Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Accuracy of a Gluten-Free Dietary Assessment: An Examination of Food Frequency Questionnaire Responses in Those with Celiac Disease

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Learning Outcome: Understand the challenges of utilizing a food frequency questionnaire to assess nutrient intake in those following a gluten-free diet.

Background: Celiac disease (CD) is an autoimmune disease that affects 1% of the U.S population and requires a lifelong gluten-free diet (GFD). The GFD has been found to contain less protein, fiber, B vitamins, iron, and folate compared to gluten-containing diets which is concerning for nutritional inadequacy. Food frequency questionnaires (FFQs) are used by Registered Dietitian Nutritionists (RDNs) as reliable dietary assessment tools. With many FFQs lacking questions defining gluten content of foods, it is unknown how those with CD respond to FFQ questions.

Methods: An in-depth, case series in a CD cohort (N=6) following a GFD was used to explore responses to FFQ questions. An online, pictorial FFQ was administered to collect dietary patterns, micronutrient consumption, and grain intake. The electronic medical record was used to assess each participant's celiac-specific serologies and endoscopies to confirm diagnosis, remission status, and compliance with a GFD.

Results: All participants reported consumption of gluten-containing foods on the FFQ despite confirmation of remission in 67% of participants. Data shows participants consumed an excess of fat and suboptimal proteins and carbohydrates. Without the use of supplementation, participants consumed below the DRI for folate, vitamin D and iron.

Conclusion: Dietary patterns assessed by a FFQ without GF foods may inaccurately support a nutritionally inadequate diet in those with CD. RDNs must use caution when interpreting FFQ data that lacks assessment of a GFD. With an increase in consumption of GF foods by the general population, this has significant implications beyond those with CD.

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COVID-19 Pandemic-related Changes in Weight, Health Behaviors, and Professional Practice: A Study of Dietitians

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Learning Outcome: Describe how the COVID-19 Pandemic-impacted weight, health behaviors, and professional practice of RDNs.

Background: The COVID-19 pandemic remains an unprecedented health crisis requiring many RDNs to expand their duties and services, while other RDNs faced unemployment, reduced hours, and changes to their work environment. We evaluated how COVID-19 impacted RDNs' weight and eating behaviors, the relationship between psychological factors and weight change, and whether professional training as an RDN was perceived as a protective factor in maintaining healthy habits.

Methods: A 57-item cross-sectional online survey distributed among RDNs residing in the U.S. captured health behaviors and tools to measure anxiety (General Anxiety Disorder-7) and insomnia (Insomnia Severity Index). Adjusting for the effects of age, ANCOVA was used to determine differences in anxiety or insomnia symptoms in those who lost, gained, or remained weight neutral.

Results: 477 RDNs (96% female, 94% white) completed the questionnaire. 68.5% of RDNs reported no weight change, 21.4% reported weight gain greater than 5 pounds, and 10.3% reported weight loss greater than 5 pounds. There were no statistically significant differences between anxiety, insomnia, and weight change. Although 360 (75.5%) reported their RDN professional training equipped them with the skills needed to maintain healthy eating behaviors, an additional 17.6% reported that circumstances made it difficult to put these skills into practice consistently.

Conclusion: These findings suggest that the professional practice skills of the RDN may have conferred some personal health benefits, as evidenced by smaller weight gains experienced by RDNs relative to the general population and other health professionals, thereby limiting the impact of pandemic-induced work and life disruptions.

Funding source: None

Comparison of Dietary Intake and Physical Activity of Young Adult College Students Enrolled in Introductory Nutrition Before and During COVID-19

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Learning Outcome: Describe how young adult college students' dietary intake and physical activity differed before and during the COVID-19 pandemic by a 3-day dietary record.

COVID-19 has affected lifestyles, especially for young adult college students. Food shortages, food price increases, and university dining facilities closures make diet a concern. Thus, 3-day diet records, weight maintenance desires, and physical activity of college students (18-26y) enrolled in introductory nutrition Before-COVID (n=102; 70% female) were compared to those enrolled During-COVID (n=66; 77% female). Both groups had healthy BMIs (mean=23.69±4.11SD); however, more During-COVID students wanted to lose weight (15% vs 8%) and had low physical activity (41% vs 26%) than comparators. Groups consumed >150%DRI for protein. Overall, 86%, 18%, 45%, 54%, and 63% met carbohydrate (>130g/d), sugar (<10% total kcal), total fat (>20%-<35% kcal), saturated fat (<10% kcal), and cholesterol (300mg/d) recommendations, respectively. Independent-samples t-tests found significant ($p<0.05$) differences in %kcal consumed by Before- vs During-COVID groups for protein (19.63+5.23SD vs 17.95+5.42SD), carbohydrate (47.75+8.18SD vs 50.85+8.92SD), and sugar (15.32+6.27SD vs 17.29+6.40SD). During-COVID group met significantly less of estimated kcal need (80% vs 90%) than comparators. No vitamin (A,B6,B12,C,D,E, thiamin, riboflavin, niacin, folate) intakes differed except B12 with During-COVID students getting 92%DRI vs 132%DRI for comparators. Mineral (calcium, iron, magnesium, phosphorus) intakes were similar, however During-COVID (2314g+980gSD) students got significantly less sodium than Before-COVID (2566g+873gSD) group. Sodium declines translated into 55% of During-COVID students meeting Dietary Guidelines goal (<2300mg/d) vs 45% comparators. Sodium declines are positive, possibly reflecting more homemade meals. Macronutrient distribution shifts (less protein/more carbohydrate) and B12 decline signal areas to monitor as COVID persists. Future pandemic planning should increase physical activity opportunities and address macronutrient intake.

Funding source: None

Critically Ill COVID-19 Patients: Timing to Reach Energy and Protein Targets

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Learning Outcome: Recognize time needed to achieve nutrition goals in critically ill COVID-19 patients

Background: Enteral Nutrition (EN) in critically ill COVID-19 patients is challenging due to preexisting diseases, gastrointestinal intolerances, prone positioning, staff exposure. Recommendation is to start EN within 24–36 hours of intensive care unit (ICU) admission. Our objective was to determine time needed to achieve calorie and protein goal prescriptions in this population.

Methods: Prospective observational study of COVID-19 adults on mechanical ventilation (MV) receiving exclusive EN in an ICU in Buenos Aires, Argentina, between May-September 2020. Nutrition goals were determined and hospital records reviewed.

Results: 41 patients were included; 65.8% were males. Mean age was 65 (SD ± 13.79). Mean Body Max Index (BMI) was 30.72 (SD ± 5,87); 26% were overweight and 46% obese. Median MV days and ICU days were 13 and 20, respectively (interquartile range 9-30,12-32). EN initiation from intubation was 1 day (interquartile range 1-2). 51.22% subjects achieved their prescribed calorie goal within 3 days of MV; 34.15% between day 3-7; 4.88% after day 7 and 9.76% never met calorie goal. Protein prescription goal was achieved within 3 days of MV in 34.15%; between day 3-7 in 34.15%; after day 7 in 19.51% and 12.2% never met their protein goal. 32% of patients did not reach both protein and calorie goals by day 7 of MV. Diarrhea was present in 17.07% patients, emesis in 14.63% and 2.44% had both. ICU mortality was 41.46%.

Conclusions: Most COVID-19 patients admitted to the ICU were overweight. Protein prescription goals took longer to achieve than calorie goals in these patients.

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