Original Article

Diet quality of Japanese preschool children assessed by the Healthy Eating Index-2020: Nutrient and food group intake, as well as weekday–weekend differences

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Background and Objectives: In Japan, there are no official dietary guidelines for young children and nutrients may be insufficient on weekends, compared to weekdays at nursery schools. To ensure adequate nutrition, an appropriate dietary evaluation method is required. This study used the Healthy Eating Index (HEI)-2020, which is based on the Dietary Guidelines for Americans, to evaluate the diet quality of Japanese children, examine its validity through associations with nutrient and food group intake, and compare dietary characteristics on weekdays and weekends. **Methods and Study Design:** The participants were 669 children aged 3 to 5 years attending nursery schools across Japan. Relationships of HEI-2020 scores with nutrient and food group intake, and comparisons between weekdays and weekends were evaluated. **Results:** The median HEI-2020 score was 50/100, with almost maximum scores for Total Protein Foods, Seafood and Plant Proteins, and Added Sugars, while Whole Grains and Refined Grains scored zero. Additionally, the largest score differences between weekdays and weekends were found in Dairy and Greens and Beans. Higher HEI-2020 scores correlated with lower saturated fatty acids intake and higher intakes of dietary fiber, vitamins, and minerals. Weekday scores were significantly higher and less varied than weekend scores. **Conclusions:** HEI-2020 can identify nutrient intake challenges in Japanese children. Greater consumption of Dairy and Greens and Beans—components that showed large weekday–weekend differences—may improve diet quality.

Key Words: child nutrition, diet quality, dietary evaluation, weekdays vs weekends, nutrient profiling system

INTRODUCTION

It is estimated that about 181 million children under 5 years of age worldwide, equivalent to one in four, are in a state of severe food poverty.[1, 2] In contrast, the prevalence of overweight children has increased to 5.6% globally, raising concerns about imbalanced nutrient intake and rising childhood obesity during a critical period of growth and development, with potential lifelong health impacts.[3, 4] In Japan, the prevalence of overweight exceeds 10%

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among male children aged 9 years and older. Additionally, children from low-income households have higher rates of skipping breakfast and lower frequencies of vegetable intake than those from higher-income households, mirroring the global issues of unbalanced nutrient intake in children.[5–7]

The proportion of infants and young children (ages 0–6 years) in Japan attending nursery schools has been increasing annually, and it currently exceeds 50%.[8] As the time spent at nursery increases,[9] nursery schools have become an important living environment alongside the home, and the meals provided at nursery schools play a major role in physical and mental growth and development. Nursery schools in Japan are required to formulate meal plans (menu plans) that set targets for appropriate energy and nutrient amounts (provision criteria) tailored to children's characteristics, with reference to the Dietary Reference Intakes for Japanese (DRIs).[10, 11] However, as noted in the DRIs, there are limited studies on children that are useful in formulating the DRIs, and very few studies have examined energy and nutrient intakes over multiple days in young children, leaving insufficient scientific evidence for appropriate diet and nutrition management.[12] Furthermore, although there are dietary provision guidelines for child welfare facilities including nursery schools, there are no established dietary guidelines targeting young children at home in Japan. In practice, it has been shown that intakes of nutrients such as calcium and vitamins tend to be insufficient on weekends at home than on weekdays at nursery school.[7, 13, 14] Taken together, these issues highlight the need for a tool that can quantitatively assess the overall diet quality of young children in Japan.

In many countries, methods for evaluating diet quality have been developed to assess alignment with dietary guidelines. These methods determine whether the necessary foods and nutrients are included in the diet in appropriate amounts and are useful for guiding food choices. In Japan, the Japanese Food Guide Spinning Top (JFGST) is utilized; however, this guide is based on dishes and does not take into account quantities of nutrients such as salt and fat and does not target children under 5 years old.[15] Although the applicability of the JFGST score to children has been explored, its lack of association with one-year growth changes suggests that it may be insufficient as a diet quality measure for young children.[16] Previous research in Japan has suggested a more favorable nutritional status on weekdays than on weekends among children attending nursery schools, but the overall characteristics of weekday and weekend diets have not been clarified. Therefore, a comprehensive diet quality evaluation method is needed to support more effective diet and nutrition management for young children.

The Healthy Eating Index (HEI)-2020 is a comprehensive measure for evaluating overall diet quality developed from the Dietary Guidelines for Americans.[17, 18] It is intended for individuals aged 2 years and older and is used in many countries as a diet quality index.[19–21] The HEI-2020 scores a diet based on intakes of foods and nutrients, allowing a simple grasp of diet quality. These scores have been shown to be associated with a reduced risk of noncommunicable diseases, and evaluations using HEI-2020 have been conducted in Japanese adults.[22, 23] However, to date, there have been no studies using HEI-2020 to evaluate the diets of Japanese children. Therefore, this study aimed (1) to evaluate diet quality among Japanese preschool children using the HEI-2020, (2) to assess the validity of the index in this population by examining its associations with nutrient and food group intake, and (3) to compare diet quality between weekdays and weekends. To our knowledge, this is the first study to apply and validate the HEI-2020 in a Japanese preschool population.

METHODS

Survey period and participants

The survey was conducted on 4 non-consecutive days (2 weekdays and 2 weekend days) between October and December in 2019 or 2020, depending on the facility, using a weighed food record method. We approached the guardians of 2,703 preschool children enrolled in 3- to 5-year-old classes at 40 nursery schools in the cities of Sapporo, Sendai, Kawasaki, Hamamatsu, Akashi, Matsuyama, and Kumamoto. Consent was obtained for 850 participants. After excluding 108 children who had turned 6 years old, 49 who did not complete the 4-day survey, and 24 without anthropometric data, 669 children (367 male and 302 female) were included in the analysis. The participating facilities and sample sizes by city were as follows: Sapporo (7 facilities; 24 male, 22 female), Sendai (7; 56, 41), Kawasaki (5; 67, 52), Hamamatsu (7; 33, 51), Akashi (4; 88, 58), Matsuyama (4; 63, 32), and Kumamoto (6; 36, 46). We defined “weekdays” as days on which the child ate lunch at the nursery school and “weekends” as all other days. For instance, a weekday on which the child stayed home and did not eat nursery-provided lunch (e.g., a Tuesday at home) was categorized as a “weekend” day.

Dietary survey and eating habits questionnaire

Recording intake of lunches and snacks provided at nursery schools

For lunches and snacks provided at the nursery school, registered dietitians planned and prepared the menus in advance and, in consultation with nursery teachers, confirmed the percentage of each meal component (main dish, side dish, staples, soup, etc.) that the child consumed; the nursery teachers recorded these proportions. Identical recording sheets and an instruction manual were distributed to all facilities beforehand, and the procedures were explained to the staff to standardize recording and minimize inter-recorder variability. Each child’s food intake was calculated from the planned menus for the lunches and snacks actually provided and the recorded consumption proportions. Specifically, assuming the planned serving amount is 100%, we estimated the amount of each food consumed by multiplying the planned amount by the proportion eaten (e.g., 0.9 for 90% or 1.5 for 150%).

Recording intake of meals provided at home (outside the nursery)

For meals outside the nursery, parents were asked to weigh foods and record details on the provided recording sheets. Prior to the survey, 4 recording sheets (one per day) and an instruction sheet illustrating how to record diet were distributed. The recording sheets had designated sections for breakfast, dinner, and snacks on weekdays,

and for breakfast, lunch, dinner, and snacks on weekends. If it was difficult to weigh portions due to dining out or consuming take-out foods, we requested that parents record approximate portion sizes, attach packaging labels, or note the vendor, menu item, and estimated intake, to provide as much detail as possible. Registered dietitians reviewed the completed food records, and if any details were unclear, they contacted the parents to clarify and, if necessary, correct the records.

Physical condition survey

A questionnaire on the child's physical condition (e.g., health status) was distributed with the dietary survey. After collection, if data were incomplete, parents were contacted for clarification, as for the dietary survey.

Physical measurements at the time of the survey

Each nursery school was asked to provide the results of its regular measurements of the children. Height and weight measurements from each facility closest to the first survey day (within about one month) were used. Body mass index (BMI) was calculated from height and weight, and BMI z-scores were calculated using the Body mass index calculator (ver. 3.3) of the Japanese Society for Pediatric Endocrinology.[24] This BMI z-score calculation uses age- and sex-specific standard deviations and is based on standard values for body indices of Japanese children.

Calculation of energy and nutrient intakes and estimation of habitual intake distribution

Energy and nutrient intakes were calculated using nutrition calculation software (Shokujishirabe, National Institute of Health and Nutrition, Japan).[25] This software includes foods listed in the Standard Tables of Food Composition in Japan 2015 (Seventh Revised Edition) and condiments, processed foods, etc., not listed in the tables; therefore, it can account for nutrient changes due to cooking by inputting cooking codes, which enables more precise calculation of energy and nutrient intake.[26] The Program for Nutrient Intake Distribution Estimation from Dietary Survey Data ver. 1.2 (National Institute of Public Health, Japan) was used to estimate the distribution of each child's habitual energy and nutrient intakes. This program applies a power transformation method to approximate a normal distribution and was used to estimate the mean and selected percentiles (25th, 50th, 75th) of habitual intake.[27]

Evaluation of Diet Quality Using the Healthy Eating Index-2020

Diets were evaluated using the HEI-2020, which was developed based on the U.S. Dietary Guidelines.[17, 18] The HEI-2020 has 13 components, including nine adequacy components related to promoting health and four moderation components requiring moderation for health. The adequacy components are: Total Fruits (maximum 5 points), Whole Fruits (5 points), Total Vegetables (5 points), Greens and Beans (5 points), Whole Grains (10 points), Dairy (10 points), Total Protein Foods (5 points), Seafood and Plant Proteins (5 points), and Fatty Acids (ratio of unsaturated to saturated fatty acids, 10 points). The moderation components are: Refined Grains (10 points), Sodium (10 points), Added Sugars (10 points), and Saturated Fats (10 points). Each component is scored from 0 up to its maximum (5 or 10 points), such that the total maximum score is 100. Scores between the minimum (0) and maximum are assigned in proportion to the energy intake for each component. Because there is no comprehensive database for added sugars in Japan, we developed one for this study following the method of Fujiwara et al.[28] In their approach, added sugar contents were assigned stepwise based on food categories, ingredient information, and available data sources. For other food items, added sugars were estimated using the ingredient composition ratios listed in the Standard Tables of Food Composition in Japan, ingredient lists, or foreign food composition databases. In total, 1,282 food items recorded in the dietary survey were included in constructing this added sugars database.

In this study, all ingredients used in each dish and their weights were individually recorded and verified by registered dietitians, as described in Section 2 (Dietary Survey and Eating Habits Questionnaire). Each food item was then classified into the corresponding HEI-2020 component, and the weights were summed to calculate the total HEI-2020 score. The HEI-2020 scoring system is based on cup or ounce equivalents of foods. Since these equivalent units are not defined for Japanese foods, definitions from the U.S. Food Patterns Equivalents Database (FPED) and previous research were used: 1 cup was set as 236.59 g, and 1 ounce as 28.35g.[29, 30] Except for Fatty Acids, all component scores were calculated based on amounts per 1,000 kcal (or percentage of total energy intake for Added Sugars and Saturated Fats). Details of the HEI-2020 scoring system, including the intake amounts required for minimum and maximum score and the corresponding gram equivalents converted from the standard cup/ounce equivalents, are presented in Supplementary Table 1.

For both weekdays and weekends, participants were classified into tertiles (T1, T2, T3) according to their HEI-2020 scores.

Statistical analyses

Statistical analyses were performed using SPSS Statistics ver. 27 (IBM Japan). The normality of each variable was assessed using the Shapiro–Wilk test. Because most variables were not normally distributed, differences in energy and nutrient intakes and food group intakes among the three groups were examined using the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction. Differences between weekdays and weekends were analyzed using the Wilcoxon signed-rank test. A two-tailed p-value < 0.05 was considered to be statistically significant.

Ethical considerations

This study was approved by the research ethics committees of University of Niigata Prefecture (Approval number: 19-18, October 2, 2019) and of the Faculty of Human Life Science, Osaka City University (Approval number: 19-32, September 11, 2019). The survey was conducted after written informed consent was obtained from the

parents of participating children and from each participating facility. The survey results were returned to all participants and reported to each facility.

RESULTS

Evaluation of HEI-2020 on weekdays and weekends

The basic demographic characteristics of the study participants are summarized in Table 1. HEI-2020 component scores and total scores on weekdays and weekends are shown in Table 2. Based on 4-day average intakes, the median total HEI-2020 scores were 51 points for males and 50 points for females. These scores were significantly higher on weekdays (Total: 54.0 [49.0, 58.0]; Males: 54.0 [50.0, 58.0]; Females: 53.0 [49.0, 58.0]) than on weekends (Total: 46.0 [40.0, 51.0]; Males: 46.0 [40.0, 51.0]; Females: 45.5 [40.0, 51.0]) for the whole cohort and for both sexes. Weekday scores were also significantly higher than weekend scores for 11 of the 13 components, with the exceptions being Refined Grains (weekday: 0.0 [0.0, 0.0]; weekend: 0.0 [0.0, 0.0]) and Fatty Acids (weekday: 4.0 [2.0, 6.0]; weekend: 4.0 [2.0, 6.0]). The median differences (weekday minus weekend) across components ranged from 0.0 to 2.0 points. The largest weekday–weekend score differences were found for the Greens and Beans (weekday: 4.0 [3.0, 5.0]; weekend: 2.0 [1.0, 3.0]) and Dairy components (weekday: 5.0 [4.0, 7.0]; weekend: 3.0 [2.0, 5.0]). To visually summarize these differences, Figure 1 presents a radar chart comparing weekday and weekend HEI-2020 component scores, illustrating that overall diet quality was consistently higher on weekdays across components.

Across the 4-day average, weekdays, and weekends, the highest scoring component was Added Sugars (weekday: 10.0 [9.0, 10.0]; weekend: 9.0 [8.0, 10.0]), and the lowest scoring components were Whole Grains (weekday: 0.0 [0.0, 1.0]; weekend: 0.0 [0.0, 0.0]) and Refined Grains, as noted above for this component. For Total Protein Foods, the median scores (5.0 [5.0, 5.0]) reached the maximum for both sexes and overall. For Seafood and Plant Proteins, the median scores also reached the maximum on both weekdays (5.0 [5.0, 5.0]) and on weekends (5.0 [3.0, 5.0]). In contrast, the median scores were low for Whole Grains and Refined Grains, as noted above for these components. A comparison of the spread of HEI-2020 scores (T1–T3) showed that the range from the lowest to the highest tertile median tended to be wider on weekends (37.0–53.0) than on weekdays (47.0–60.0).

Anthropometric characteristics of participants

Anthropometric characteristics of the participants in each HEI-2020 tertile on weekdays and weekends are shown in Table 3. There were no significant differences among the tertiles for either sex or for the whole cohort.

Nutrient intakes by HEI-2020 score on weekdays

Energy and nutrient intakes for HEI-2020 tertiles on weekdays are shown in Table 4. In the whole cohort, the high HEI-2020 tertile (T3) had a significantly higher percentage of energy from carbohydrates (T3: 57.5 [54.3, 60.2]%; T1: 53.6 [50.9, 57.5]%) and a significantly lower percentage of energy from fat (T3: 28.0 [25.4, 30.7]%; T1: 31.6 [28.5, 33.9]%) compared to the low HEI-2020 tertile (T1). For macronutrients, T3 had significantly lower total energy (T3: 1368 [1242, 1522] kcal; T1: 1459 [1300, 1601] kcal), protein (T3: 49.3 [44.0, 57.5] g; T1: 52.1 [45.5, 58.8] g), and fat intakes (T3: 42.8 [36.6, 49.2] g; T1: 50.6 [43.1, 58.3] g) than T1. T3 also had significantly lower intakes of saturated fatty acids (T3: 13.11 [10.90, 15.55] g; T1: 17.25 [14.63, 20.51] g), monounsaturated fatty acids (T3: 14.75 [12.83, 17.48] g; T1: 17.65 [14.75, 20.60] g), and cholesterol (T3: 180 [130, 240] mg; T1: 220 [160, 310] mg), and significantly higher intakes of n-3 polyunsaturated fatty acids (T3: 1.44 [1.12, 2.93] g; T1: 1.36 [0.97, 1.83] g), total dietary fiber (T3: 13.1 [11.4, 15.5] g; T1: 12.1 [10.7, 14.4] g), and insoluble dietary fiber (T3: 8.1 [6.9, 9.6]; T1: 7.2 [6.3, 8.6] g), compared to T1. For micronutrients, T3 had significantly higher intakes of vitamin K (T3: 145 [107, 192] μg; T1: 122 [94, 165] μg), vitamin B-6 (T3: 0.92 [0.80, 1.07] mg; T1: 0.85 [0.73, 1.01] mg), folate (T3: 180 [160, 220] μg;

Table 1. Characteristics of the study participants (n = 669)

Variable and category	Total	Male	Female
Sex	669 (100)	367 (54.9)	302 (45.1)
Age (years)†			
3 years	112 (16.7)	67 (18.3)	45 (14.9)
4 years	322 (48.1)	173 (47.1)	149 (49.3)
5 years	235 (35.1)	127 (34.6)	108 (35.8)
Region (city)†			
Sapporo	46 (6.9)	24 (6.5)	22 (7.3)
Sendai	97 (14.5)	56 (15.3)	41 (13.6)
Kawasaki	119 (17.8)	67 (18.3)	52 (17.2)
Hamamatsu	84 (12.6)	33 (9.0)	51 (16.9)
Akashi	146 (21.8)	88 (24.0)	58 (19.2)
Matsuyama	95 (14.2)	63 (17.2)	32 (10.6)
Kumamoto	82 (12.3)	36 (9.8)	46 (15.2)
Height (cm)‡	103.9 (99.2–108.5)	104.6 (99.9–109.0)	102.9 (98.4–107.0)
Weight (kg)‡	16.5 (15.0–18.2)	17.0 (15.3–18.5)	16.3 (14.8–17.8)
BMI (kg/m²)‡	15.6 (14.7–16.2)	15.4 (14.7–16.2)	15.3 (14.6–16.1)
BMI z-score‡	0.03 (−0.50–0.61)	0.05 (−0.52–0.62)	0.02 (−0.48–0.55)

†Values are presented as n (%) for categorical variables. Percentages for age and region are calculated within each sex.
‡Values are presented as and median (interquartile range) for continuous variables

Table 2. HEI-2020 component and total scores on weekdays and weekends[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Total fruits												
Weekdays	1.0[a] (1.0–2.0)	2.0[b] (1.0–3.0)	2.0[c] (2.0–3.0)	<0.01	2.0 (1.0–3.0)	<0.01	1.0[a] (1.0–2.0)	2.0[b] (1.0–2.8)	2.0[c] (2.0–3.0)	<0.01	2.0 (1.0–3.0)	<0.01
Weekends	1.0[a] (1.0–3.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–4.0)	<0.01	2.0 (1.0–3.0)		2.0[a] (1.0–3.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–4.0)	<0.01	2.0 (1.0–3.0)	
Whole fruits												
Weekdays	2.0[a] (1.0–3.0)	3.0[b] (2.0–4.0)	3.0[c] (2.0–5.0)	<0.01	3.0 (2.0–4.0)	<0.01	2.0[a] (1.0–3.0)	3.0[b] (2.0–4.0)	3.0[c] (2.0–5.0)	<0.01	3.0 (2.0–4.0)	<0.01
Weekends	1.0[a] (0.0–2.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–5.0)	<0.01	2.0 (0.0–4.0)		1.0[a] (0.0–2.0)	2.0[b] (1.0–4.0)	3.0[c] (1.0–5.0)	<0.01	2.0 (1.0–4.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Total fruits						
Weekdays	1.0[a] (1.0–2.0)	2.0[b] (1.0–3.0)	2.0[c] (2.0–3.0)	<0.01	2.0 (1.0–3.0)	<0.01
Weekends	1.0[a] (0.0–2.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–4.0)	<0.01	2.0 (1.0–3.0)	
Whole fruits						
Weekdays	2.0[a] (1.0–3.0)	3.0[b] (2.0–4.0)	3.0[c] (2.0–5.0)	<0.01	3.0 (2.0–4.0)	<0.01
Weekends	1.0[a] (0.0–2.0)	2.0[b] (0.0–3.0)	4.0[c] (2.0–5.0)	<0.01	2.0 (0.0–4.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Total vegetables												
Weekdays	3.0[a] (2.0–3.0)	3.0[b] (2.0–3.0)	3.0[c] (3.0–4.0)	<0.01	3.0 (2.0–3.0)	<0.01	3.0[a] (2.0–3.0)	3.0[b] (2.0–3.0)	3.0[c] (3.0–4.0)	<0.01	3.0 (2.0–3.0)	<0.01
Weekends	2.0[a] (1.0–2.0)	2.0[b] (2.0–3.0)	2.0[c] (2.0–3.0)	<0.01	2.0 (2.0–3.0)		2.0[a] (1.0–2.0)	2.0[b] (2.0–3.0)	2.0[c] (2.0–3.0)	<0.01	2.0 (2.0–3.0)	
Greens and beans												
Weekdays	3.0[a] (2.0–4.0)	4.0[b] (3.0–5.0)	5.0[c] (3.0–5.0)	<0.01	4.0 (3.0–5.0)	<0.01	3.0[a] (2.0–4.0)	4.0[b] (3.0–5.0)	4.5[b] (3.0–5.0)	<0.01	4.0 (3.0–5.0)	<0.01
Weekends	1.0[a] (1.0–2.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–4.0)	<0.01	2.0 (1.0–3.0)		1.0[a] (1.0–2.0)	2.0[b] (1.0–3.0)	3.0[c] (2.0–4.0)	<0.01	2.0 (1.0–3.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Total vegetables						
Weekdays	3.0[a] (2.0–3.0)	3.0[b] (2.0–4.0)	3.0[b] (3.0–4.0)	<0.01	3.0 (2.0–3.3)	<0.01
Weekends	2.0[a] (1.0–2.0)	2.0[b] (2.0–3.0)	2.0[c] (2.0–3.0)	<0.01	2.0 (2.0–3.0)	
Greens and beans						
Weekdays	3.0[a] (2.0–4.0)	4.0[b] (3.0–5.0)	5.0[b] (4.0–5.0)	<0.01	4.0 (3.0–5.0)	<0.01
Weekends	1.0[a] (1.0–2.0)	2.0[b] (1.0–3.0)	3.0[b] (2.0–4.0)	<0.01	2.0 (1.0–3.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Whole grains												
Weekdays	0.0[a] (0.0–1.0)	0.0[a] (0.0–0.5)	0.0[b] (0.0–5.5)	<0.01	0.0 (0.0–1.0)	<0.01	0.0[a] (0.0–1.0)	0.0[a] (0.0–1.0)	0.0[b] (0.0–6.0)	<0.01	0.0 (0.0–1.0)	<0.01
Weekends	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–0.0)	<0.01	0.0 (0.0–0.0)		0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–0.0)	<0.01	0.0 (0.0–0.0)	
Refined grains												
Weekdays	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–0.0)	<0.01	0.0 (0.0–0.0)	0.12	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–0.0)	0.02	0.0 (0.0–0.0)	0.33
Weekends	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.41	0.0 (0.0–0.0)		0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.42	0.0 (0.0–0.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Whole grains						
Weekdays	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–4.0)	<0.01	0.0 (0.0–1.0)	<0.01
Weekends	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–0.3)	<0.01	0.0 (0.0–0.0)	
Refined grains						
Weekdays	0.0[a] (0.0–0.0)	0.0[ab] (0.0–0.0)	0.0[b] (0.0–0.0)	0.04	0.0 (0.0–0.0)	0.23
Weekends	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.78	0.0 (0.0–0.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total	*p*[††]	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total	*p*[††]
Dairy												
Weekdays	5.0 (4.0–7.0)	5.0 (4.0–7.0)	5.0 (4.0–7.0)	0.42	5.0 (4.0–7.0)	<0.01	5.0 (4.0–7.0)	5.0 (4.0–7.0)	5.0 (4.0–7.0)	0.66	5.0 (4.0–7.0)	<0.01
Weekends	3.0 (2.0–5.0)	4.0 (2.0–6.0)	3.0 (2.0–5.0)	0.51	3.0 (2.0–5.0)		3.0[a] (1.0–5.0)	4.0[ab] (1.0–5.0)	3.0[b] (2.0–5.0)	0.12	3.0 (2.0–5.0)	
Total protein foods												
Weekdays	5.0[a] (5.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	0.02	5.0 (5.0–5.0)	<0.01	5.0[a] (5.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	0.04	5.0 (5.0–5.0)	<0.01
Weekends	5.0[a] (4.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	<0.01	5.0 (5.0–5.0)		5.0[a] (4.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	<0.01	5.0 (5.0–5.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total	*p*[††]
Dairy						
Weekdays	4.0 (3.0–6.0)	5.0 (4.0–7.0)	5.0 (4.0–6.0)	0.16	5.0 (4.0–7.0)	<0.01
Weekends	4.0 (2.0–6.0)	4.0 (2.0–6.0)	3.0 (2.0–5.0)	0.55	4.0 (2.0–6.0)	
Total protein foods						
Weekdays	5.0 (5.0–5.0)	5.0 (5.0–5.0)	5.0 (5.0–5.0)	0.27	5.0 (5.0–5.0)	<0.01
Weekends	5.0[a] (4.3–5.0)	5.0[b] (5.0–5.0)	5.0[ab] (5.0–5.0)	0.02	5.0 (5.0–5.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]
Seafood and plant proteins												
Weekdays	5.0[a] (4.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	<0.01	5.0 (5.0–5.0)	<0.01	5.0[a] (5.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	<0.01	5.0 (5.0–5.0)	<0.01
Weekends	4.0[a] (2.0–5.0)	5.0[b] (3.0–5.0)	5.0[c] (4.0–5.0)	<0.01	5.0 (3.0–5.0)		3.5[a] (2.0–5.0)	5.0[b] (4.0–5.0)	5.0[b] (4.0–5.0)	<0.01	5.0 (3.0–5.0)	
Fatty acids												
Weekdays	2.0[a] (1.0–4.0)	4.0[b] (2.0–5.0)	5.0[c] (3.0–7.0)	<0.01	4.0 (2.0–6.0)	0.68	3.0[a] (1.0–4.0)	4.0[b] (2.0–5.0)	5.0[c] (4.0–7.0)	<0.01	4.0 (2.0–6.0)	0.92
Weekends	2.0[a] (1.0–4.0)	4.0[b] (2.0–6.0)	6.0[c] (3.0–8.0)	<0.01	4.0 (2.0–6.0)		2.0[a] (1.0–4.0)	4.0[b] (2.0–6.0)	6.0[c] (3.0–8.0)	<0.01	4.0 (2.0–6.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]
Seafood and plant proteins						
Weekdays	5.0[a] (4.0–5.0)	5.0[b] (5.0–5.0)	5.0[b] (5.0–5.0)	<0.01	5.0 (5.0–5.0)	<0.01
Weekends	4.0[a] (2.0–5.0)	5.0[b] (3.0–5.0)	5.0[b] (4.0–5.0)	<0.01	5.0 (3.0–5.0)	
Fatty acids						
Weekdays	2.0[a] (2.0–5.0)	3.0[a] (2.0–5.0)	5.0[b] (3.0–7.0)	<0.01	3.0 (2.0–6.0)	0.60
Weekends	2.0[a] (1.0–4.0)	3.0[b] (2.0–5.0)	5.0[c] (3.0–7.0)	<0.01	3.5 (2.0–6.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Saturated fats												
Weekdays	6.0[a] (5.0–8.0)	7.0[b] (6.0–9.0)	9.0[c] (7.3–10.0)	<0.01	8.0 (6.0–9.0)	<0.01	6.0[a] (4.0–8.0)	7.0[b] (6.0–9.0)	9.0[c] (8.0–10.0)	<0.01	8.0 (6.0–9.0)	<0.01
Weekends	5.0[a] (3.0–7.0)	7.0[b] (5.0–9.0)	9.0[c] (8.0–10.0)	<0.01	7.0 (5.0–9.0)		6.0[a] (3.0–7.0)	7.0[b] (6.0–9.0)	9.0[c] (8.0–10.0)	<0.01	7.0 (5.0–9.0)	
Sodium												
Weekdays	4.0[a] (1.0–6.0)	5.0[b] (3.0–7.0)	7.0[c] (5.0–8.0)	<0.01	5.0 (3.0–7.0)	<0.01	4.0[a] (1.0–5.0)	5.0[b] (4.0–7.0)	7.0[c] (5.0–8.0)	<0.01	5.0 (3.0–7.0)	<0.01
Weekends	2.0[a] (0.0–5.0)	4.0[b] (1.0–6.0)	5.0[c] (3.0–7.0)	<0.01	4.0 (1.0–6.0)		2.0[a] (0.0–5.0)	3.0[a] (0.0–5.0)	5.0[b] (2.0–7.0)	<0.01	4.0 (1.0–6.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Saturated fats						
Weekdays	6.0[a] (5.0–8.0)	7.0[b] (6.0–8.5)	9.0[c] (7.0–10.0)	<0.01	8.0 (6.0–9.0)	<0.01
Weekends	5.0[a] (3.0–6.8)	7.0[b] (5.0–8.0)	9.0[c] (8.0–10.0)	<0.01	7.0 (5.0–9.0)	
Sodium						
Weekdays	3.5[a] (1.0–6.0)	5.0[b] (3.0–7.0)	7.0[c] (5.0–8.5)	<0.01	6.0 (3.0–7.0)	<0.01
Weekends	1.5[a] (0.0–5.0)	4.0[b] (1.0–6.0)	5.0[c] (3.0–7.0)	<0.01	4.0 (1.0–6.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 2. HEI-2020 component and total scores on weekdays and weekends (cont.)[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]
Added sugars												
Weekdays	10.0[a] (9.0–10.0)	10.0[b] (9.0–10.0)	10.0[c] (10.0–10.0)	<0.01	10.0 (9.0–10.0)	<0.01	10.0[a] (9.0–10.0)	10.0[a] (9.0–10.0)	10.0[b] (10.0–10.0)	<0.01	10.0 (9.0–10.0)	<0.01
Weekends	9.0[a] (7.0–10.0)	9.0[b] (8.0–10.0)	9.0[c] (8.0–10.0)	<0.01	9.0 (8.0–10.0)		8.0[a] (6.8–10.0)	9.0[b] (8.0–10.0)	9.0[b] (8.0–10.0)	<0.01	9.0 (8.0–10.0)	
Total												
Weekdays	47.0[a] (45.0–49.0)	53.0[b] (52.0–54.0)	60.0[c] (57.0–63.0)	<0.01	54.0 (49.0–58.0)	<0.01	48.0[a] (45.0–49.0)	53.0[b] (52.0–54.0)	60.0[c] (57.0–63.0)	<0.01	54.0 (50.0–58.0)	<0.01
Weekends	37.0[a] (34.8–40.0)	45.0[b] (44.0–47.0)	53.0[c] (50.0–57.0)	<0.01	46.0 (40.0–51.0)		37.0[a] (34.0–40.0)	45.0[b] (44.0–47.0)	53.0[c] (50.0–57.0)	<0.01	46.0 (40.0–51.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	p[††]	Total	p[††]
Added sugars						
Weekdays	10.0[a] (9.0–10.0)	10.0[b] (9.0–10.0)	10.0[b] (10.0–10.0)	<0.01	10.0 (9.0–10.0)	<0.01
Weekends	9.0[a] (7.0–10.0)	9.0[ab] (8.0–10.0)	9.0[b] (8.0–10.0)	0.02	9.0 (8.0–10.0)	
Total						
Weekdays	47.0[a] (45.0–49.0)	53.0[b] (52.0–54.0)	60.0[c] (57.0–62.5)	<0.01	53.0 (49.0–58.0)	<0.01
Weekends	37.0[a] (35.0–40.0)	45.0[b] (44.0–47.0)	52.0[c] (51.0–57.0)	<0.01	45.5 (40.0–51.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 3. Anthropometric characteristics by HEI-2020 tertiles on weekdays and weekends[†]

	Total (n=669)					Males (n=367)				
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total
Height										
Weekdays	103.3 (98.9–107.5)	104.4 (100.6–109.1)	103.6 (98.8–108.8)	0.12	103.9 (99.2–108.5)	104.5 (100.0–107.2)	105.4 (101.0–110.4)	104.1 (99.6–109.6)	0.10	104.6 (99.9–109.0)
Weekends	104.5 (99.8–108.7)	104.5 (99.5–107.7)	103.5 (98.5–108.7)	0.60		105.5 (100.6–110.3)	103.9 (99.6–108.5)	104.1 (99.6–109.0)	0.17	
Weight										
Weekdays	16.4 (15.1–18.1)	17.0 (15.3–18.3)	16.3 (14.9–18.3)	0.21	16.5 (15.0–18.2)	16.7 (15.6–18.3)	17.4 (15.4–18.6)	16.6 (15.0–18.6)	0.43	17.0 (15.3–18.5)
Weekends	16.5 (15.2–18.7)	16.6 (15.1–17.9)	16.4 (14.8–18.4)	0.45		17.6 (15.6–19.2)	16.7 (15.2–18.1)	16.6 (15.0–18.5)	0.08	

	Females (n=302)				
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total
Height					
Weekdays	102.6 (97.7–108.4)	103.4 (100.2–106.5)	102.5 (97.8–106.4)	0.69	102.9 (98.4–107.0)
Weekends	101.9 (98.0–106.3)	104 (99.5–107.0)	102.6 (97.5–108.3)	0.35	
Weight					
Weekdays	16.2 (14.4–18.0)	16.4 (15.0–17.7)	16 (14.6–17.8)	0.50	16.3 (14.8–17.8)
Weekends	16.0 (14.7–17.8)	16.4 (15.1–17.8)	16.1 (14.2–17.8)	0.41	

[†]The number of participants in each group was: Weekday Total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction.

Table 3. Anthropometric characteristics by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)					Males (n=367)				
	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total
Body mass index (BMI)										
Weekdays	15.5 (14.8–16.4)	15.4 (14.6–16.1)	15.2 (14.6–16.1)	0.09	15.4 (14.7–16.2)	15.5 (14.9–16.4)	15.4 (14.7–16.1)	15.2 (14.6–16.1)	0.08	15.4 (14.7–16.2)
Weekends	15.5 (14.7–16.2)	15.3 (14.7–15.9)	15.3 (14.6–16.3)	0.34		15.7 (14.7–16.3)	15.3 (14.8–16.0)	15.4 (14.6–16.3)	0.41	
BMI z-score										
Weekdays	0.10 (−0.37–0.72)	0.06 (−0.53–0.56)	−0.07 (−0.59–0.56)	0.09	0.03 (−0.50–0.61)	0.16 (−0.32–0.80)	0.06 (−0.56–0.61)	−0.10 (−0.64–0.58)	0.07	0.05 (−0.52–0.62)
Weekends	0.13 (−0.48–0.66)	−0.01 (−0.44–0.44)	0.02 (−0.56–0.64)	0.34		0.22 (−0.53–0.69)	−0.03 (−0.45–0.46)	0.05 (−0.58–0.68)	0.44	

	Females (n=302)				
	T1[‡]	T2[§]	T3[¶]	*p*[††]	Total
Body mass index (BMI)					
Weekdays	15.4 (14.7–16.3)	15.4 (14.6–16.1)	15.2 (14.6–16.0)	0.60	15.3 (14.6–16.1)
Weekends	15.4 (14.7–16.2)	15.4 (14.7–15.8)	15.2 (14.5–16.2)	0.76	
BMI z-score					
Weekdays	0.06 (−0.41–0.71)	0.07 (−0.48–0.51)	−0.06 (−0.53–0.50)	0.64	0.02 (−0.48–0.55)
Weekends	0.06 (−0.46–0.57)	0.04 (−0.42–0.39)	−0.06 (−0.56–0.62)	0.73	

[†]The number of participants in each group was: Weekday Total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction.

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Energy intake												
Energy (kcal)												
Weekdays	1459[a] (1300–1601)	1445[a] (1298–1602)	1368[b] (1242–1522)	<0.01	1420 (1275–1570)	<0.01	1441[ab] (1281–1581)	1460[a] (1316–1607)	1385[b] (1239–1537)	0.03	1429 (1280–1567)	<0.01
Weekends	1347 (1170–1598)	1349 (1194–1495)	1363 (1191–1504)	0.8	1355 (1188–1527)		1347 (1157–1591)	1330 (1200–1450)	1364 (1160–1489)	0.8	1341 (1175–1494)	
Protein energy ratio (%)												
Weekdays	14.4 (13.4–15.4)	14.3 (13.5–15.6)	14.5 (13.5–15.5)	0.74	14.4 (13.5–15.5)	<0.01	14.4 (13.4–15.7)	14.3 (13.6–15.5)	14.4 (13.4–15.4)	0.88	14.4 (13.5–15.5)	<0.01
Weekends	12.9[a] (11.5–14.5)	13.6[b] (12.0–14.8)	13.4[b] (12.0–14.9)	0.04	13.3 (11.8–14.7)		12.6[a] (11.4–14.2)	13.4[b] (11.9–14.6)	13.6[b] (11.7–15.0)	0.02	13.1 (11.7–14.7)	

	Females (n=302)				
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Energy intake						
Energy (kcal)						
Weekdays	1492[a] (1314–1607)	1395[ab] (1260–1597)	1350[b] (1250–1500)	<0.01	1403 (1268–1571)	0.03
Weekends	1341 (1208–1640)	1376 (1189–1565)	1361 (1218–1533)	0.97	1366 (1205–1571)	
Protein energy ratio (%)						
Weekdays	14.3 (13.4–15.3)	14.3 (13.4–15.6)	14.6 (13.7–15.8)	0.36	14.5 (13.5–15.5)	<0.01
Weekends	13.4 (11.7–14.8)	13.7 (12.4–15.1)	13.4 (12.1–14.8)	0.74	13.5 (12.0–14.8)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Energy intake												
Fat energy ratio (%)												
Weekdays	31.6[a] (28.5–33.9)	29.8[b] (27.1–32.6)	28.0[c] (25.4–30.7)	<0.01	29.4 (26.8–32.6)	<0.01	31.7[a] (28.5–33.7)	29.5[b] (26.6–33.0)	28.0[c] (25.1–31.3)	<0.01	29.4 (26.3–32.5)	0.03
Weekends	32.4[a] (28.7–36.5)	30.4[b] (27.1–34.0)	28.4[c] (24.5–32.0)	<0.01	30.3 (26.6–34.2)		32.1[a] (28.5–36.2)	30.5[a] (27.3–33.9)	28.1[b] (24.4–31.4)	<0.01	30.3 (26.3–34.0)	
Carbohydrate energy ratio (%)												
Weekdays	53.6[a] (50.9–57.5)	55.7[b] (52.5–58.5)	57.5[c] (54.3–60.2)	<0.01	55.9 (52.6–59.1)	0.11	53.5[a] (51.0–57.8)	55.4[b] (52.5–58.4)	57.6[c] (54.5–60.6)	<0.01	55.8 (52.6–59.4)	0.12
Weekends	54.9[a] (50.0–58.6)	56.2[b] (51.6–60.0)	57.9[c] (54.6–62.4)	<0.01	56.3 (52.1–60.6)		55.7[a] (50.1–59.6)	56.1[a] (52.1–59.6)	58.1[b] (54.8–62.3)	<0.01	56.6 (52.3–60.9)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Energy intake						
Fat energy ratio (%)						
Weekdays	31.6[a] (28.4–33.9)	30.1[b] (27.3–31.8)	28.0[c] (25.9–30.4)	<0.01	29.5 (27.2–32.7)	0.03
Weekends	33.5[a] (29.1–36.9)	30.0[b] (27.0–34.4)	28.6[c] (24.8–32.6)	<0.01	30.3 (27.0–34.5)	
Carbohydrate energy ratio (%)						
Weekdays	54.0[a] (50.4–57.1)	56.0[b] (52.4–58.6)	57.5[c] (54.2–60.0)	<0.01	56.0 (52.5–58.7)	0.55
Weekends	54.2[a] (49.6–57.5)	56.3[b] (50.8–60.6)	57.4[c] (54.1–62.7)	<0.01	56.0 (51.5–60.5)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	p††	Total	p††	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake												
Protein (g)												
Weekdays	52.1[a] (45.5–58.8)	51.8[a] (46.0–58.5)	49.3[b] (44.0–57.5)	0.02	50.9 (45.2–58.1)	<0.01	51.4[ab] (45.1–58.9)	52.5[a] (47.4–58.8)	49.3[b] (44.8–56.3)	0.05	50.9 (45.3–58.4)	<0.01
Weekends	44.3 (36.1–53.3)	44.4 (39.0–52.3)	45.0 (38.3–52.0)	0.72	44.8 (37.8–52.3)		42.3 (34.9–51.8)	43.8 (38.1–51.2)	44.5 (37.3–53.4)	0.56	43.9 (36.9–51.8)	
Fat (g)												
Weekdays	50.6[a] (43.1–58.3)	47.3[b] (39.8–56.4)	42.8[c] (36.6–49.2)	<0.01	46.2 (39.0–54.5)	0.14	50.1[a] (40.7–59.0)	47.8[a] (40.2–56.4)	42.9[b] (37.1–48.7)	<0.01	46.4 (38.9–53.8)	0.03
Weekends	50.4[a] (39.6–61.1)	45.0[b] (37.7–55.4)	43.4[c] (34.3–51.6)	<0.01	45.8 (36.9–56.3)		48.9[a] (39.7–58.7)	44.3[b] (38.2–52.9)	42.7[b] (32.0–50.8)	<0.01	45.4 (36.5–53.9)	

	Females (n=302)					
	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake						
Protein (g)						
Weekdays	52.2 (46.7–58.5)	50.8 (44.6–57.2)	49.1 (43.3–57.9)	0.21	50.9 (44.8–57.9)	<0.01
Weekends	46.8 (37.3–56.0)	46.0 (40.1–53.6)	46.4 (39.3–51.6)	0.92	46.5 (39.1–53.4)	
Fat (g)						
Weekdays	51.1[a] (44.9–58.1)	46.2[b] (39.6–56.5)	42.7[c] (36.0–49.4)	<0.01	46.1 (39.1–54.8)	0.82
Weekends	52.5[a] (38.8–63.6)	46.7[b] (37.5–57.3)	43.9[b] (36.0–52.2)	<0.01	46.6 (37.1–57.7)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake												
Saturated fatty acids (g)												
Weekdays	17.25[a] (14.63–20.51)	15.87[b] (13.43–18.53)	13.11[c] (10.90–15.55)	<0.01	15.15 (12.43–18.12)	0.74	17.71[a] (14.48–20.35)	16.10[b] (13.51–18.59)	12.69[c] (10.97–15.17)	<0.01	14.94 (12.23–18.23)	0.16
Weekends	18.24[a] (13.94–22.48)	15.14[b] (11.97–18.38)	12.92[c] (10.30–15.73)	<0.01	14.84 (11.85–18.92)		17.37[a] (13.65–22.17)	14.77[b] (11.80–17.51)	12.46[c] (9.67–15.52)	<0.01	14.68 (11.52–18.17)	
Monounsaturated fatty acids (g)												
Weekdays	17.65[a] (14.75–20.60)	16.10[b] (13.35–19.53)	14.75[c] (12.83–17.48)	<0.01	16.25 (13.43–19.15)	0.26	17.4[a] (13.95–20.60)	16.23[a] (13.88–19.85)	15.23[b] (13.20–17.34)	<0.01	16.25 (13.50–19.00)	0.7
Weekends	18.05[a] (13.39–22.06)	16.63[ab] (13.49–19.93)	15.85[b] (11.58–19.50)	<0.01	16.65 (12.95–20.50)		17.45[a] (13.35–21.58)	16.33[ab] (13.49–18.94)	15.2[b] (10.95–19.55)	0.04	16.25 (12.60–19.55)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake						
Saturated fatty acids (g)						
Weekdays	17.02[a] (15.17–20.72)	15.72[b] (13.10–18.39)	13.51[c] (10.72–16.11)	<0.01	15.43 (12.75–18.04)	0.31
Weekends	18.82[a] (14.37–23.05)	15.56[b] (12.19–19.39)	13.44[c] (11.42–16.36)	<0.01	15.24 (12.28–19.43)	
Monounsaturated fatty acids (g)						
Weekdays	18.05[a] (15.24–20.85)	15.95[b] (13.10–19.35)	14.50[c] (12.48–17.70)	<0.01	16.20 (13.3–19.25)	0.05
Weekends	18.83[a] (13.38–23.49)	16.95[ab] (13.48–21.51)	15.88[b] (12.94–19.45)	0.03	17.08 (13.39–21.53)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	p††	Total	p††	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake												
n-3 polyunsaturated fatty acids (g)												
Weekdays	1.36[a] (0.97–1.83)	1.48[b] (1.11–1.91)	1.44[b] (1.12–2.93)	<0.01	1.41 (1.09–1.87)	<0.01	1.28[a] (0.88–1.83)	1.51[b] (1.14–1.92)	1.50[b] (1.25–1.95)	<0.01	1.46 (1.09–1.91)	<0.01
Weekends	1.07[a] (0.77–1.38)	1.15[b] (0.83–1.60)	1.32[c] (0.91–1.70)	<0.01	1.17 (0.83–1.58)		1.08[a] (0.69–1.38)	1.15[b] (0.82–1.65)	1.28[b] (0.82–1.72)	0.01	1.15 (0.80–1.59)	
n-6 polyunsaturated fatty acids (g)												
Weekdays	7.55 (5.85–9.15)	7.45 (6.15–9.53)	7.40 (6.10–8.75)	0.26	7.45 (6.05–9.10)	<0.01	7.40[a] (5.65–8.95)	7.83[b] (6.55–9.6)	7.60[ab] (6.31–8.79)	0.13	7.60 (6.15–9.15)	<0.01
Weekends	6.75 (5.14–8.43)	6.75 (5.55–8.33)	7.20 (5.45–9.20)	0.16	6.90 (5.48–8.88)		6.75 (5.04–8.25)	6.80 (5.55–8.15)	6.95 (5.50–9.20)	0.30	6.90 (5.40–8.65)	

	Females (n=302)					
	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake						
n-3 polyunsaturated fatty acids (g)						
Weekdays	1.36 (1.09–1.82)	1.43 (1.11–1.79)	1.32 (1.03–1.83)	0.72	1.37 (1.08–1.82)	<0.01
Weekends	1.00[a] (0.84–1.39)	1.16[a] (0.84–1.52)	1.38[b] (1.00–1.68)	<0.01	1.20 (0.86–1.54)	
n-6 polyunsaturated fatty acids (g)						
Weekdays	7.65 (5.91–9.61)	7.25 (6.00–9.28)	6.95 (6.05–8.63)	0.57	7.30 (6.00–9.10)	<0.01
Weekends	6.78 (5.36–8.88)	6.45 (5.55–8.99)	7.43 (5.44–9.24)	0.42	6.93 (5.49–9.00)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake												
Cholesterol (mg)												
Weekdays	220[a] (160–310)	200[b] (150–260)	180[c] (130–240)	<0.01	200 (140–270)	0.05	210[a] (150–300)	190[ab] (140–260)	170[b] (130–240)	<0.01	200 (140–260)	0.29
Weekends	220 (150–290)	210 (150–300)	200 (130–280)	0.15	210 (140–290)		210 (130–290)	210 (140–290)	190 (120–270)	0.41	200 (130–290)	
Carbohydrate (g)												
Weekdays	188.1 (169.8–210.6)	197.6 (174.7–215.9)	193.0 (171.3–214.8)	0.16	193.4 (171.3–213.8)	<0.01	186.4[a] (167.5–208.9)	199.7[b] (175.8–215.3)	194.2[ab] (172.7–219.6)	0.06	194.2 (171.9–215.7)	<0.01
Weekends	175.1[a] (156.0–212.1)	184.0[a] (158.4–206.8)	192.0[b] (170.0–217.0)	<0.01	184.5 (159.8–211.0)		174.8 (151.1–215.2)	182.1 (161.6–199.1)	189.4 (164.8–214.8)	0.1	183.5 (158.8–207.9)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake						
Cholesterol (mg)						
Weekdays	230[a] (160–310)	200[b] (150–260)	190[b] (130–250)	<0.01	210 (150–270)	0.07
Weekends	240 (160–300)	210 (150–320)	210 (140–280)	0.29	220 (150–300)	
Carbohydrate (g)						
Weekdays	193.9 (170.5–213.5)	191.4 (172.7–219.9)	190.0 (170.6–208.3)	0.80	192.0 (171.0–212.6)	0.06
Weekends	176[a] (158.0–207.6)	186.4[a] (155.2–215.8)	197.1[b] (172.3–217.5)	<0.01	186.4 (164.2–214.6)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	p††	Total	p††	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake												
Total dietary fiber (g)												
Weekdays	12.1[a] (10.7–14.4)	12.8[b] (10.9–15.0)	13.1[b] (11.4–15.5)	<0.01	12.7 (11.0–15.0)	0.05	11.8[a] (10.3–14.0)	13.0[b] (11.2–15.2)	13.2[b] (11.6–15.5)	<0.01	12.7 (11.0–14.9)	<0.01
Weekends	9.6[a] (7.9–12.0)	10.8[b] (9.3–13.1)	12.0[c] (10.0–14.8)	<0.01	10.8 (9.0–13.4)		9.7[a] (8.4–12.2)	10.7[a] (8.8–12.6)	11.4[b] (9.9–14.3)	<0.01	10.8 (8.7–13.0)	
Soluble dietary fiber (g)												
Weekdays	4.5 (3.9–5.5)	4.7 (4.1–5.6)	4.7 (4.1–5.5)	0.17	4.6 (4.0–5.5)	<0.01	4.3[a] (3.8–5.0)	4.8[b] (4.2–5.7)	4.7[b] (4.0–5.5)	<0.01	4.6 (4.0–5.4)	<0.01
Weekends	3.9[a] (3.2–4.9)	4.2[b] (3.5–5.1)	4.6[c] (3.8–5.8)	<0.01	4.2 (3.5–5.2)		4.0[a] (3.2–5.1)	4.2[ab] (3.4–5.0)	4.4[b] (3.7–5.2)	0.09	4.2 (3.5–5.2)	

	Females (n=302)					
	T1‡	T2§	T3¶	p††	Total	p††
Macronutrient intake						
Total dietary fiber (g)						
Weekdays	12.4 (11.0–14.8)	12.1 (10.8–14.7)	12.8 (10.9–15.5)	0.44	12.6 (10.9–15.2)	<0.01
Weekends	9.4[a] (7.8–11.8)	10.8[b] (9.4–13.6)	12.4[c] (10.0–15.4)	<0.01	10.9 (9.2–13.8)	
Soluble dietary fiber (g)						
Weekdays	4.6 (4.1–5.9)	4.6 (3.9–5.5)	4.6 (4.1–5.5)	0.69	4.6 (4.1–5.6)	<0.01
Weekends	3.8[a] (3.1–4.7)	4.5[b] (3.6–5.2)	4.9[c] (3.9–6.0)	<0.01	4.3 (3.5–5.3)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake												
Insoluble dietary fiber (g)												
Weekdays	7.2[a] (6.3–8.6)	7.7[b] (6.7–8.9)	8.1[c] (6.9–9.6)	<0.01	7.8 (6.7–9.1)	<0.01	6.9[a] (6.1–8.5)	8.0[b] (6.8–8.9)	8.2[b] (7.1–9.7)	<0.01	7.9 (6.7–9.1)	<0.01
Weekends	5.4[a] (4.4–6.9)	6.4[b] (5.0–7.5)	7.0[c] (5.8–8.6)	<0.01	6.3 (5.0–7.7)		5.4[a] (4.6–6.9)	6.4[b] (5.0–7.3)	6.7[c] (5.7–8.4)	<0.01	6.2 (5.0–7.5)	
Micronutrient intake												
Vitamins												
Vitamin A (μgRAE)												
Weekdays	430 (350–520)	430 (340–530)	420 (340–510)	0.54	420 (340–520)	<0.01	420 (350–520)	430 (350–530)	420 (330–490)	0.40	420 (340–510)	<0.01
Weekends	280[a] (190–370)	290[b] (210–420)	310[b] (220–410)	0.02	290 (210–400)		270[a] (190–360)	290[ab] (210–380)	310[b] (220–410)	0.12	290 (210–380)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Macronutrient intake						
Insoluble dietary fiber (g)						
Weekdays	7.3[a] (6.6–8.7)	7.5[ab] (6.4–8.9)	8.0[b] (6.7–9.6)	0.09	7.7 (6.6–9.1)	<0.01
Weekends	5.3[a] (4.1–6.9)	6.3[b] (5.0–7.7)	7.3[c] (5.9–8.9)	<0.01	6.4 (5.0–8.0)	
Micronutrient intake						
Vitamins						
Vitamin A (μgRAE)						
Weekdays	430 (340–520)	430 (340–560)	420 (340–530)	0.94	430 (340–530)	<0.01
Weekends	280 (190–370)	300 (200–470)	320 (220–400)	0.13	300 (200–410)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake												
Vitamins												
Vitamin D (μg)												
Weekdays	4.6 (3.1–6.9)	4.8 (2.9–7.5)	4.9 (3.0–7.7)	0.73	4.8 (3.0–7.5)	<0.01	5.0 (2.8–7.4)	4.9 (2.7–7.3)	5.0 (3.2–8.1)	0.75	4.9 (2.9–7.7)	<0.01
Weekends	2.9[a] (1.8–4.6)	3.3[b] (2.0–6.4)	3.5[b] (1.8–5.8)	0.02	3.2 (1.9–5.4)		2.9[a] (1.7–4.7)	3.4[b] (2.0–6.6)	3.7[ab] (1.6–5.6)	0.04	3.3 (1.8–5.3)	
Vitamin E (mg)												
Weekdays	6.0 (5.0–7.2)	5.8 (4.8–7.3)	6.0 (4.9–7.0)	0.91	5.9 (4.9–7.2)	<0.01	5.9 (4.5–7.2)	5.8 (4.8–7.5)	5.9 (5.0–7.2)	0.84	5.9 (4.9–7.3)	<0.01
Weekends	5.2[a] (3.9–6.6)	5.4[ab] (4.3–6.9)	5.8[b] (4.4–7.2)	0.02	5.5 (4.2–6.9)		5.2 (3.9–6.6)	5.4 (4.0–6.5)	5.7 (4.3–7.0)	0.28	5.4 (4.1–6.7)	

	Females (n=302)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake						
Vitamins						
Vitamin D (μg)						
Weekdays	4.3 (3.3–6.3)	4.8 (3.1–8.6)	4.5 (2.9–7.1)	0.64	4.5 (3.0–7.3)	<0.01
Weekends	3.0 (2.1–4.2)	3.3 (2.0–5.7)	3.1 (2.0–6.3)	0.36	3.1 (2.1–5.6)	
Vitamin E (mg)						
Weekdays	6.1 (5.1–7.3)	5.9 (4.8–7.0)	6.1 (4.9–7.0)	0.56	6.1 (5.0–7.1)	<0.01
Weekends	5.3[a] (3.9–6.7)	5.5[ab] (4.4–7.1)	5.9[b] (4.6–7.5)	0.04	5.5 (4.3–7.1)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake												
Vitamins												
Vitamin K (μg)												
Weekdays	122[a] (94–165)	128[a] (99–184)	145[b] (107–192)	<0.01	130 (100–180)	<0.01	122[a] (93–159)	126[ab] (97–176)	139[b] (105–181)	0.11	128 (99–176)	<0.01
Weekends	64[a] (45–95)	80[b] (57–132)	100[c] (64–162)	<0.01	81 (56–124)		66[a] (40–95)	81[b] (58–131)	106[b] (64–170)	<0.01	82 (56–126)	
Vitamin B-1 (mg)												
Weekdays	0.72 (0.61–0.84)	0.74 (0.61–0.89)	0.72 (0.62–0.87)	0.42	0.73 (0.61–0.87)	<0.01	0.69 (0.59–0.81)	0.74 (0.60–0.90)	0.70 (0.61–0.89)	0.15	0.71 (0.60–0.87)	<0.01
Weekends	0.62 (0.47–0.79)	0.62 (0.51–0.74)	0.65 (0.53–0.77)	0.14	0.63 (0.51–0.77)		0.60 (0.46–0.76)	0.61 (0.51–0.72)	0.62 (0.51–0.75)	0.64	0.61 (0.50–0.75)	

	Females (n=302)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake						
Vitamins						
Vitamin K (μg)						
Weekdays	124[a] (98–173)	133[ab] (99–187)	151[b] (114–194)	0.01	137 (102–189)	<0.01
Weekends	63[a] (46–101)	78[b] (54–133)	97[c] (64–147)	<0.01	79 (56–124)	
Vitamin B-1 (mg)						
Weekdays	0.76 (0.63–0.86)	0.74 (0.65–0.89)	0.74 (0.63–0.87)	0.97	0.74 (0.63–0.87)	<0.01
Weekends	0.64[ab] (0.50–0.85)	0.64[a] (0.50–0.76)	0.69[b] (0.57–0.82)	0.10	0.65 (0.52–0.81)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake												
Vitamins												
Vitamin B-2 (mg)												
Weekdays	0.91[a] (0.81–1.06)	0.93[a] (0.76–1.15)	0.88[b] (0.74–1.03)	0.04	0.90 (0.77–1.06)	<0.01	0.89[a] (0.79–1.08)	0.93[a] (0.76–1.11)	0.87[b] (0.72–1.02)	0.06	0.89 (0.75–1.05)	<0.01
Weekends	0.77 (0.60–0.97)	0.77 (0.62–0.95)	0.76 (0.69–0.93)	0.76	0.77 (0.61–0.95)		0.75 (0.54–0.96)	0.75 (0.62–0.91)	0.75 (0.58–0.92)	0.99	0.75 (0.58–0.92)	
Niacin (mgNE)												
Weekdays	10.2 (8.4–11.9)	10.2 (8.4–12.2)	10.5 (8.7–12.2)	0.50	10.3 (8.5–12.1)	<0.01	9.9 (8.4–11.2)	10.3 (8.4–12.2)	10.5 (8.8–12.0)	0.41	10.3 (8.6–12.1)	<0.01
Weekends	7.7[a] (5.6–10.0)	7.9[a] (6.6–10.1)	8.9[b] (6.8–10.9)	<0.01	8.2 (6.3–10.4)		7.0[a] (5.5–9.1)	7.7[b] (6.5–9.5)	8.6[b] (6.6–10.9)	<0.01	7.8 (6.1–9.9)	

	Females (n=302)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake						
Vitamins						
Vitamin B-2 (mg)						
Weekdays	0.94 (0.81–1.05)	0.93 (0.75–1.16)	0.88 (0.78–1.06)	0.52	0.91 (0.78–1.09)	<0.01
Weekends	0.82 (0.64–1.02)	0.77 (0.62–0.99)	0.78 (0.61–0.93)	0.50	0.79 (0.63–0.96)	
Niacin (mgNE)						
Weekdays	10.4 (8.5–12.0)	9.7 (8.4–12.5)	10.4 (8.7–12.3)	0.71	10.2 (8.5–12.1)	<0.01
Weekends	8.5 (5.8–10.6)	8.6 (6.8–10.4)	9.0 (7.3–11.0)	0.15	8.6 (6.8–10.6)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Vitamins												
Vitamin B-6 (mg)												
Weekdays	0.85[a] (0.73–1.01)	0.88[a] (0.74–1.02)	0.92[b] (0.80–1.07)	<0.01	0.89 (0.76–1.06)	<0.01	0.83[a] (0.71–0.98)	0.88[ab] (0.76–1.02)	0.92[b] (0.81–1.08)	<0.01	0.89 (0.76–1.04)	<0.01
Weekends	0.61[a] (0.46–0.78)	0.70[b] (0.57–0.86)	0.80[c] (0.67–0.98)	<0.01	0.71 (0.57–0.89)		0.59[a] (0.45–0.75)	0.68[b] (0.57–0.85)	0.81[c] (0.64–0.98)	<0.01	0.68 (0.56–0.88)	
Vitamin B-12 (μg)												
Weekdays	3.34 (2.45–4.84)	3.47 (2.43–4.98)	3.31 (2.47–4.58)	0.67	3.36 (2.46–4.83)	<0.01	3.27 (2.45–4.85)	3.34 (2.40–4.80)	3.58 (2.59–4.97)	0.53	3.38 (2.46–4.84)	<0.01
Weekends	2.34[a] (1.44–3.53)	2.61[b] (1.78–3.74)	2.40[b] (1.80–3.84)	0.05	2.45 (1.66–3.72)		2.16 (1.29–3.69)	2.50 (1.80–3.51)	2.51 (1.65–3.80)	0.09	2.41 (1.51–3.63)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Vitamins						
Vitamin B-6 (mg)						
Weekdays	0.91 (0.74–1.03)	0.85 (0.72–1.02)	0.91 (0.78–1.07)	0.16	0.90 (0.75–1.05)	<0.01
Weekends	0.64[a] (0.48–0.79)	0.72[b] (0.57–0.92)	0.82[c] (0.72–0.99)	<0.01	0.75 (0.58–0.91)	
Vitamin B-12 (μg)						
Weekdays	3.50 (2.57–4.76)	3.78 (2.43–5.30)	3.05 (2.27–4.25)	0.12	3.35 (2.44–4.81)	<0.01
Weekends	2.43 (1.63–3.50)	2.72 (1.74–4.10)	2.43 (1.85–3.96)	0.45	2.56 (1.73–3.79)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.

[‡]T1 was defined as below the 33rd percentile.

[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).

[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).

Values are medians for each group, with interquartile ranges in parentheses.

[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.

[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Vitamins												
Folate (μg)												
Weekdays	180[a] (140–210)	180[ab] (150–220)	180[b] (160–220)	0.02	180 (150–220)	<0.01	170[a] (140–200)	170[ab] (150–220)	190[b] (160–230)	<0.01	180 (150–220)	<0.01
Weekends	120[a] (97–160)	150[b] (120–180)	170[c] (130–210)	<0.01	150 (120–180)		120[a] (96–160)	140[b] (120–170)	170[c] (130–200)	<0.01	140 (110–180)	
Pantothenic acid (mg)												
Weekdays	4.40 (3.90–5.00)	4.45 (3.85–5.30)	4.40 (3.8–5.15)	0.68	4.45 (3.85–5.15)	<0.01	4.25 (3.90–5.00)	4.43 (3.86–5.24)	4.35 (3.76–5.15)	0.58	4.35 (3.85–5.15)	<0.01
Weekends	3.48[a] (2.70–4.21)	3.68[b] (3.09–4.40)	3.85[b] (3.25–4.45)	<0.01	3.65 (3.05–4.40)		3.40[a] (2.65–4.21)	3.55[ab] (3.05–4.15)	3.80[b] (3.15–4.40)	0.04	3.55 (3.00–4.30)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Vitamins						
Folate (μg)						
Weekdays	190 (150–210)	180 (150–220)	180 (150–230)	0.77	180 (150–220)	<0.01
Weekends	120[a] (99–160)	150[b] (120–180)	170[c] (140–220)	<0.01	150 (120–190)	
Pantothenic acid (mg)						
Weekdays	4.55 (3.90–5.05)	4.60 (3.80–5.45)	4.50 (3.85–5.15)	0.95	4.55 (3.85–5.20)	<0.01
Weekends	3.55[a] (2.80–4.28)	3.80[b] (3.1–4.5)	3.90[b] (3.4–4.6)	<0.01	3.75 (3.15–4.45)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Vitamins												
Vitamin C (mg)												
Weekdays	49[a] (38–67)	55[b] (41–74)	57[c] (44–85)	<0.01	54 (40–76)	<0.01	50[a] (38–65)	53[a] (38–74)	58[b] (46–86)	<0.01	54 (41–76)	<0.01
Weekends	40[a] (26–57)	48[b] (36–74)	64[c] (44–94)	<0.01	50 (34–77)		38[a] (28–57)	46[b] (36–73)	58[b] (39–83)	<0.01	48 (33–74)	
Minerals												
Sodium (mg)												
Weekdays	2500[a] (2100–2900)	2200[b] (1900–2600)	1900[c] (1600–2200)	<0.01	2100 (1800–2600)	<0.01	2500[a] (2000–2800)	2200[b] (1900–2600)	1900[c] (1700–2200)	<0.01	2100 (1800–2600)	<0.01
Weekends	2500[a] (2100–3000)	2300[b] (2000–2800)	2100[c] (1700–2500)	<0.01	2300 (1900–2800)		2400[a] (2000–2900)	2300[a] (2000–2700)	2000[b] (1600–2500)	<0.01	2200 (1900–2700)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Vitamins						
Vitamin C (mg)						
Weekdays	49[a] (38–70)	57[ab] (43–75)	57[b] (42–84)	0.05	54 (40–78)	0.24
Weekends	42[a] (23–57)	52[b] (36–76)	71[c] (51–100)	<0.01	53 (34–80)	
Minerals						
Sodium (mg)						
Weekdays	2400[a] (2100–2900)	2100[b] (1900–2500)	1800[c] (1600–2200)	<0.01	2100 (1800–2500)	<0.01
Weekends	2500[a] (2200–3100)	2300[b] (2000–2800)	2100[c] (1700–2500)	<0.01	2300 (1900–2800)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.

[‡]T1 was defined as below the 33rd percentile.

[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).

[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).

Values are medians for each group, with interquartile ranges in parentheses.

[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.

[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Minerals												
Salt equivalent (g)												
Weekdays	6.3[a] (5.2–7.3)	5.5[b] (4.8–6.6)	4.8[c] (4.2–5.6)	<0.01	5.4 (4.6–6.5)	<0.01	6.4[a] (5.2–7.1)	5.6[b] (4.9–6.7)	4.9[c] (4.3–5.6)	<0.01	5.4 (4.6–6.6)	<0.01
Weekends	6.2[a] (5.3–7.6)	5.8[b] (5.0–7.0)	5.3[c] (4.3–6.4)	<0.01	5.8 (4.8–7.0)		6.0[a] (5.1–7.5)	5.7[a] (5.0–6.9)	5.2[b] (4.2–6.3)	<0.01	5.7 (4.7–6.9)	
Potassium (mg)												
Weekdays	1700[a] (1500–1900)	1800[ab] (1500–2000)	1800[b] (1600–2000)	0.04	1800 (1500–2000)	<0.01	1700[a] (1500–1900)	1800[ab] (1600–2000)	1800[b] (1600–2000)	0.05	1800 (1500–2000)	<0.01
Weekends	1200[a] (1000–1600)	1400[b] (1200–1600)	1600[c] (1400–1900)	<0.01	1400 (1200–1700)		1200[a] (990–1600)	1400[a] (1200–1500)	1600[b] (1300–1900)	<0.01	1400 (1200–1700)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Minerals						
Salt equivalent (g)						
Weekdays	6.1[a] (5.4–7.3)	5.4[b] (4.7–6.4)	4.7[c] (4.1–5.6)	<0.01	5.4 (4.6–6.3)	<0.01
Weekends	6.4[a] (5.6–8.0)	5.9[b] (5.0–7.1)	5.4[c] (4.3–6.4)	<0.01	5.9 (4.8–7.1)	
Potassium (mg)						
Weekdays	1700 (1500–1900)	1700 (1500–2000)	1800 (1600–2000)	0.46	1800 (1500–2000)	<0.01
Weekends	1300[a] (1000–1500)	1500[b] (1200–1700)	1600[c] (1400–1900)	<0.01	1500 (1200–1700)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Minerals												
Calcium (mg)												
Weekdays	490[ab] (400–620)	510[a] (410–620)	490[b] (400–580)	0.13	500 (400–600)	<0.01	500 (410–660)	510 (420–620)	490 (390–580)	0.14	500 (400–610)	<0.01
Weekends	370 (260–510)	350 (260–480)	350 (260–480)	0.41	360 (260–490)		350 (260–490)	330 (250–470)	350 (260–470)	0.74	350 (260–470)	
Magnesium (mg)												
Weekdays	170[a] (150–190)	180[b] (150–200)	180[b] (160–200)	<0.01	170 (150–200)	<0.01	170[a] (140–190)	180[b] (160–210)	180[b] (160–200)	<0.01	180 (150–200)	<0.01
Weekends	120[a] (100–150)	140[b] (120–160)	150[c] (130–180)	<0.01	140 (110–160)		120[a] (98–150)	130[b] (120–150)	150[c] (130–180)	<0.01	140 (110–160)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Minerals						
Calcium (mg)						
Weekdays	490 (400–570)	520 (400–630)	480 (410–590)	0.45	490 (400–590)	<0.01
Weekends	410 (290–530)	380 (280–500)	350 (270–490)	0.16	380 (280–510)	
Magnesium (mg)						
Weekdays	170[a] (150–190)	170[ab] (150–200)	180[b] (160–200)	0.09	170 (150–200)	<0.01
Weekends	120[a] (100–150)	140[b] (120–170)	150[c] (130–180)	<0.01	140 (120–160)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake												
Minerals												
Phosphorus (mg)												
Weekdays	800[ab] (710–900)	820[a] (720–930)	780[b] (680–890)	0.04	800 (700–900)	<0.01	810[ab] (710–930)	820[a] (730–930)	780[b] (670–880)	0.07	800 (700–910)	<0.01
Weekends	670 (550–840)	670 (550–780)	680 (570–770)	0.95	670 (560–790)		640 (510–830)	650 (550–760)	670 (550–780)	0.81	650 (540–790)	
Iron (mg)												
Weekdays	4.9 (4.3–5.8)	5.2 (4.4–6.0)	5.1 (4.4–6.0)	0.60	5.0 (4.3–6.0)	<0.01	4.8 (4.2–5.8)	5.1 (4.4–5.9)	5.1 (4.4–6.1)	0.27	5.0 (4.3–6.0)	<0.01
Weekends	3.8[a] (3.1–4.7)	4.1[b] (3.5–4.9)	4.5[c] (3.8–5.4)	<0.01	4.1 (3.4–5.1)		3.8[a] (3.0–4.6)	4.1[b] (3.5–4.7)	4.5[c] (3.7–5.5)	<0.01	4.1 (3.4–5.0)	

	Females (n=302)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††
Micronutrient intake						
Minerals						
Phosphorus (mg)						
Weekdays	800 (710–880)	810 (690–930)	780 (690–890)	0.48	800 (700–900)	<0.01
Weekends	700 (570–840)	710 (560–790)	680 (590–770)	0.88	690 (580–800)	
Iron (mg)						
Weekdays	5.2 (4.4–5.8)	5.4 (4.3–6.3)	5.0 (4.3–6.0)	0.66	5.1 (4.4–6.0)	<0.01
Weekends	3.8[a] (3.2–4.8)	4.1[a] (3.5–5.1)	4.5[b] (3.8–5.4)	<0.01	4.2 (3.5–5.1)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 4. Energy and nutrient intakes by HEI-2020 tertiles on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake												
Minerals												
Zinc (mg)												
Weekdays	6.2 (5.3–7.0)	6.1 (5.5–7.0)	5.9 (5.2–6.9)	0.21	6.1 (5.3–6.9)	<0.01	6.0 (5.1–6.9)	6.1 (5.5–7.0)	6.0 (5.2–6.8)	0.38	6.0 (5.3–6.9)	<0.01
Weekends	5.0 (4.2–6.3)	5.2 (4.5–6.0)	5.2 (4.3–6.3)	0.44	5.1 (4.3–6.2)		4.9 (4.1–6.0)	5.0 (4.5–6.0)	5.1 (4.2–6.3)	0.23	5.0 (4.3–6.1)	
Copper (mg)												
Weekdays	0.72[a] (0.61–0.81)	0.80[b] (0.7–0.9)	0.76[b] (0.67–0.86)	<0.01	0.74 (0.65–0.85)	<0.01	0.67[a] (0.59–0.78)	0.76[b] (0.67–0.88)	0.77[b] (0.66–0.88)	<0.01	0.75 (0.64–0.85)	<0.01
Weekends	0.56[a] (0.48–0.69)	0.60[b] (0.6–0.7)	0.71[c] (0.58–0.81)	<0.01	0.60 (0.5–0.7)		0.56[a] (0.46–0.66)	0.62[b] (0.56–0.69)	0.69[c] (0.57–0.79)	<0.01	0.62 (0.53–0.73)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Micronutrient intake						
Minerals						
Zinc (mg)						
Weekdays	6.4[a] (5.5–7.3)	6.2[ab] (5.3–7.0)	5.8[b] (5.2–6.9)	0.13	6.1 (5.3–7.0)	<0.01
Weekends	5.2 (4.3–6.6)	5.3 (4.5–6.2)	5.2 (4.4–6.3)	0.99	5.3 (4.5–6.3)	
Copper (mg)						
Weekdays	0.74 (0.63–0.83)	0.74 (0.64–0.86)	0.76 (0.68–0.86)	0.32	0.74 (0.66–0.85)	<0.01
Weekends	0.57[a] (0.49–0.70)	0.63[b] (0.54–0.75)	0.71[c] (0.60–0.84)	<0.01	0.64 (0.53–0.76)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†]

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Rice and rice products (g)												
Weekdays	177.0[a] (141.0–225.3)	192.0[b] (150.0–233.8)	197.5[b] (150.8–249.8)	<0.01	188.0 (147.5–236.1)	<0.01	175.8[a] (140.5–227.0)	194.0[ab] (151.0–229.9)	195.0[b] (150.7–242.7)	0.06	188 (149.0–234.0)	<0.01
Weekends	125.0[a] (87.1–186.8)	150.0[b] (100.0–205.0)	155.2[b] (105.0–205.3)	<0.01	147.5 (100.0–200.0)		115.8[a] (81.5–180.0)	150.0[b] (100.0–200.3)	152.5[b] (105.0–200.0)	<0.01	140.0 (100.0–200.0)	
Wheat and wheat products (g)												
Weekdays	77.4[a] (43.0–111.8)	67.5[a] (43.1–93.5)	48.6[b] (23.3–74.9)	<0.01	61.3 (34.1–91.1)	<0.01	73.5[a] (37.7–113.0)	72.8[a] (48.9–95.9)	48.8[b] (26.3–75.6)	<0.01	61.5 (34.5–93.0)	<0.01
Weekends	106.7[a] (71.4–158.5)	94.8[b] (60.3–138.2)	75.0[c] (42.1–110.4)	<0.01	92.1 (58.8–137.5)		105.3[a] (71.3–157.0)	94.8[a] (67.2–132.2)	75.0[b] (42.5–115.5)	<0.01	93.3 (58.4–137.6)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Rice and rice products (g)						
Weekdays	178.1[a] (141.8–225.2)	185.0[ab] (145.3–240.0)	210.0[b] (151.3–259.0)	0.05	188.8 (145.4–239.3)	<0.01
Weekends	140.0[a] (100.0–188.6)	150.0[ab] (100.0–209.3)	160.0[b] (110–228)	0.13	150.0 (100.0–204.3)	
Wheat and wheat products (g)						
Weekdays	78.4[a] (48.9–109.6)	60.0[a] (40.9–89.4)	48.2[b] (21.5–74.8)	<0.01	60.4 (33.3–88.9)	<0.01
Weekends	107.8[a] (71.2–160.9)	94.8[a] (60.2–144.5)	76.0[b] (44–103)	<0.01	88.6 (60.3–137.4)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	p††	Total	p††	T1‡	T2§	T3¶	p††	Total	p††
Other grains and other grain products (g)												
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–1.5)	0.0 (0.0–1.4)	0.35	0.0 (0.0–1.4)	0.07	0.0 (0.0–1.4)	0.0 (0.0–2.0)	0.0 (0.0–2.0)	0.70	0.0 (0.0–2.0)	0.65
Weekends	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–2.9)	<0.01	0.0 (0.0–0.0)		0.0[a] (0.0–0.0)	0.0[ab] (0.0–0.0)	0.0[b] (0.0–0.9)	0.04	0.0 (0.0–0.0)	
Tubers (g)												
Weekdays	31.1 (16.0–51.0)	29.7 (15.1–53.5)	35.3 (18.5–52.8)	0.49	32.3 (16.8–52.5)	<0.01	28.2[a] (13.8–48.1)	28.4[ab] (13.5–53.4)	36.5[b] (19.6–54.8)	0.05	32.5 (15.2–52.2)	<0.01
Weekends	15.6[a] (2.7–35.7)	21.7[b] (4.4–49.5)	27.1[b] (9.0–52.4)	<0.01	20.8 (4.9–47.0)		15.9 (2.1–42.0)	20.1 (6.0–46.6)	27.5 (5.0–52.1)	0.18	20.0 (5.0–47.0)	

	Females (n=302)					
	T1‡	T2§	T3¶	p††	Total	p††
Other grains and other grain products (g)						
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–1.5)	0.0 (0.0–0.0)	0.41	0.0 (0.0–0.0)	0.03
Weekends	0.0[a] (0.0–0.0)	0.0[a] (0.0–0.0)	0.0[b] (0.0–3.0)	<0.01	0.0 (0.0–0.0)	
Tubers (g)						
Weekdays	35.1 (22.8–53.3)	31.5 (16.6–55.2)	31.8 (17.1–52.3)	0.54	32.2 (19.3–52.5)	<0.01
Weekends	14.8[a] (3.2–28.3)	24.2[b] (3.0–52.1)	27.0[b] (12.6–53.4)	<0.01	21.1 (4.8–47.3)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)					Males (n=367)				
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Sugar and sweeteners (g)												
Weekdays	4.8 (3.1–6.9)	5.1 (2.9–8.0)	4.5 (2.5–7.0)	0.29	4.8 (2.8–7.4)	<0.01	4.9 (2.7–7.1)	5.0 (3.1–7.8)	4.4 (2.6–7.2)	0.73	4.9 (2.9–7.4)	<0.01
Weekends	2.2 (0.4–4.5)	1.8 (0.5–4.4)	2.4 (0.6–5.0)	0.44	2.2 (0.5–4.6)		2.3 (0.1–4.9)	1.7 (0.5–3.4)	2.5 (0.7–5.0)	0.31	2.3 (0.5–4.6)	
Legumes (g)												
Weekdays	23.3[a] (9.3–39.6)	36.3[b] (21.8–59.0)	36.0[b] (23.2–56.1)	<0.01	33.3 (17.1–52.3)	<0.01	25.8[a] (10.0–39.6)	34.3[b] (22.6–59.9)	34.1[b] (22.6–52.2)	<0.01	32.3 (16.5–51.0)	<0.01
Weekends	0.5[a] (0.0–12.1)	15.0[b] (0.0–30.0)	20.0[c] (7.5–37.9)	<0.01	10.5 (0.0–27.9)		0.0[a] (0.0–10.5)	15.0[b] (2.5–28.1)	21.5[c] (7.5–39.5)	<0.01	11.5 (0.0–28.3)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Sugars and sweeteners (g)						
Weekdays	4.8 (3.2–6.8)	5.3 (2.7–8.9)	4.5 (2.4–6.9)	0.37	4.7 (2.7–7.4)	<0.01
Weekends	1.7 (0.7–4.1)	1.9 (0.4–4.9)	2.2 (0.6–5.0)	0.89	2 (0.6–4.5)	
Legumes (g)						
Weekdays	20.2[a] (7.3–42.3)	37.5[b] (21.0–59.0)	40.1[b] (23.7–57.8)	<0.01	34.5 (17.2–54.0)	<0.01
Weekends	2.5[a] (0.0–14.4)	13.6[b] (0.0–30.0)	18.8[c] (6.5–37.6)	<0.01	10.0 (0.0–27.6)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††	T1‡	T2§	T3¶	*p*††	Total	*p*††
Nuts and seeds (g)												
Weekdays	0.0[a] (0.0–0.6)	0.3[b] (0.0–1.3)	0.3[ab] (0.0–1.0)	0.01	0.3 (0.0–1.0)	<0.01	0.1[a] (0.0–0.6)	0.5[b] (0.0–1.3)	0.1[a] (0.0–0.8)	0.03	0.3 (0.0–0.9)	<0.01
Weekends	0.0[a] (0.0–0.0)	0.0[ab] (0.0–0.4)	0.0[b] (0.0–0.5)	0.05	0.0 (0.0–0.4)		0.0 (0.0–0.0)	0.0 (0.0–0.3)	0.0 (0.0–0.5)	0.34	0.0 (0.0–0.3)	
Green and yellow vegetables (g)												
Weekdays	55.4[a] (38.6–78.9)	58.8[ab] (42.0–85.3)	62.2[b] (43.7–87.2)	0.02	58.5 (41.5–84.5)	<0.01	56.5 (41.5–78.0)	58.6 (41.0–84.8)	62.4 (41.8–86.9)	0.34	59.2 (41.7–82.9)	<0.01
Weekends	22.8[a] (8.9–37.3)	26.1[b] (15.0–42.1)	34.4[c] (17.5–58.9)	<0.01	27.5 (12.6–48.1)		22.8[a] (9.3–34.0)	27.5[a] (12.8–33.4)	35.8[b] (17.7–61.7)	<0.01	27.5 (12.6–43.9)	

	Females (n=302)					
	T1‡	T2§	T3¶	*p*††	Total	*p*††
Nuts and seeds (g)						
Weekdays	0.0[a] (0.0–0.6)	0.3[ab] (0.0–1.3)	0.3[b] (0.0–1.4)	0.08	0.2 (0.0–1.0)	<0.01
Weekends	0.0 (0.0–0.2)	0.0 (0.0–0.5)	0.0 (0.0–0.5)	0.13	0.0 (0.0–0.5)	
Green and yellow vegetables (g)						
Weekdays	51.5[a] (37.0–79.7)	58.8[ab] (42.0–86.0)	62.2[b] (45.9–88.0)	0.04	57.3 (41.3–85.3)	<0.01
Weekends	21.3[a] (7.3–45.8)	25.1[ab] (15.1–57.8)	33.2[b] (15.4–57.9)	0.02	26.4 (12.5–55.2)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Other vegetables (g)												
Weekdays	83.0 (60.4–104.3)	81.2 (59.3–109.9)	87.8 (63.4–117.3)	0.1	84.2 (61.0–111.2)	<0.01	74.8[a] (51.4–95.8)	79.4[ab] (63.0–115.6)	89.9[b] (63.0–116.8)	0.06	83.0 (60.2–112.2)	<0.01
Weekends	38.5[a] (22.9–70.4)	49.8[ab] (27.4–73.2)	53.0[b] (31.2–81.6)	0.01	48.5 (27.5–75.8)		41.8 (22.4–70.0)	50.5 (27.4–74.8)	45.3 (24.1–73.4)	0.54	47.7 (24.8–72.5)	
Vegetable juice (g)												
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.77	0.0 (0.0–0.0)	<0.01	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.72	0.0 (0.0–0.0)	<0.01
Weekends	0.0[a] (0.0–0.0)	0.0[ab] (0.0–0.0)	0.0[b] (0.0–0.0)	0.05	0.0 (0.0–0.0)		0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.51	0.0 (0.0–0.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Other vegetables (g)						
Weekdays	88.9 (70.2–108.0)	84.6 (55.7–107.4)	87.1 (64.6–121.4)	0.26	86.8 (61.8–110.2)	<0.01
Weekends	37.3[a] (23.2–73.6)	47.2[a] (27.2–71.9)	57.7[b] (37.9–90.3)	<0.01	49.1 (29.0–80.3)	
Vegetable juice (g)						
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.90	0.0 (0.0–0.0)	<0.01
Weekends	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.04	0 (0.0–0.0)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Pickles (g)												
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.19	0.0 (0.0–0.0)	<0.01	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.40	0.0 (0.0–0.0)	<0.01
Weekends	0.0 (0.0–1.6)	0.0 (0.0–1.3)	0.0 (0.0–1.2)	0.51	0.0 (0.0–1.3)		0.0 (0.0–1.5)	0.0 (0.0–1.0)	0.0 (0.0–0.5)	0.34	0.0 (0.0–1.2)	
Fruits (g)												
Weekdays	60.0[a] (30.8–100.8)	89.8[b] (54.4–136.3)	107.3[c] (71.3–168.8)	<0.01	87.8 (47.8–138.5)	<0.01	60.0[a] (34.5–93.6)	86.8[b] (52.8–147.5)	112.3[c] (72.5–173.3)	<0.01	87.7 (46.8–141.5)	0.02
Weekends	52.0[a] (3.5–132.6)	94.6[b] (31.5–165.5)	142.3[c] (81.3–225.7)	<0.01	100.0 (35.3–178.4)		62.3[a] (15.6–148.4)	100.5[b] (28.9–174.1)	128.5[c] (63.8–214.8)	<0.01	100.0 (32.0–178.5)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Pickles (g)						
Weekdays	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.0 (0.0–0.0)	0.46	0.0 (0.0–0.0)	<0.01
Weekends	0.0 (0.0–1.6)	0.0 (0.0–1.6)	0.0 (0.0–1.5)	0.88	0.0 (0.0–0.5)	
Fruits (g)						
Weekdays	56.5[a] (25.0–102.8)	94.9[b] (56.8–125.8)	103.8[b] (68.4–159.1)	<0.01	88.4 (49.9–128.0)	0.01
Weekends	41.5[a] (0.0–125.5)	87.6[b] (34.3–161.8)	158.3[c] (93.8–238.6)	<0.01	99.8 (39.9–177.9)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Mushrooms (g)												
Weekdays	6.4 (2.5–12.0)	6.5 (2.5–13.0)	6.4 (2.7–12.2)	0.83	6.4 (2.5–12.4)	<0.01	6.3 (2.3–10.0)	6.1 (2.5–12.0)	5.9 (2.5–12.4)	0.64	6.2 (2.5–12.2)	<0.01
Weekends	0.6[a] (0.0–5.0)	2.5[b] (0.0–8.1)	2.5[b] (0.0–9.7)	<0.01	2.4 (0.0–7.5)		0.5[a] (0.0–5.0)	2.5[b] (0.0–7.7)	2.5[b] (0.0–10.0)	<0.01	2.1 (0.0–7.5)	
Seaweeds (g)												
Weekdays	0.9 (0.1–2.5)	0.7 (0.2–2.0)	0.9 (0.3–2.1)	0.16	0.8 (0.2–2.3)	0.02	1.0 (0.1–2.5)	0.7 (0.3–2.9)	0.9 (0.3–2.2)	0.54	0.8 (0.3–2.5)	<0.01
Weekends	0.5 (0.0–2.0)	0.8 (0.0–2.5)	0.6 (0.1–2.0)	0.25	0.5 (0.0–2.0)		0.4 (0.0–1.6)	0.5 (0.0–2.4)	0.5 (0.0–1.8)	0.22	0.5 (0.0–2.0)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Mushrooms (g)						
Weekdays	6.4 (3.0–13.2)	7.8 (2.6–14.7)	6.8 (3.1–11.8)	0.8	7.0 (3.0–12.7)	<0.01
Weekends	0.8 (0.0–5.0)	2.5 (0.0–9.9)	2.5 (0.0–8.8)	0.21	2.5 (0.0–7.6)	
Seaweeds (g)						
Weekdays	0.8 (0.1–2.5)	0.7 (0.0–1.6)	0.8 (0.3–2.1)	0.19	0.8 (0.2–2.0)	0.91
Weekends	0.7 (0.0–2.0)	0.9 (0.0–2.5)	0.9 (0.2–2.5)	0.66	0.8 (0.0–2.5)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Fish and shellfish (g)												
Weekdays	28.9[a] (11.8–45.0)	33.5[ab] (17.0–50.0)	32.1[b] (16.9–51.0)	0.09	31.1 (15.0–49.1)	<0.01	30.1 (9.0–49.0)	30.1 (15.2–48.8)	33.3 (19.4–50.1)	0.3	31.5 (15.6–49.1)	<0.01
Weekends	14.2[a] (4.4–29.7)	18.9[b] (7.0–40.8)	22.0[b] (8.6–40.0)	<0.01	18.8 (6.4–39.0)		11.5[a] (2.5–29.7)	19.8[b] (7.0–42.5)	20.0[b] (8.5–40.0)	<0.01	18.2 (6.0–37.3)	
Meat (g)												
Weekdays	67.5[a] (52.4–95.0)	62.2[b] (41.1–82.5)	60.9[b] (44.8–81.7)	<0.01	63.1 (45.0–86.0)	0.78	65.0 (47.0–92.3)	63.6 (41.5–84.6)	58.7 (45.0–78.2)	0.16	61.8 (45.0–82.6)	0.21
Weekends	63.4 (41.4–99.1)	64.9 (47.6–86.6)	60.0 (37.9–85.9)	0.16	61.7 (41.5–89.4)		56.8 (35.5–85.5)	59.6 (45.8–86.3)	58.5 (30.0–86.7)	0.41	58.5 (37.5–86.5)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Fish and shellfish (g)						
Weekdays	26.8[a] (12.8–43.0)	34.1[b] (17.8–50.3)	29.6[ab] (14.4–53.2)	0.11	30.2 (15.0–49.3)	<0.01
Weekends	15.5[a] (6.8–29.8)	17.8[ab] (5.5–40.2)	24.1[b] (9.2–46.9)	0.12	19.8 (7.4–40.0)	
Meat (g)						
Weekdays	70.0[a] (55.7–101.8)	59.5[b] (40.5–80.5)	61.5[b] (43.9–85.8)	<0.01	63.5 (44.8–89.6)	0.33
Weekends	73.9[a] (48.9–109.7)	67.7[ab] (49.9–88.5)	61.7[b] (42.3–85.2)	0.09	67 (47.7–92.5)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends† (cont.)

	Total (n=669)						Males (n=367)					
	T1‡	T2§	T3¶	p††	Total	p††	T1‡	T2§	T3¶	p††	Total	p††
Eggs (g)												
Weekdays	24.0[a] (8.5–41.3)	20.2[ab] (6.8–34.3)	17.5[b] (5.4–32.9)	0.03	20.7 (7.1–35.9)	<0.01	21.4[a] (7.9–40.0)	19.5[ab] (5.0–31.7)	15.0[b] (4.4–32.8)	0.12	17.7 (5.4–34.8)	0.01
Weekends	22.5 (8.1–42.5)	24.9 (10.0–45.0)	23.8 (6.0–42.5)	0.45	23.8 (8.1–43.1)		18.7 (8.3–40.7)	24.5 (9.7–42.4)	22.7 (5.0–42.6)	0.69	21.3 (7.5–42.2)	
Dairy (g)												
Weekdays	221.6 (150.5–299.8)	232.4 (153.6–324.7)	212.0 (155.8–284.7)	0.23	220.9 (153.1–297.1)	<0.01	240.1 (155.8–304.4)	225.7 (156.3–322.9)	216 (133.6–289.1)	0.25	225.4 (153.0–297.8)	<0.01
Weekends	128.9 (49.1–231.4)	142.6 (59.5–248.1)	139.0 (63.2–232.7)	0.76	137.4 (55.0–234.1)		105.5 (41.1–202.3)	140.1 (43.7–224.9)	138.2 (65.5–233.4)	0.32	123.7 (51.5–221.3)	

	Females (n=302)					
	T1‡	T2§	T3¶	p††	Total	p††
Eggs (g)						
Weekdays	24.6 (9.4–41.7)	21.3 (7.5–36.2)	21.3 (7.4–34.9)	0.24	22.1 (8.5–37.8)	0.05
Weekends	26.3 (8.0–42.5)	25.8 (10.2–49.0)	25.2 (7.4–42.5)	0.58	25.9 (8.5–44.3)	
Dairy (g)						
Weekdays	205.0 (141.2–289.7)	235.5 (143.5–325.1)	206.0 (158.4–278.6)	0.4	212.6 (153.0–296.6)	<0.01
Weekends	162.9 (60.3–269.3)	154.6 (77.3–264.6)	139.8 (50.4–232.6)	0.53	150.8 (67.1–250.5)	

†The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
‡T1 was defined as below the 33rd percentile.
§T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
¶T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
††p-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Recreational beverages (g)												
Weekdays	136.5[ab] (50.1–253.1)	174.5[a] (65.9–275.0)	126.5[b] (25.9–220.9)	0.03	141.8 (52.8–250.5)	<0.01	111.8[a] (50.0–227.0)	178.8[b] (75.9–299.9)	126.8[a] (16.9–221.3)	0.04	136.3 (56.5–246.0)	<0.01
Weekends	285.0[a] (117.6–474.3)	190.2[b] (80.2–361.0)	200.0[b] (74.8–374.0)	<0.01	215.0 (85.0–400.0)		282.0 (88.1–461.2)	200.3 (83.7–375.3)	200.0 (76.5–395.1)	0.32	210.0 (84.5–401.5)	
Condiments and seasonings (g)												
Weekdays	97.2 (54.1–140.2)	93.6 (38.6–153.1)	92.2 (36.6–152.1)	0.86	95.8 (43.2–148.1)	<0.01	94.4 (54.1–138.6)	93.3 (41.7–152.2)	87.6 (38.8–152.8)	0.88	91.6 (43.4–147.8)	<0.01
Weekends	29.9 (19.1–47.3)	31.4 (21.9–47.2)	32.0 (20.6–49.9)	0.55	31.2 (20.2–48.1)		31.0 (19.1–50.5)	31.7 (22.4–44.7)	31.7 (19.5–50.0)	0.98	31.6 (20.0–48.3)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Recreational beverages (g)						
Weekdays	156.6 (51.8–278.2)	150.9 (65.2–251.5)	126.5 (26.1–222.6)	0.2	149.9 (51.9–250.9)	<0.01
Weekends	286.3[a] (150.0–498.0)	188.8[b] (75.6–340.1)	200.1[b] (63.8–354.4)	<0.01	225 (86.9–379.0)	
Condiments and seasonings (g)						
Weekdays	100.4 (53.5–143.7)	98.8 (38.1–153.3)	101.5 (32.9–151.1)	0.97	99.7 (40.9–149.2)	<0.01
Weekends	29.1 (18.5–43.6)	31.2 (20.9–50.7)	32.1 (21.2–49.3)	0.4	30.8 (20.3–47.6)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

Table 5. Food group intakes by HEI-2020 tertile on weekdays and weekends[†] (cont.)

	Total (n=669)						Males (n=367)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Fats and oils (g)												
Weekdays	7.9	7.3	7.9	0.7	7.7	0.06	7.0[a]	8.0[ab]	8.8[b]	0.01	7.9	0.12
	(4.9–11.5)	(5.1–11.1)	(5.4–11.4)		(5.2–11.3)		(4.7–9.7)	(4.9–10.9)	(6.1–12.1)		(5.3–11.0)	
Weekends	7.0	7.1	8.0	0.27	7.4		7.3	7.1	8.0	0.52	7.4	
	(4.0–11.0)	(4.0–10.3)	(4.1–12.8)		(4.0–11.2)		(4.0–10.9)	(4.1–9.9)	(4.0–12.3)		(4.1–10.7)	
Confectioneries (g)												
Weekdays	21.8[a]	16.7[a]	13.0[b]	<0.01	15.5	<0.01	18.0[a]	16.8[a]	11.0[b]	0.03	15.0	<0.01
	(5.0–43.3)	(5.7–34.3)	(3.3–28.0)		(5.0–34.0)		(5.0–44.8)	(5.6–39.3)	(2.4–26.8)		(5.0–35.9)	
Weekends	38.5[a]	31.4[b]	29.0[b]	0.01	33.0		41.7[a]	30.0[b]	27.8[b]	0.01	33.0	
	(20.2–64.4)	(14.6–55.0)	(11.9–57.5)		(14.8–59.0)		(19.6–72.3)	(12.9–52.7)	(10.4–59.6)		(12.9–61)	

	Females (n=302)					
	T1[‡]	T2[§]	T3[¶]	$p^{††}$	Total	$p^{††}$
Fats and oils (g)						
Weekdays	9.1[a]	6.9[ab]	7.0[b]	0.03	7.5	0.29
	(5.3–13.6)	(5.2–11.5)	(4.8–10.2)		(5.1–11.7)	
Weekends	6.9	7.3	8.7	0.54	7.4	
	(3.7–11.3)	(3.8–11.9)	(4.1–13.0)		(3.8–12.0)	
Confectioneries (g)						
Weekdays	23.0[a]	16.0[ab]	15.0[b]	0.06	17.6	<0.01
	(7.5–38.8)	(5.5–31.5)	(4.4–28.8)		(5.0–32.5)	
Weekends	36.0	32.5	32.6	0.53	33.3	
	(20.5–57.5)	(15.3–59.7)	(12.9–51.3)		(16.5–56.4)	

[†]The number of participants in each group was: Weekday total T1: n = 203, T2: n = 209, T3: n = 257; Weekday male T1: n = 107, T2: n = 120, T3: n = 140; Weekday female T1: n = 96, T2: n = 89, T3: n = 117; Weekend total T1: n = 214, T2: n = 222, T3: n = 233; Weekend male T1: n = 118, T2: n = 122, T3: n = 127; Weekend female T1: n = 96, T2: n = 100, T3: n = 106.
[‡]T1 was defined as below the 33rd percentile.
[§]T2 was defined as a score at or above the 33rd percentile for each sex (Weekday male ≥51, Weekday female ≥51; Weekend male ≥43, Weekend female ≥42).
[¶]T3 was defined as an HEI-2020 score at or above the 66th percentile for each sex (Weekday male ≥56, Weekday female ≥56; Weekend male ≥49, Weekend female ≥49).
Values are medians for each group, with interquartile ranges in parentheses.
[††]*p*-values for comparisons among groups on weekdays or weekends were determined by the Kruskal–Wallis test, followed by pairwise comparisons with Bonferroni correction, and comparisons between weekday and weekend values were determined by Wilcoxon signed-rank test.
[a, b, c] $p < 0.05$

T1: 180 [140, 210] μg), and vitamin C (T3: 57 [44, 85] mg; T1: 49 [38, 67] mg), potassium (T3: 1800 [1600, 2000] mg; T1: 1700 [1500, 1900] mg), magnesium (T3: 180 [160, 200] mg; T1: 170 [150, 190] mg), copper (T3: 0.76 [0.67, 0.86] mg; T1: 0.72 [0.61, 0.81] mg), and significantly lower intakes of vitamin B-2 (T3: 0.88 [0.74, 1.03] mg; T1: 0.91 [0.81, 1.06] mg), and sodium, expressed as salt equivalent (T3: 4.8 [4.2, 5.6] g; T1: 6.3 [5.2, 7.3] g), phosphorus (T3: 780 [680, 890] mg; T1: 800 [710, 900] mg) than T1. The number of nutrient items showing significant differences between T3 and T1 was greater in males (n = 18) than in females (n = 10).

Nutrient intakes by HEI-2020 score on weekends

Energy and nutrient intakes for HEI-2020 tertiles on weekend days are also shown in Table 4. Overall, weekends showed similar trends to weekdays. Thus, T3 had a significantly higher carbohydrate energy ratio (T3: 57.9 [54.6, 62.4]%; T1: 54.9 [50.0, 58.6]%), significantly lower fat energy ratio (T3: 28.4 [24.5, 32.0]%; T1: 32.4 [28.7, 36.5]%), and significantly higher protein energy ratio (T3: 13.4 [12.0, 14.9]%; T1: 12.9 [11.5, 14.5]%) than T1 on weekends. Carbohydrate intake (T3: 192.0 [170.0, 217.0] g; T1: 175.1 [156.0, 212.1] g) was significantly higher and fat intake (T3: 43.4 [34.3, 51.6] g; T1: 50.4 [39.6, 61.1] g) significantly lower in T3 compared to T1 on weekends. For fatty acids, T3 had significantly lower intakes of saturated fatty acids (T3: 12.92 [10.30, 15.73] g; T1: 18.24 [13.94, 22.48] g) and monounsaturated fatty acids (T3: 15.85 [11.58, 19.50] g; T1: 18.05 [13.39, 22.06] g), and significantly higher intake of n-3 polyunsaturated fatty acids (T3: 1.32 [0.91, 1.70] g; T1: 1.07 [0.77, 1.38] g) compared to T1. For dietary fiber, total (T3: 12.0 [10.0, 14.8] g; T1: 9.6 [7.9, 12.0] g), soluble (T3: 4.6 [3.8, 5.8] g; T1: 3.9 [3.2, 4.9] g), and insoluble fiber intakes (T3: 7.0 [5.8, 8.6] g; T1: 5.4 [4.4, 6.9] g) were significantly higher in T3 than in T1 on weekends; on weekdays, only total and insoluble fiber intakes were significantly higher. Salt equivalent intake (T3: 5.3 [4.3, 6.4] g; T1: 6.2 [5.3, 7.6] g) was significantly lower in T3 than T1, similarly to weekdays. For micronutrients, in addition to those with significant differences on weekdays, intakes of vitamin A (T3: 310 [220, 410] μgRAE; T1: 280 [190, 370] μgRAE), vitamin D (T3: 3.5 [1.8, 5.8] μg; T1: 2.9 [1.8, 4.6] μg), vitamin E (T3: 5.8 [4.4, 7.2] mg; T1: 5.2 [3.9, 6.6] mg), niacin (T3: 8.9 [6.8, 10.9] mgNE; T1: 7.7 [5.6, 10.0] mgNE), vitamin B-12 (T3: 2.40 [1.80, 3.84] μg; T1: 2.34 [1.44, 3.53] μg), pantothenic acid (T3: 3.85 [3.25, 4.45] mg; T1: 3.48 [2.70, 4.21] mg), and iron (T3: 4.5 [3.8, 5.4] mg; T1: 3.8 [3.1, 4.7] mg) were significantly higher in T3 than in T1 on weekends.

Food group intakes by HEI-2020 score on weekdays

Food group intakes for HEI-2020 tertile on weekdays are shown in Table 5. In the whole cohort, T3 had significantly higher intake of rice and rice products (T3: 197.5 [150.8, 249.8] g; T1: 177.0 [141.0, 225.3] g) and significantly lower intake of wheat and wheat products (T3: 48.6 [23.3, 74.9] g; T1: 77.4 [43.0, 111.8] g) compared to T1. T3 also had significantly higher intakes of legumes (T3: 36.0 [23.2, 56.1] g; T1: 23.3 [9.3, 39.6] g), nuts and seeds (T3: 0.3 [0.0, 1.0] g; T1: 0.0 [0.0, 0.6] g), green and yellow vegetables (T3: 62.2 [43.7, 87.2] g; T1: 55.4 [38.6, 78.9] g), and fruits (T3: 107.3 [71.3, 168.8] g; T1: 60.0 [30.8, 100.8] g). For protein source foods, T3 had significantly lower intake of meats (T3: 60.9 [44.8, 81.7] g; T1: 67.5 [52.4, 95.0] g) and eggs (T3: 17.5 [5.4, 32.9] g; T1: 24.0 [8.5, 41.3] g). T3 also had significantly lower intake of confectioneries (T3: 13.0 [3.3, 28.0] g; T1: 21.8 [5.0, 43.3] g) and recreational beverages (T3: 126.5 [25.9, 220.9] g; T1: 136.5 [50.1, 253.1] g) than T1 on weekdays.

Food group intakes by HEI-2020 score on weekends

Food group intakes for each HEI-2020 tertile on weekends are also shown in Table 5. Overall, the differences were similar to those on weekdays. T3 had significantly higher intake of rice and rice products (T3: 155.2 [105.0, 205.3] g; T1: 125.0 [87.1, 186.8] g) and significantly lower intake of wheat and wheat products (T3: 75.0 [42.1, 110.4] g; T1: 106.7 [71.4, 158.5] g) compared to T1, as observed on weekdays. In addition to the food groups that had significantly higher intake in T3 on weekdays (legumes, nuts and seeds, green and yellow vegetables, fruits), T3 also had significantly higher intake of tubers (T3: 27.1 [9.0, 52.4] g; T1: 15.6 [2.7, 35.7] g), other vegetables (T3: 53.0 [31.2, 81.6] g; T1: 38.5 [22.9, 70.4] g), and mushrooms (T3: 2.5 [0.0, 9.7] g; T1: 0.6 [0.0, 5.0] g) on weekends compared to T1. For protein sources, T3 had significantly higher intake of fish and shellfish (T3: 22.0 [8.6, 40.0] g; T1: 14.2 [4.4, 29.7] g) than T1, but intake of meats and eggs (which differed significantly between T3 and T1 on weekdays) was not significantly different between T3 and T1 on weekends. T3 also had significantly lower intake of confectioneries (T3: 29.0 [11.9, 57.5] g; T1: 38.5 [20.2, 64.4] g) and recreational beverages (T3: 200.0 [74.8, 374.0] g; T1: 285.0 [117.6, 474.3] g) than T1, similarly to weekdays.

Comparison of weekday and weekend intakes

Comparisons of nutrient and food group intakes between weekdays and weekends are shown in Tables 4 and 5. Overall, the percentage of energy from protein was significantly higher on weekdays (14.4 [13.5, 15.5]%) than on weekends (13.3 [11.8, 14.7]%), whereas that from fat was significantly lower on weekdays (29.4 [26.8, 32.6]%) than on weekends (30.3 [26.6, 34.2]%). For macronutrients, protein and carbohydrate intakes were significantly higher on weekdays (protein: 50.9 [45.2, 58.1] g; carbohydrate: 193.4 [171.3, 213.8] g) than on weekends (protein: 44.8 [37.8, 52.3] g; carbohydrate: 184.5 [159.8, 211.0] g). Intakes of n-3 and n-6 polyunsaturated fatty acids were significantly higher on weekdays (n-3: 1.41 [1.09, 1.87] g; n-6: 7.45 [6.05, 9.10] g) than on weekends (n-3: 1.17 [0.83, 1.58] g; n-6: 6.90 [5.48, 8.88] g), while there was no significant difference in saturated or monounsaturated fatty acids intake. All measures of dietary fiber (total, soluble, insoluble) showed higher intakes on weekdays (total: 12.7 [11.0, 15.0] g; soluble: 4.6 [4.0, 5.5] g; insoluble: 7.8 [6.7, 9.1] g) than on weekends (total: 10.8 [9.0, 13.4] g; soluble: 4.2 [3.5, 5.2] g; insoluble: 6.3 [5.0, 7.7] g). Salt equivalent intake was significantly lower on weekdays (5.4 [4.6, 6.5] g) than on weekends (5.8 [4.8, 7.0] g). All measured vitamin and mineral in-

takes were significantly higher on weekdays than on weekends.

With regard to food groups, there were significant differences between weekdays and weekends in all categories except other grains and other grain products, meats, and fats and oils. For grain staples, intake of rice and rice products was significantly higher on weekdays (188.0 [147.5, 236.1] g) than on weekends (147.5 [100.0, 200.0] g), whereas intake of wheat and wheat products was higher on weekends (weekdays: 61.3 [34.1, 91.1] g; weekends: 92.1 [58.8, 137.5] g). Weekday intakes of tubers, legumes, nuts and seeds, green and yellow vegetables, other vegetables, mushrooms, and seaweeds were all significantly higher than weekend intakes, while fruit intake was significantly lower on weekdays (87.8 [47.8, 138.5] g) than on weekends (100.0 [35.3, 178.4] g). For protein source foods, fish and dairy intakes were significantly higher on weekdays (fish and shellfish: 31.1 [15.0, 49.1] g; dairy: 220.9 [153.1, 297.1] g) than on weekends (fish and shellfish: 18.8 [6.4, 39.0] g; dairy: 137.4 [55.0, 234.1] g), whereas egg intake was significantly lower on weekdays (20.7 [7.1, 35.9] g) than on weekends (23.8 [8.1, 43.1] g). Intake of processed meat products (e.g., ham and sausage) was also significantly lower on weekdays than on weekends (data not shown). For condiments and seasonings, intake was higher on weekdays (95.8 [43.2, 148.1] g) than on weekends (31.2 [20.2, 48.1] g), whereas intakes of confectioneries and recreational beverages were lower on weekdays (confectioneries: 15.5 [5.0, 34.0] g; recreational beverages: 141.8 [52.8, 250.5] g) than on weekends (confectioneries: 33.0 [14.8, 59.0] g; recreational beverages: 215.0 [85.0, 400.0] g).

DISCUSSION

Diet quality of young children in Japan has not been examined previously using HEI-2020. It has been suggested that preschool children attending nursery school have better nutritional status on weekdays than on weekends,13 but the overall diet has not been evaluated comprehensively and directly compared between weekdays and weekends. In this study, we assessed food group intake and diet quality using HEI-2020 in children aged 3–5 years to clarify the characteristics of diets on weekdays versus weekends.

The total HEI-2020 score in this study was similar to scores reported for children's diets in the United States and other countries.[19–21] When compared with those of American children, Japanese children scored higher on Greens and Beans, Seafood and Plant Proteins, Saturated Fats, and Added Sugars, and lower on Whole Grains, Refined Grains, and Dairy.[19] In terms of the percentage of maximum scores for each component, the median scores for Total Protein Foods, Seafood and Plant Proteins, and Added Sugars were almost the maximum, whereas those for Whole Grains and Refined Grains were 0. Additionally, the high HEI-2020 tertile had significantly lower saturated fatty acids intake and significantly higher intakes of dietary fiber and various vitamins and minerals compared to the low score tertile. Therefore, we believe that HEI-2020 can objectively evaluate the Japanese dietary pattern, which is characterized by a refined rice staple, high intakes of fish and plant foods, and relatively low intakes of red meat and sugar-sweetened beverages.31 Moreover, among Japanese children, insufficient intakes of iron and vitamins and excessive salt intake have been identified.[13, 32] The HEI-2020 score captured differences in intakes of these nutrients, suggesting the HEI-2020 is useful for Japanese children. The JFGST, a Japanese diet quality index, is mainly based on the balance of dishes and does not include nutrient-level components such as added sugars, fatty acids, and sodium.[15, 16] By applying the HEI-2020, which incorporates both food-group and nutrient-

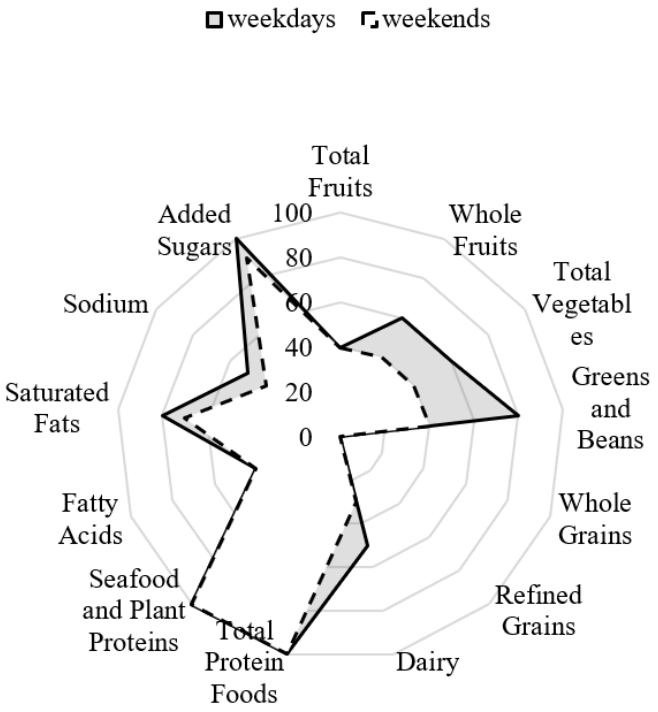

Figure 1. Comparison of weekday and weekend HEI-2020 component scores

based components, this study was able to evaluate the diet quality of Japanese preschool children in a more comprehensive and internationally comparable manner.

Despite these strengths, several limitations of the HEI-2020 should be acknowledged. Because the HEI-2020 evaluates diet quality per unit of energy intake,[17] it does not account for total food or energy consumption. Japanese children generally have lower total energy intakes than children in the United States; therefore, when interpreting HEI scores, it is important to consider both diet quality and overall energy adequacy.[33, 34] In addition, the HEI-Toddlers-2020—developed for children under two years of age—highlights age-specific considerations in assessing diet quality.[35] For instance, it assigns a maximum score of 0 g for added sugars, reflecting the recommendation that added sugars should be avoided in this age group because of high nutrient requirements relative to limited energy intake. Although no specific recommendations for saturated fatty acids intake exist for toddlers,18 an upper limit is set since excessive intake could displace energy needed to meet goals for other food groups and subgroups.[17, 35] Taken together, these points emphasize that, when evaluating the diets of young children, HEI scores should be interpreted with attention to reference values for energy-providing nutrients and potential trade-offs among dietary components. By adjusting certain components, such as protein, added sugars, and grains, to better align with intake levels of Japanese preschoolers, the HEI-2020 could be used as a culturally adaptable and appropriate tool for evaluating diet quality in this population. Furthermore, this study demonstrates the cultural adaptability of the HEI-2020, indicating that it is applicable in non-Western regions with relatively Westernized dietary patterns and stable economic conditions, such as Japan and Korea,[22, 23, 36] while its applicability may be limited in areas where diets are more strongly rooted in local traditions or where food availability is restricted.

The HEI-2020 weekday scores were significantly higher than those on weekends, with the median total score improving by approximately 8 points from weekends (46 points) to weekdays (54 points), indicating a substantial enhancement in overall diet quality. This finding is consistent with a prior study showing more favorable energy and nutrient intakes on weekdays than on weekends.[13] Because nursery school meals are provided under the management of registered dietitians who control the energy and nutrient content, diet quality as assessed by HEI-2020 was also better on weekdays than on weekends. In addition, the difference between the highest and lowest HEI-2020 tertile (T3 vs. T1) scores was larger on weekends than on weekdays, with a median difference of about 16 points on weekends compared to about 13 points on weekdays. Similarly, the numbers of energy and nutrient items and food group items showing significant differences were greater on weekends than on weekdays, indicating that diet quality varied more widely among individuals on weekends than on weekdays. The T3 (high) HEI-2020 score on weekends was equivalent to the T2 (middle) score on weekdays, indicating that only one-third of children consumed diets on weekends of comparable quality to dietitian-managed weekday nursery meals, while two-thirds consumed diets of lower quality on weekends than on weekdays.

Weekday scores were significantly higher than weekend scores for all HEI-2020 components except Refined Grains, Fatty Acids, and Saturated Fats. Dairy and Greens and Beans had the largest weekday–weekend score differences, which corresponded to a difference of over 100 g in milk intake between weekdays and weekends. Many nursery schools provide milk to children to supply calcium and vitamins, which likely contributed to this difference. Additionally, weekday intakes of legumes, green and yellow vegetables, and other vegetables were significantly higher than on weekends. The differences were approximately 3-fold for legumes and about 2-fold for vegetables. Vegetables are rich in vitamins and dietary fiber, which are important for child development, and the target vegetable intake for ages 3–5 is 240 g per day.37 Even on weekdays (with higher diet quality scores), intake was still 80–100 g short of this target. Therefore, it is important to increase vegetable consumption at breakfast and dinner on weekdays (outside of nursery-provided lunch), as well as in meals on weekends.

Whole Fruits scores were higher on weekdays, but food-group-based fruit intake was greater on weekends. This is likely because fruit intake in this study included jam, 100% fruit juice, and sugar-sweetened fruit drinks, which were consumed more frequently on weekends. Some of these beverages contain added sugars; therefore, increasing the consumption of fresh fruits (Whole Fruits) on weekends is important for improving diet quality. In the HEI-2020 scoring system, 100% fruit juice is included in "Total Fruits" but not in "Whole Fruits", whereas sugar-sweetened fruit drinks are evaluated as "Added Sugars". Because both 100% fruit juice and sugar-sweetened fruit drinks were counted as fruit intake in the food-group analysis of this study, the greater fruit intake observed on weekends does not necessarily correspond to higher HEI-2020 fruit component scores.

The weekday score was higher (indicating better) for Sodium, and actual salt intake was significantly lower on weekdays than on weekends. However, intake of seasonings, the main source of salt in the Japanese diet,[38] was significantly higher on weekdays. On weekends, children consumed more wheat and wheat products and processed meat products (such as ham and sausage), which likely led to the higher observed salt intake. The score for Added Sugars was also higher on weekdays. Consumption of confectioneries and recreational beverages was higher on weekends, and, as noted above, consumption of jam and fruit juice as part of fruit intake was likely higher as well. Thus, to improve diet quality, it is important to avoid excessive intake of these sugar-rich foods on weekends.

This study has some limitations. First, the participants were limited to preschool children attending nursery schools, and the response rate was 28.7%. However, since the respondents were from all regions of Japan (except Okinawa), the sample likely reflects national characteristics to some extent. Generalization of the results needs to account for households with children who do not attend nursery schools and those that did not respond to the survey. Although participants were recruited from multiple regions, regional differences were not statistically con-

trolled for, and dietary habits may vary by region due to cultural and environmental factors. Furthermore, the relatively low participation rate suggests that families with higher health literacy or greater interest in nutrition may have been more likely to participate. Second, the survey was conducted in 2019–2020, during the spread of COVID-19. This period reportedly affected household finances, and families may have opted for cheaper foods compared to years without the impact of the pandemic. Third, the data were collected between October and December, and seasonal variation in dietary intake was not controlled for. Therefore, the results may not fully reflect children's dietary patterns throughout the year. However, despite nursery lunches accounting for only one of the three daily meals on weekdays, we still observed a significant difference in diet quality between weekdays and weekends. This highlights the importance of improving the quality of meals at home and, ultimately, the overall dietary environment of Japanese preschool children.

Conclusion

This study is the first to apply the HEI-2020, which is based on U.S. dietary guidelines, to evaluate the diet quality of Japanese preschool children. The results showed that HEI-2020 is effective for the objective assessment of diet quality in this population. Furthermore, this study provides novel evidence that the HEI-2020 is applicable to the dietary patterns of Japanese preschool children. Diets on weekdays were found to be of significantly higher quality and less variable than those on weekends. Given the large differences in the intakes of Dairy and Greens and Beans between weekdays and weekends, greater consumption of these food groups on weekends may contribute to improving overall diet quality.

DISCLOSURE ON THE USE OF AI AND AI-ASSISTED TECHNOLOGIES

AI-assisted technologies were used solely for language proofreading. They were not involved in data collection or analysis, or in the creation of images or graphical elements. The authors reviewed and edited the content and take full responsibility for the content of the publication.

CONFLICT OF INTEREST AND FUNDING DISCLOSURES

HA declares that she is employed by NISSIN FOODS HOLDINGS CO., LTD. and has no competing interests. The other authors declare that they have no competing interests.

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