

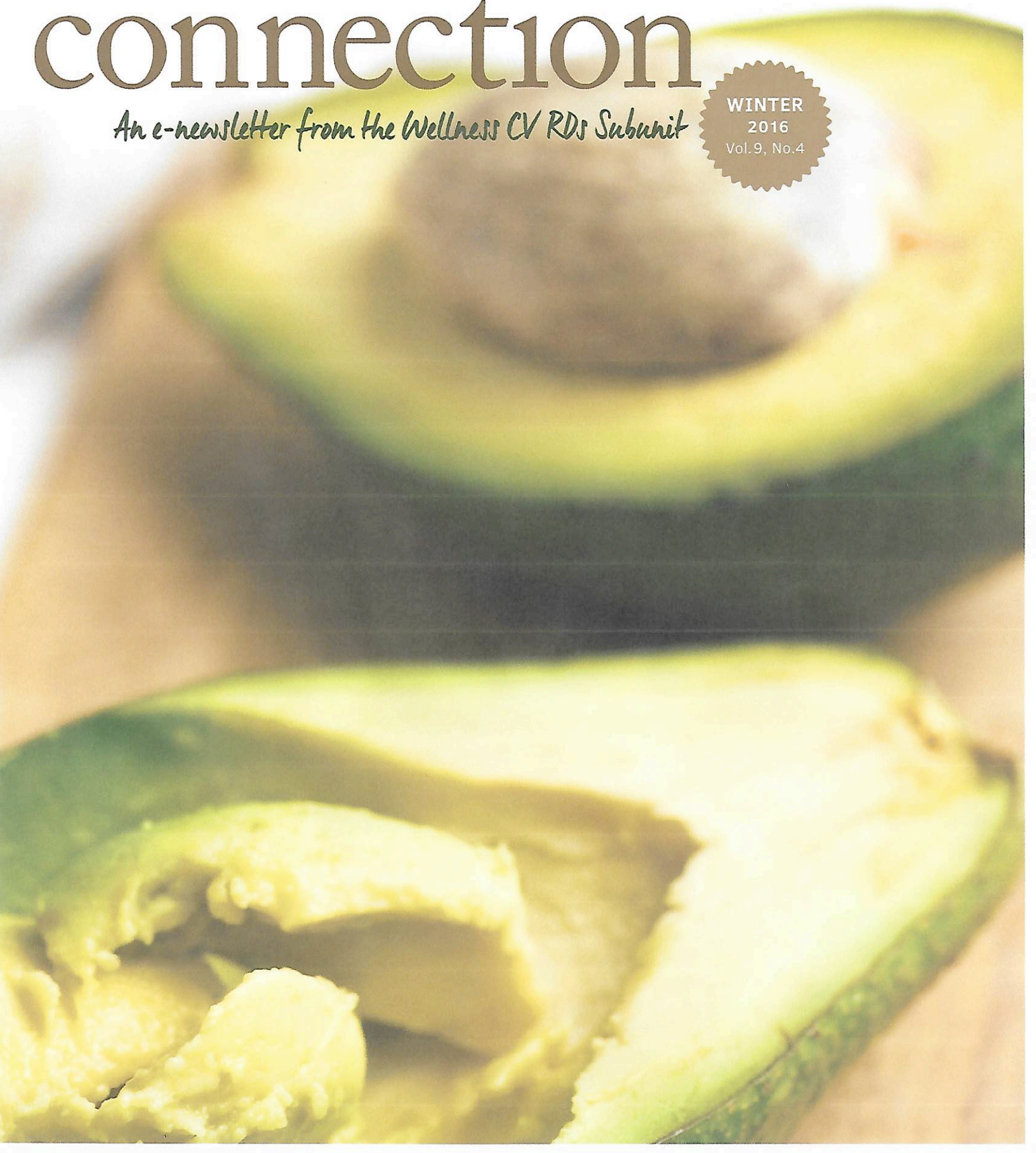
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The Hunger Game and Ghrelin

by Elizabeth Goldstein MS, RDN, CDN

"I never feel hungry. I don't eat a lot. Why can't I lose weight?" Many dietitians respond to this question multiple times a day. While the answer is multifactorial, one component is the orexigenic gut hormone ghrelin. This 28-amino acid peptide made mostly in the stomach binds to growth hormone and is part of a complicated, and not yet fully understood, system of internal and external factors that regulate our appetite.¹⁻⁶ Working with clients based on the complexity this hunger-stimulating hormone presents may enable them to feel more in charge of their hunger.

GHRELIN AND MEAL SIZE

Ghrelin levels rise before meals and decline after. This occurs approximately every 4 hours.⁷ Food deprivation releases the hunger hormone and increases one's capacity to eat more before feeling full.⁸ Overweight individuals may also have impaired postprandial responses to ghrelin, which can lead to larger meal size.^{3,5} Interestingly, weight loss associated with food deprivation⁸ (eg, dieting) or exercise in the absence of food deprivation can also cause an increase in ghrelin.³

GHRELIN AND NUTRITION

Ghrelin increases the rate at which nutrients pass through the body.⁸ Protein is associated with the largest decrease in postprandial ghrelin levels, with whey, specifically, being shown to produce the greatest satiety.⁴ In regard to whole food sources, ricotta cheese has the highest concentration of whey (approximately 28 grams/cup). However, the impact of other protein sources—yogurt, eggs, chicken, lean meats, and pulses—should not be discounted.²⁻⁴

Carbohydrates and fats also play a pivotal role in ghrelin's response, with carbohydrates having the greater impact.²⁻⁵ Whole grains containing fiber, such as brown rice, oatmeal, and whole wheat bread, slow gastric emptying and help to increase satiety.^{2,3,9} It is almost always important to emphasize a diet lower in total fat, but consumption of healthy fats, eg, avocado, almonds, flaxseed, salmon, and olive oil, should still be encouraged because of the role they play in the ghrelin-satiety connection.

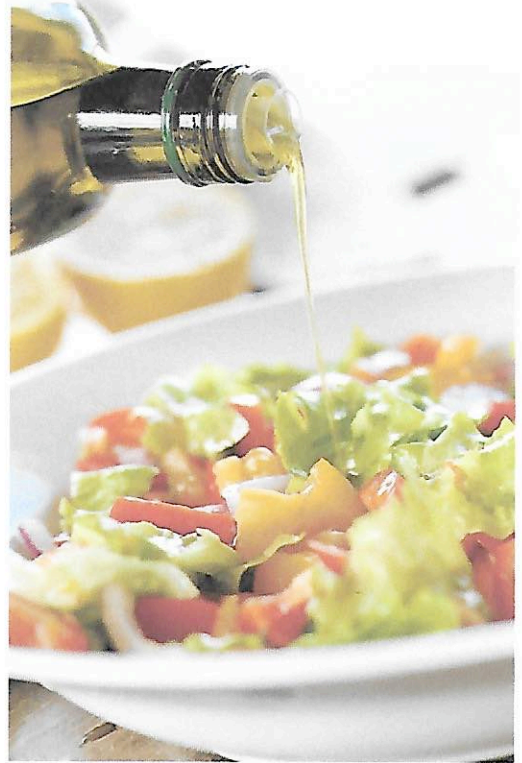
OTHER PLAYERS IN THE GAME

Ghrelin levels and satiety can be influenced just by what individuals think they ate.¹⁰ Similarly, visual cues may cause ghrelin to signal the hippocampus to increase food intake.¹¹ Sleep loss has also been linked to an increase in appetite and may increase ghrelin.⁶ Dietitians should recommend adequate sleep, anywhere from 7 to 9 hours for adults per the National Sleep Foundation, to their clients.¹² Also, help them recognize their visual and psychological cues, such as food advertisements, a candy jar on a desk, or the satisfaction level associated with a particular food.^{10,11} Emphasize meal patterns that are consistent without being rigid, and have clients record information on a food log that incorporates time, hunger scales, and amounts consumed.

Hunger is physiological, with the hormone ghrelin being one component of the process. What we eat, see, perceive, and feel all play a role in the regulation of ghrelin and, in turn, hunger. Working with clients to practice a mindful approach to eating, while tailoring a plan that recognizes the complexity of ghrelin along with its personal impact on each individual, is a great step toward their empowerment.

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