. (2004). The selfish brain: Competition for energy resources. *Neuroscience and Behavioral Reviews*, 28, 143-180.

Rampersaud, G., Pereira, M., Girard, B., Adams, J., Metz, J. (2005). Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *Journal of the American Dietetic Association*, 105, 743-760.