

The Six-Food Elimination Diet for Eosinophilic Esophagitis Increases Grocery Shopping Cost and Complexity

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Abstract The six-food elimination diet (SFED), where dairy, wheat, eggs, soy, nuts, and seafood are avoided, is an effective treatment for eosinophilic esophagitis (EoE). Patient-related costs of this approach, however, are unknown. We aimed to assess the cost of and ease of shopping for an SFED compared to an unrestricted diet. A dietitian with expertise in EoE generated menus meeting dietary requirements for a week's worth of meals for the SFED and an unrestricted diet. We compared prices and the number of missing items for both diets at standard and specialty grocery stores. The average weekly price of the SFED at a standard supermarket was \$92.54 compared to \$79.84 for an unrestricted diet ($p = 0.0001$). A patient shopping at a standard grocery store needed a higher proportion of items from a second store compared to an unrestricted diet (32 vs. 3 %, $p = 0.0001$). The prices of the SFED and unrestricted diet using a specialty supermarket were comparable (\$106.47 vs. \$105.96, $p = 0.81$),

as was the percentage of items requiring a trip to a second store (6 vs. 2 % items, $p = 0.03$). Shopping at a specialty grocery store increased weekly grocery costs by \$13.93 ($p = 0.04$) for the SFED and \$26.12 ($p = 0.03$) for the unrestricted diet. In conclusion, for patients shopping at standard grocery stores, the cost of an SFED is higher, and an SFED requires more items from a second store. These differences disappear at specialty grocery stores, but costs were significantly higher. This cost and logistical burden can inform patients when selecting dietary therapy.

Keywords Six-food elimination diet · Dietary therapy · Eosinophilic esophagitis · Targeted elimination diet · Cost analysis · Deglutition · Deglutition disorders

Introduction

Eosinophilic esophagitis (EoE) is a chronic inflammatory disease characterized by eosinophilic infiltration of esophageal epithelium [1, 2]. EoE clinically presents with food impaction and difficulty swallowing in adolescents and

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adults, and abdominal pain, vomiting/regurgitation, heartburn, chest pain, and failure to thrive in children [3]. Diagnosis of EoE has been increasing rapidly, with the prevalence now estimated at 57 per 100,000 [4]. It is thought to be an allergic disease, and in many patients, the underlying pathogenesis is related to exposure to food allergens [5]. Avoiding exposure to these food allergens through elimination diets is a viable treatment option for patients with EoE in both children and adults [6–13], and such diets are now considered to be an appropriate first-line therapy for EoE [2].

While elemental diets appear to have the highest efficacy [11], use of this formula presents difficulties and may not be practical in many patients [3, 7, 8]. Therefore, the six-food elimination diet (SFED) was developed as a more palatable and acceptable strategy that works in >70 % of patients [8–11, 14]. This approach requires elimination of dairy, wheat, eggs, soy, nuts, and seafood, the six most common food triggers of EoE [8, 9, 14]. Patients embarking on the SFED undergo a process that can be labor-, cost-, and time-intensive due to the repeated endoscopies required during the food reintroduction period [3, 10, 14]. The additional costs associated with shopping and purchasing specialty grocery products for the SFED is thought to be an added burden to the patient, but the cost and shopping burden of this diet for patients is currently unknown.

The aim of this study was to assess the real-world cost and complexity encountered when shopping for the food-stuffs required to adhere to an SFED compared to an unrestricted diet, examining both standard and specialty grocery stores. We hypothesized that groceries would be more expensive for the SFED diet compared to a standard diet, and that it would not be possible to find all required items for the SFED during a single shopping at a standard grocery store.

Methods

Diet Creation

A dietitian with expertise in EoE generated calorie- and nutrient-matched menus meeting dietary requirements for a week's worth of meals for both the SFED and unrestricted diet. These menu plans were carefully constructed to ensure that daily nutritional goals and requirements were met, and that the types of meals were comparable. The menus were also designed to be feasible, palatable, and accessible in both adult and pediatric patients (3 days of menus were generated for each diet and then were duplicated to account for the full week; these are available in Supplemental Tables 1 and 2). These menus were then used to generate a unit-price-based shopping list for

specific items and with sufficient ingredients to comprise a full week of food.

Pricing of Menus and Data Collection

Two methods were used to price the SFED and standard menus for data collection. For the first method, grocery stores were identified in eight cities throughout the United States. We then called each store to determine the price for each item on the shopping list and whether a specific product was available at that store. For the second method, grocery stores affiliated with the online shopping tool Instacart (instacart.com) were identified in six cities in the U.S. Here, the online tool was used to determine pricing and availability for all items on the shopping list. For both methods, a local or regional grocery store was identified in each city and designated our standard grocery store, and the local branch of a national chain was designated as the specialty store (Supplemental Table 3). Using these methods, we determined prices and documented whether all items on the shopping list could be purchased at a single grocery store. If the item could not be found at the standard grocery store, we identified the price at the specialty grocery store in the same city and vice versa. If an item could not be identified at either grocery store in a given city, we used the average price across all other cities to ensure that weekly prices would be complete and comparable.

Statistical Analysis

SAS version 9.3 (Cary, NC) was used to generate summary values and statistical comparisons. Data were paired by city and the Wilcoxon signed-rank test was used to compare the weekly cost and the number of items missing by diet (SFED vs unrestricted) and by grocery store (standard vs. specialty).

Results

The average weekly price of the SFED at a standard supermarket was \$92.54 compared to \$79.84 for an unrestricted diet ($p = 0.0001$; Table 1; Fig. 1). A patient shopping at a standard grocery store for the SFED needed a higher proportion of items from a second store to complete the shopping when compared to a patient consuming an unrestricted diet (32 vs. 3 %, $p = 0.0001$; Table 2). The prices of the SFED and unrestricted diet using a specialty supermarket were comparable (\$106.47 vs. \$105.96, $p = 0.81$). A small but significant difference between the percentage of missing items persisted when shopping at a specialty supermarket (6 % SFED vs. 2 % unrestricted, $p = 0.03$). A patient shopping for the SFED needed more

Table 1 Weekly menu cost (in US \$) by city and supermarket

City	Unrestricted diet standard supermarket	SFED diet standard supermarket	Unrestricted diet specialty supermarket	SFED diet specialty supermarket
Prices obtained via phone				
San Diego, CA	65.13	68.15	113.28	94.79
Philadelphia, PA	66.46	71.67	76.56	113.4
Chicago, IL	65.95	85.54	141.27	117.34
Boston, MA	73.85	83.33	90.72	105.12
Chapel Hill, NC	65.98	92.72	142.11	96.67
Cincinnati, OH	66.40	78.18	105.34	102.58
Indianapolis, IN	64.92	91.46	113.28	128.77
Seattle, WA	64.70	75.20	90.13	114.25
Mean phone	66.67	80.78	109.09	109.12
Prices obtained via online shopping				
Atlanta, GA	90.85	108.60	99.01	112.52
Boston, MA	105.94	116.60	98.27	98.95
Chicago, IL	77.26	98.97	100.61	106.71
Houston, TX	90.11	97.28	101.85	103.78
San Francisco, CA	110.60	110.90	116.51	102.98
Seattle, WA	109.66	117.00	94.54	92.78
Mean web	97.40	108.23	101.80	102.95
Weekly mean price $\pm$ SD	79.84 $\pm$ 17.97 ^a	92.54 $\pm$ 16.43 ^{b,c}	105.96 $\pm$ 18.40 ^d	106.47 $\pm$ 9.90
Annual price	4151.87	4812.23	5510.07	5536.66

^a $p = 0.003$ comparing the price of the unrestricted diet at a standard supermarket and a specialty supermarket

^b $p = 0.04$ comparing the price of the SFED diet at a standard supermarket and a specialty supermarket

^c $p = 0.0001$ comparing SFED price to the price of the unrestricted diet at a standard supermarket

^d $p = 0.81$ comparing SFED price to the price of the unrestricted diet at a specialty supermarket

Fig. 1 Bar graph comparing the average price (US \$ $\pm$ SD) per week of groceries between an unrestricted diet and an SFED at a standard grocery store and a specialty store

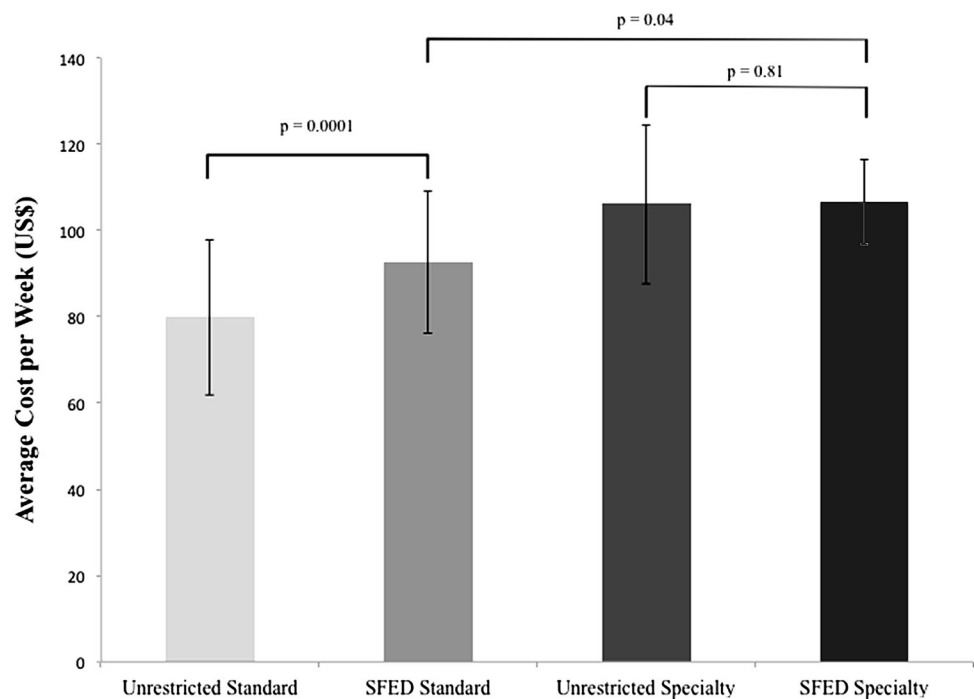


Table 2 Frequency of missing menu items by diet and grocery store

City	Unrestricted diet standard supermarket <i>n</i> (%)	SFED diet standard supermarket <i>n</i> (%)	Unrestricted diet specialty supermarket <i>n</i> (%)	SFED diet specialty supermarket <i>n</i> (%)
Prices obtained via phone				
San Diego, CA	3 (7)	18 (39)	0 (0)	0 (0)
Philadelphia, PA	2 (5)	19 (41)	0 (0)	0 (0)
Chicago, IL	2 (5)	19 (41)	0 (0)	2 (5)
Boston, MA	2 (5)	17 (37)	0 (0)	5 (11)
Chapel Hill, NC	2 (5)	17 (37)	1 (2)	1 (2)
Cincinnati, OH	1 (2)	20 (43)	1 (2)	0 (0)
Indianapolis, IN	1 (2)	18 (39)	1 (2)	1 (2)
Seattle, WA	2 (2)	17 (37)	1 (2)	10 (22)
Mean phone	1.9 (4)	18.1 (39)	0.5 (1)	2.4 (5)
Prices obtained via online shopping				
Atlanta, GA	1 (2)	12 (26)	1 (2)	0 (0)
Boston, MA	0 (0)	12 (26)	1 (2)	8 (17)
Chicago, IL	0 (0)	7 (15)	1 (2)	2 (5)
Houston, TX	1 (2)	14 (30)	1 (2)	4 (9)
San Francisco, CA	0 (0)	7 (15)	1 (2)	1 (2)
Seattle, WA	1 (2)	9 (20)	1 (2)	4 (9)
Mean web	0.5 (1)	10.2 (22)	1.0 (2)	3.2 (7)
Summary statistics, number of missing items				
Mean $\pm$ SD	1.3 $\pm$ 0.9 ^a	14.7 $\pm$ 4.6 ^{b,c}	0.7 $\pm$ 0.5 ^d	2.7 $\pm$ 3.2
Median (IQR [†])	1 (1)	17 (6)	1 (1)	2 (4)
Percentage missing $\pm$ SD	3 $\pm$ 2	33 $\pm$ 10	2 $\pm$ 1	6 $\pm$ 7

n = 46 items on the SFED shopping list and *n* = 44 items on the unrestricted list

[†] interquartile range

^a *p* = 0.12 comparing percentage of missing items on the unrestricted shopping list between standard and specialty supermarkets

^b *p* = 0.0001 comparing percentage of missing items on the SFED shopping list between standard and specialty supermarkets

^c test *p* = 0.0001 comparing percentage of missing items on the SFED shopping list to the percentage on the unrestricted list at a standard supermarket

^d test *p* = 0.03 comparing percentage of missing items on the SFED shopping list to the percentage on the unrestricted list at a specialty supermarket

items from a second store to complete his/her shopping at a standard store as compared to shopping at a specialty store (32 vs. 6 %, *p* = 0.0001). Shopping at a specialty grocery store increased weekly grocery costs by \$13.93 (*p* = 0.04) for the SFED and \$26.12 (*p* = 0.03) for the unrestricted diet. The overall excess annual cost of an SFED compared to an unrestricted diet at a standard grocery store was \$654.

Discussion

Dietary elimination therapy for EoE using the SFED has emerged as an effective first-line non-pharmacologic treatment for EoE in both children and adults. A recent study demonstrated that this approach is cost-effective from a payer perspective based on the cost of medical

procedures and prescriptions [15], but the patient-level costs associated with adhering to the SFED have not been previously assessed. The aim of this study was to determine these costs and assess the ease of shopping for the SFED compared to a normal unrestricted diet. Our data show that not only is the cost of the SFED higher than the cost of an unrestricted diet, with an excess annual cost of greater than \$650/year, but that it also requires patients to visit a second grocery store for more items in order to complete a shopping trip, thereby adding a further cost burden not included in our analysis in terms of gas, vehicle wear and tear, and time. Interestingly, for patients already shopping at specialty grocery stores, switching from an unrestricted diet to the SFED would not add significant cost or shopping burden, a fact which makes switching diets less burdensome for this group. However, the shopping bill for the SFED at

a specialty store was considerably higher (over \$720/year) than at a standard grocery store. These data allow the cost and logistical burden of maintaining an SFED to be communicated to patients and can help to inform a decision between swallowed steroids and dietary therapy.

The added costs and shopping burden associated with the SFED are significant both statistically and in practice. The cost difference associated with the switch from an unrestricted diet to the SFED diet at a standard grocery store represents 4 % of the annual income for a two-person household at the Federal Poverty Level in 2015 [16]. Our estimates are for the cost of a diet for one person for one week. If an entire family adopts the SFED to avoid the burden of cooking multiple meals, the cost difference will be multiplied. Moreover, our research likely underestimates the complexity and time-related costs of executing an SFED. Our research team required considerable dietitian assistance, and this may be a major challenge for patients with limited health literacy, financial means, or the time to carefully read labels. However, we acknowledge that the burdens and costs identified here are specific to the menus which we used to generate food availability and pricing. Variation in these menus would produce variation in the costs and burdens. The burden of the cost of medical care is partially or fully offset by insurance; there is no comparable mechanism to support a patient with the added burden associated with the cost of dietary therapy.

This is the first study in the literature to evaluate the real-world costs and shopping burden associated with the SFED compared to a normal unrestricted diet, but there are both strengths and limitations to acknowledge. A major strength of this study was the development of nutritionally complete, palatable, and feasible menu plans for EoE. While others have documented best practices for instituting and maintaining an SFED [17], these menu plans are unique in the EoE literature. The dietitian who developed our menu plans was not blinded to the purpose of this study. This raises the possibility that her menu planning could have been influenced by a conscious or subconscious desire to alter the cost of one of the diets. Additionally, data collection was comprehensive as we selected 12 different cities across the United States for representation and used two different methods, phone and internet, for price determination. However, because we collected data via phone and internet rather than physically going to the supermarkets, our data collection methods did not represent how most patients would shop for groceries. The cost of our unrestricted diet is about \$80 per week which falls within the range of U.S. Department of Agriculture's cost of food estimates which puts the cost of feeding an adult male aged 19–50 at \$43–86 per week [18]. Our value likely falls toward the higher end of this range because of our focus on urban areas which tend to have higher costs of

living. The online platform also had some intrinsic limitations. The available selection online was not always representative of in-store availability. Furthermore, Instacart guaranteed “same as in-store pricing” for the specialty supermarkets, but had “15 % + higher than in-store pricing” for the standard supermarkets. This indicates that average prices using this method are at least 15 % higher compared to the average price for those shopping traditionally in the stores. Because we recognized this as a potential limitation, we tested this assumption by comparing prices for both diets at the standard grocery (Safeway) in San Francisco using both Instacart and the online shopping platform at Safeway.com. Notably, we found that the prices at Safeway.com were 33 and 13 % lower than prices found at Instacart for the unrestricted and SFED diets, respectively. Thus, the differences between standard and specialty supermarkets, while already statistically significant in the data presented in this paper, may be greater in practice, and our results might actually underestimate the costs associated with the SFED. However, we also acknowledge that a SFED is often not the final dietary treatment, and foods are added back to identify triggers and attempt to minimize the number of foods that need to be eliminated [3, 9–11]. Because of this, the excess SFED costs that we documented likely decrease as more foods are reintroduced. Thus, our cost and burden estimates are most applicable to the period of maintenance on the full SFED consumption with the costs and burdens decreasing over time for most patients.

In conclusion, the cost and logistical burden associated with maintaining the SFED represent a significant increase as compared to an unrestricted diet, and should be considered by patients when deciding between swallowed steroids and dietary therapy. Future research should assess whether the difference in these dietary costs is offset by the price of medication in patients selecting pharmacologic therapy, and to what extent these costs might impact compliance with dietary therapy in clinical practice.

Author Contributions WAW: Data analysis, drafting of the manuscript, critical revision of the manuscript, KZH: Data acquisition, drafting of the manuscript, critical revision of the manuscript, RD: Technical expertise, critical revision of the manuscript, ZJI, BSR, and FJK: Data acquisition, critical revision of the manuscript, ESD: Study concept and design, study oversight, critical revision of the manuscript.

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Compliance with Ethical Standards

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Supplemental Materials

Supplemental Table 1. Dietitian-generated Unrestricted Diet Menu

Day 1	<u>Portion size</u>	<u>Calories</u>	<u>Fat (g)</u>	<u>Protein (g)</u>	<u>Carbohydrates (g)</u>	<u>Fiber (g)</u>
<u>BREAKFAST</u>						
Oatmeal, cooked in water	1/2 cup	150	2	5	27	5
Butter	2 teaspoons	70	7	0	0	0
Orange slices	1 small	45	0	1	11	2
Milk, 2 %	8 ounces	120	5	8	12	0
total		385	14	14	50	7
<u>LUNCH</u>						
Peanut butter	2 tablespoons	190	16	8	6	2
Jelly, grape	1 tablespoon	45	0	0	13	0
Pretzels	1 ounce	110	1	3	23	1
Yogurt	6 ounces, FF	110	0	8	14	0
Bread, 100% whole wheat	2 slices	160	2	6	28	7
Water	16 ounces	0	0	0	0	0
total		615	19	25	84	10
<u>DINNER</u>						
Chicken, breast, grilled	3 ounces	160	7	22	0	0
Olive oil	2 teaspoons	80	9	0	0	0
Couscous	1 cup	175	0	6	36	6
Broccoli, steamed	1 cup	35	0	0	6	2
Butter	1 teaspoon	35	4	0	0	0
Milk, 2%	8 ounces	120	5	8	12	0
total		605	25	36	54	8
<u>SNACKS</u>						
Granola Bar, chocolate chip	1 bar	100	4	1	17	1

Apple	1, medium	95	0	0	25	4.5
Triscuits	1 serving	120	4	3	20	3
Ice cream	1/2 cup	130	7	3	14	0
total		445	15	7	76	8.5
DAILY TOTALS		2050	73	82	264	33.5
Percentage total calories			32	16	52	

Day 2	<u>Portio</u> <u>n Size</u>	<u>Calo</u> <u>ries</u>	<u>F</u> <u>at</u> (g)	<u>Pro</u> <u>tein</u> (g)	<u>Carboh</u> <u>ydrates</u> (g)	<u>Fi</u> <u>be</u> <u>r</u> (g)	<u>Vita</u> <u>min</u> <u>D</u> (IU)	<u>Calc</u> <u>ium</u> (mg)	<u>Iro</u> <u>n</u> (m g)
<u>BREAKFAST</u>									
Cereal, cheerios	3/4 cup	80	1.5	2	15	0	0	80	9
2% milk	8 ounce	100	2.5	8	11	0	150	300	0
Banana, small	1	90	0	1	23	2.5	0	0	0.18
Orange Juice	4 ounce	55	0	1	12.5	0	0	30	0.54
total		325	4	12	61.5	2.5	150	410	9.72
<u>LUNCH</u>									
turkey breast	3 ounce	88	1.5	14.5	3.5	0.5	0	10	1.26
medium cheddar cheese	1 slice	80	7	5	0	0	0	150	0
lettuce, leaf	2 leafs	8	0	0	1	0.5	0	0	0.18

100% whole wheat bread	2 slices	120	1	8	22	4	0	120	1.44
tomato, medium slice	2 slices	8	0	0	2	0.5	0	0	0
apple, medium	1	95	0	0	25	4.5	0	10	0.18
veggie straws	38 straws	130	7	1	15	1	0	0	0.36
water	16 ounce s	0	0	0	0	0	0	0	0
total		529	16.5	28.5	68.5	11	0	290	3.42

DINNER

Pasta, spaghetti marinara sauce	1/8 box	200	1	7	42	2	0	0	0.18
garlic bread	1/2 cup	65	2	2	10	2	0	30	0.9
parmesan cheese, shredded	1 piece	150	8	3	15	1	0	0	1.08
2% milk	1/4 cup	110	8	9	0	0	0	300	0
	8 ounce s	100	2.5	8	11	0	150	300	0
total		625	21.5	29	78	5	150	630	2.16

SNACK

Greek yogurt, light & fit	1 container	80	0	12	8	0	0	150	0
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strawberry baby carrots	4 ounce s	40	0	0	9	3	0	40	0.9
hummus	2 table poons	70	5	2	4	1	0	20	0.7 2
Nutrition wholesome nut mix	28 grams	170	1 5	5	7	2	0	40	1.4 4
Protein bar, choc chip cookie dough	1 bar	190	8	21	21	17	0	100	1.8
total		550	2 8	40	49	23	0	350	4.8 6
DAILY TOTALS		2,04 9	7 0. 5	110 .5	262	44 .5	360	1,70 0	19. 26
Percentage total calories			3 0	22	51				

Day 3	<u>Portion Size</u>	<u>Calories</u>	<u>Fat</u> (g)	<u>Protein</u> (g)	<u>Carbohydrates</u> (g)	<u>Fib</u> (g)
<u>BREAKFAST</u>						
Whole-wheat waffle	2	170	6	5	26	3
sugar-free syrup	1/4 cup	20	0	0	8	0
butter	1 teaspoon	35	4	0	0	0
blueberries, fresh	1/2 cup	42	0	0.5	11	1.8
turkey bacon	3 slice	75	6	6	0	0
milk, 2%	8 ounces	100	2.5	8	11	0
total		442	18.5	19.5	56	4.8
<u>LUNCH</u>						
tuna salad, lemon	5 oz	150	1	35	0	0

pepper						
multigrain crackers	24 crackers	120	3	3	23	3
carrot sticks	3 oz	35	0	1	8	2
italian vinaigrette	2	80	8	0	3	0
	tablespoons					
blackberries	1 cup	62	1	2	14	8
water	16 ounces	0	0	0	0	0
total		447	13	41	48	13

DINNER

pulled pork, plain	3 oz	195	12	20	0	0
BBQ sauce	2	70	0	0	16	0
	tablespoons					
green beans, drained, no salt added	1/3 cup	0	1	3	1	0
sweet potato, medium, baked	1	100	0	2	24	4
butter	1 teaspoon	35	4	0	0	0
milk, 2%	8 ounces	100	2.5	8	11	0
total		500	19.5	33	52	4

SNACKS

greek yogurt, strawberry banana	6 oz	80	0	5	14	0
raspberries	1/2 cup	32	0	1	7	4
pineapple, fresh, chunks	1/2 cup	40	0	0	11	1
milk, 2%	8 ounces	100	2.5	8	11	0
protein bar	1 bar	190	12	10	14	5
mini pretzels, unsalted	1 ounces	110	0	3	25	1
total		552	14.5	27	82	11

DAILY TOTALS		1,941	65.5	120.5	238	32.
Percentage total calories			30	25	52	

Supplemental Table 2. Dietitian-generated SFED Diet Menu for 1

Day

Day 1

	<u>Portion</u> <u>Size</u>	<u>Calories</u>	<u>Fat</u> (g)	<u>Protein</u> (g)	<u>Carbohydrates</u> (g)	<u>Fiber</u> (g)
<u>BREAKFAST</u>						
Oatmeal, cooked in water	1/2 cup	150	2	5	27	5
Earthbalance	2 teaspoon	66	8	0	0	0
Orange Slices	1 small	45	0	1	11	2
Hemp milk, unsweetened	8 ounces	70	5	3	1	2
total		331	15	9	39	9
<u>LUNCH</u>						
SunButter, no sugar added	2 tablespoons	211	18	8	4	2
Jelly, Grape	1 tablespoon	50	0	0	13	0
Pretzels, Gluten free	1 serving	140	4	0	24	2
Ener-g bread	2 slices	160	6	2	22	4
Banana	1, medium	120	1	0	27	8
Water	16 ounces	0	0	0	0	0
total		681	29	10	90	16
<u>DINNER</u>						
Chicken breast, baked	3 ounces	130	3	24	0	0
Olive oil	2 teaspoons	80	9	0	0	0
Quinoa	1 cup	223	4	8	39	5
Peas, steamed	1 cup	118	0	8	21	7
Hemp milk, unsweetened	8 ounces	70	5	3	1	2
total		621	21	43	61	14
<u>SNACKS</u>						
Ener-g GF Ginger	2 cookie	100	3	0	20	0

cookies						
Apple	1, medium	95	0	0.5	25	4.5
Ener-g cinnamon crackers	1 serving	100	4	0	18	1
Popsicle	1	40	0	0	10	0
total		335	7	0.5	73	5.5

DAILY TOTALS		1,968	72	62.5	263	44.5
Percentage total calories			33	13	53	

Day 2	<u>Portion Size</u>	<u>Calories</u>	<u>Fat (g)</u>	<u>Protein (g)</u>	<u>Carbohydrates (g)</u>	<u>Fiber (g)</u>
<u>BREAKFAST</u>						
Cereal, GF apple cinnamon chex	3/4 cup	130	2	1	26	1
Oat milk	8 ounces	130	2.5	4	24	2
Blueberries	1/2 cup	43	0	0.5	10.5	2
Applegate farms turkey bacon	2 slices	70	3	12	0	0
water	16 ounces	0	0	0	0	0
total		373	7.5	17.5	60.5	5

<u>LUNCH</u>						
Ener-g bread	2 slice	160	6	2	22	4
Daiya cheddar cheese	2 slices	120	9	2	10	0
Roast beef	2 ounces	70	2	12	0	0
pear, medium	1	100	0	0.5	27	6
Southwestern vegetable soup	1 cup	140	3	4	21	4
water	16 ounces	0	0	0	0	0
total		590	20	20.5	80	14

DINNER

Spinach brown rice	1 ounce	100	0.5	2.5	22	1
spaghetti pasta						
Marinara sauce, low sodium	1/2 cup	80	4.5	2	9	2
Chicken breast, baked	3 ounces	130	3	24	0	0
mushrooms	1/2 cup	10	0	0.5	2	1
kidney beans	1/2 cup	120	0.5	7	20	8
Oat milk	8 ounces	130	2.5	4	24	2
total		570	11	40	77	14

SNACKS

Daiya jack style wedge	1 ounce	90	7	1	7	1
Ener-g Flax crackers	9	90	4.5	2	11	3
	crackers					
Chocolate sunbutter bar	1 bar	140	7	3	19	1
Strawberries, sliced	1 cup	54	0.5	1	13	3
vanilla coconut yougurt, unsweetened	8 ounces	120	7	0	14	8
total		494	26	7	64	16

DAILY TOTALS		2027	65	85	281.5	45
Percentage total calories			28%	17%	56%	

Day 3	<u>Portion Size</u>	<u>Calories</u>	<u>Fat (g)</u>	<u>Protein (g)</u>	<u>Carbohydrates (g)</u>	<u>Fiber (g)</u>
<u>BREAKFAST</u>						
original waffle	1	105	3.5	1.5	19.5	6
sugar-free syrup	1/4 cup	20	0	0	8	0
blueberries, fresh	1/2 cup	42	0	0.5	11	1.8
turkey bacon	3 slice	75	6	6	0	0
Oat milk	8 ounces	130	2.5	4	24	2
total		372	12	12	62.5	9.8

LUNCH

Andouille sausage	2 links	260	16	28	4	2
Whole grain brown rice	1/2 cup	90	0.5	2	18	1
carrot sticks	3 oz	35	0	1	8	2
Cinnamon & sugar graham crisps	25 crisps	130	2	2	25	1
Orange Slices	1 small	45	0	1	11	2
total		560	18.5	34	66	8

DINNER

Chicken tenders	3	195	7.5	16.5	15	0
baked potato, medium	1	110	0	3	26	2
Earthbalance spread	2 teaspoon	66	8	0	0	0
peas and carrots, frozen	2/3 cup	50	0	2	10	3
oat milk	8 ounces	130	2.5	4	24	2
total		551	18	25.5	75	7

SNACKS

So delicious coconut yogurt	4 oz	80	4.5	0	12	3
Daiya cheese wedge	1 oz	90	6	1	7	1
fire-roasted veggie crackers	6 crackers	65	2	1	11	1
celery sticks	2 med stalks	15	0	1	3	2
sunbutter, no sugar added	1 tablespoon	105	9	4	2	1
salsa, medium	1/4 cup	20	0	0	8	2
Beanitos chips	12 chips	140	6	4	15	5
total		515	27.5	11	58	15

DAILY TOTALS		1,998	76	82.5	261.5	39.8
Percentage total			34	17	52	

calories

Supplemental Table 3. Standard and Specialty Grocery Stores by City

City	Standard Grocery Store	Specialty Grocery Store
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Prices obtained via phone

San Diego, CA	Walmart	Whole Foods
Philadelphia, PA	Walmart	Whole Foods
Chicago, IL	Walmart	Whole Foods
Boston, MA	Walmart	Whole Foods
Chapel Hill, NC	Walmart	Whole Foods
Cincinnati, OH	Walmart	Whole Foods
Indianapolis, IN	Walmart	Whole Foods
Seattle, WA	Walmart	Whole Foods

Prices obtained via online shopping

Atlanta, GA	Publix	Whole Foods
Boston, MA	Shaws	Whole Foods
Chicago, IL	Jewel-Osco	Whole Foods
Houston, TX	H-E-B	Whole Foods
San Francisco, CA	Safeway	Whole Foods
Seattle, WA	QFC	Whole Foods