How multiple factors affect children's appetite and food intake

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Scientist Nick Bellissimo and students in Ryerson's Food Intake Regulation and Satiety Testing (FIRST) lab, the only centre of its kind in Canada dedicated exclusively to this area of research among children.

During Thanksgiving, a veritable festival of food, many Canadians will overindulge at the dinner table. But at other times, our food choices seem to be governed by several rules. Some are classics – eat five to 10 servings of vegetables and fruit a day. And some are new – drink chocolate milk after a hard workout in the gym. But are those rules one-size-fits-all for the entire population? For example, should all children,

regardless of their weight and size, follow the same nutrition guidelines?

Those are some of the questions that scientist Nick Bellissimo is studying in his Food Intake Regulation and Satiety Testing (FIRST) lab, the only centre of its kind in Canada dedicated exclusively to this area of research among children. Assisted by a team of undergraduate and graduate research assistants, and several research associates, the nutrition professor is exploring how commercially available foods, hormones, exercise and environmental factors all combine to affect children's appetite and food intake. His goal: to provide dietitians and parents with evidence-based advice about the food children should eat, the types of exercise they need to perform and the environmental factors that should be considered in order to prevent and manage overeating in kids.

"With childhood obesity, we have to adopt an integrated approach because the issue is so complex," says Bellissimo. "There are a variety of factors that interact to contribute to energy balance, but what we don't know much about are the physiologic underpinnings of energy imbalances and why some are more susceptible to weight gain than others."

With funding from Ryerson, the Canadian Institutes of Health Research, the Dairy Farmers of Canada, the Danone Institute of Canada and the agri-food industry, Bellissimo has conducted numerous clinical trials involving food and exercise. For instance, does dairy protein regulate appetite and blood sugar in children? Or should kids be allowed to play exergames, video games that incorporate fitness, before mealtime? And if so, does it matter if a child has a normal body weight or is obese?

Those studies are conducted using the FIRST lab's high-tech equipment and facilities. Along with body composition testing equipment, a treadmill and an automated metabolic gas analysis system, the lab features a blood collection station and has access to an experimental test

kitchen and six cubicles, each with its own serving window for food intake assessments.

On that note, Bellissimo's team has analyzed the impact of sugary drinks and whether or not they contribute to overeating and obesity. Surprisingly, cola and chocolate milk were found to have a powerful effect on appetite suppression. That is, kids who consumed these high-sugar beverages reduced their food intake at the next meal by the caloric equivalent of the beverages.

"It challenges the notion that these drinks drive up appetite and cause kids to overeat," says Bellissimo. And while he admits it may be challenging for some to accept that sugar can be consumed as part of a healthy diet, he hopes this work will support health-care practitioners and parents in their decision-making around kids' diets.

"Parents are always thinking, 'What should I feed my kids? Is it OK if I give my kid a soda? Should I limit their screen time?' At FIRST lab, we can answer those questions in a controlled setting and share it with knowledge users," says Bellissimo.

Provided by Ryerson University

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