

Healthy Eating and Dietary Awareness: A College of Agriculture Outreach Handbook Supporting the MAHA Initiative



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Integrating Nutrition Education, Dietary Awareness, and Campus Health

Why This Matters

Chronic diseases are rising rapidly across the United States, driven largely by diet-related factors such as increased consumption of ultra-processed foods, poor nutritional awareness, and sedentary lifestyles.

The Make America Healthy Again (MAHA) initiative emphasizes prevention through education, informed food choices, and lifestyle awareness. Tennessee State University is contributing to this effort by combining nutrition education with hands-on dietary assessment, food chemistry training, and research.

Key drivers of the health crisis

- Ultra-processed food consumption
- Environmental chemical exposure
- Declining physical activity
- Technology-driven lifestyle
- Rising metabolic diseases



Purpose

This report guides students, faculty, and staff at Tennessee State University on improving dietary habits, gut health, and overall health. It integrates dietary assessment, education, and awareness strategies aligned with national health initiatives.

Healthy eating

According to the [Dietary Guidelines for Americans \(2025–2030\)](#), individuals are encouraged to adopt healthy dietary patterns that prioritize whole, nutrient-dense foods, including protein, dairy, vegetables, fruits, healthy fats, and whole grains. At the same time, the guidelines emphasize reducing the intake of highly processed foods, added sugars, and refined carbohydrates to improve overall health and reduce the risk of chronic diseases.

Core recommendations

- Eat a variety of whole, nutrient-dense foods (proteins, dairy, vegetables, fruits, healthy fats, whole grains).
- Prioritize protein source foods at every meal (both animal and plant options such as): include eggs, poultry, seafood, lean meats, beans, peas, lentils, nuts, seeds, and soy: Adjust portions to age, activity level, and health needs.
- Include at least half your plate with vegetables and fruits (e.g. ~3 cups veg, 2 cups fruit daily for a 2000 kcal diet), with an emphasis on whole, fresh, frozen, or minimally processed options.
- Choose whole grains (target ~2–4 servings/day) and other high-fiber foods (legumes, whole-grain breads/cereals, and resistant starch foods). Avoid refined grains and sugary cereals.

- Include dairy products (e.g., milk, yogurt, cheese; 3 servings/day for 2000 kcal) for calcium, vitamin D, and protein. Prefer low- or no-added-sugar dairy options.
- Use healthy fats such as olive oil, nuts, seeds, fatty fish, and avocados, limit saturated fats. For example, full-fat dairy and fatty meats are acceptable in moderation when total saturated fat <10% of calories.
- Limit added sugars (<10% of calories), saturated fat (<10%), and excess sodium (<2,300 mg/day). Avoid sugar-sweetened beverages and high-sodium processed foods.
- Stay hydrated with water or unsweetened beverages, and monitor portion sizes to match your energy requirements.

From classroom to real life

At TSU, dietary awareness is not just theoretical. It is taught, practiced, and applied through several courses, including Basic Nutrition (NUFS 2010), Elementary Nutrition (NUFS 2110), and Food Chemistry (AGSC 4460), and Functional Foods and Health (AGSC 5360).

Students are trained to:

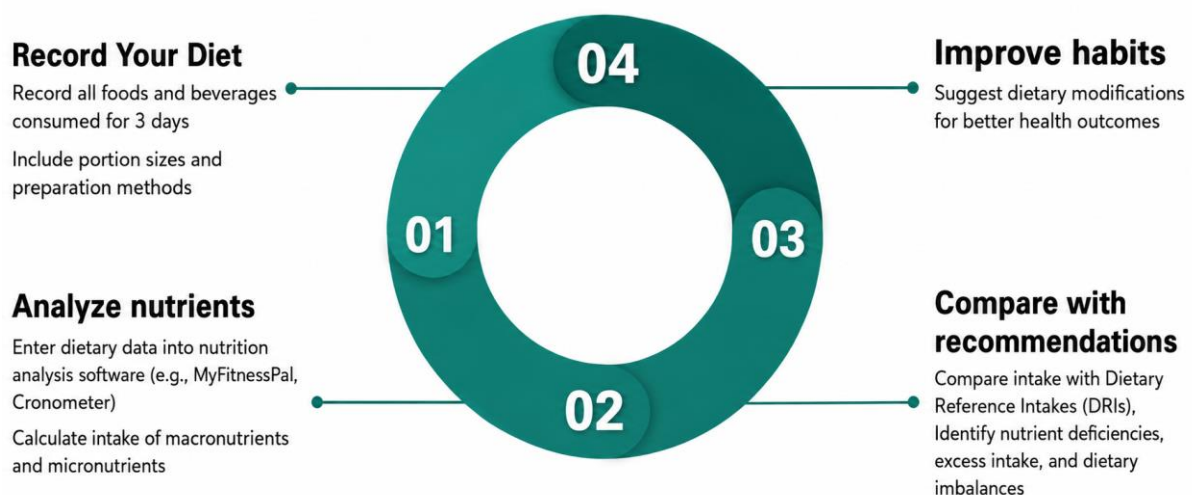
- Explain the chemical composition of foods, including macronutrients, micronutrients, and bioactive compounds.
- Evaluate how food processing and preparation methods alter the nutritional quality and bioavailability of key nutrients.
- Analyze relationships between dietary patterns, metabolic health outcomes, and gut microbiome composition.
- Apply nutrition science principles to assess diets and make evidence-based dietary recommendations.

- Interpret Nutrition Facts labels, and ingredient lists to identify added sugars, sodium, saturated fat, fiber content, and highly processed ingredients in commonly consumed foods.
- Develop practical nutrition outreach materials, such as posters, flyers, short presentations, or campus awareness messages, to promote healthier food choices among students, faculty, and staff.

This approach ensures that national dietary guidelines are not just recommendations, but actionable skills students can apply daily.

Dietary assessment framework (hands-on training)

Dietary assessment is an important tool for evaluating individual eating patterns and identifying areas for improvement. TSU integrates a structured 3-day dietary assessment model into the AGSC 4460 course, empowering individuals to evaluate and improve their eating habits.



Step 1 – Record your diet

Record all food consumption for at least 3 consecutive days, selecting days that represent your usual eating patterns.

Include:

- Meals

- Snacks
- Beverages
- Dietary supplements

Document each intake with:

- Food name
- Quantity/portion size
- Time of consumption

Capture photos of meals to improve accuracy and portion estimation.

Capture individual dietary intake and eating patterns.



Step 2 – Analyze Your Diet

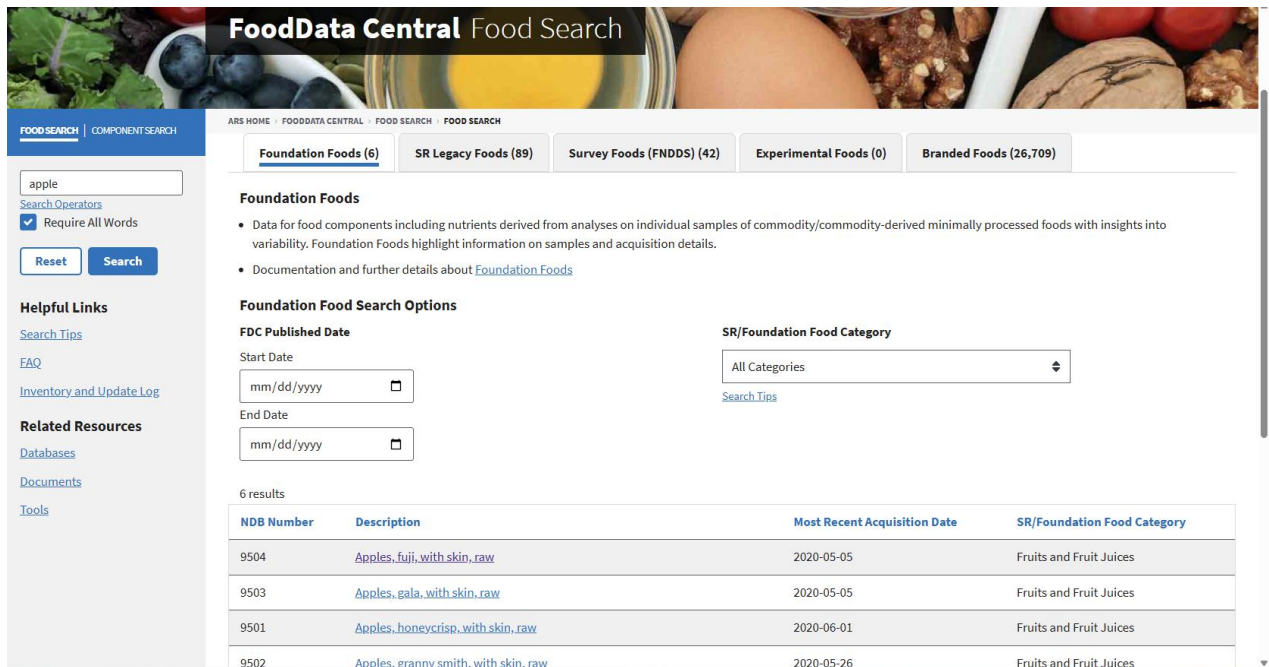
Enter your recorded data into a provided [spreadsheet template](#)

Obtain nutrient values using:

- [USDA FoodData Central](#)
- Nutrition Facts labels

Calculate:

- Total intake (3 days)
- Daily average for each nutrient
- Alternatively, use diet analysis software



FoodData Central Food Search

FOOD SEARCH | COMPONENT SEARCH

apple

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[Foundation Foods \(6\)](#) [SR Legacy Foods \(89\)](#) [Survey Foods \(FNDDS\) \(42\)](#) [Experimental Foods \(0\)](#) [Branded Foods \(26,709\)](#)

Foundation Foods

- Data for food components including nutrients derived from analyses on individual samples of commodity/commodity-derived minimally processed foods with insights into variability. Foundation Foods highlight information on samples and acquisition details.
- Documentation and further details about [Foundation Foods](#)

Foundation Food Search Options

FDC Published Date

Start Date

End Date

SR/Foundation Food Category

All Categories

[Search Tips](#)

6 results

NDB Number	Description	Most Recent Acquisition Date	SR/Foundation Food Category
9504	Apples, fuji, with skin, raw	2020-05-05	Fruits and Fruit Juices
9503	Apples, gala, with skin, raw	2020-05-05	Fruits and Fruit Juices
9501	Apples, honeycrisp, with skin, raw	2020-06-01	Fruits and Fruit Juices
9502	Apples, granny smith, with skin, raw	2020-05-26	Fruits and Fruit Juices

Example diet log

 Food / Beverage	 Meal	Portion Size (Household Measure) (U.S. Units)	 Energy (kcal)
Oatmeal, cooked	Breakfast	1 cup	154
Scrambled Eggs	Breakfast	2 large eggs	144
Whole Wheat Bread	Breakfast	2 slices	146
Orange	Breakfast	1 medium	62
Milk, 1% low fat	Breakfast	1 cup (8 fl oz)	102

Food / Beverage	 Protein (g)	 Carbohydrate (g)	 Total Fat (g)	 Saturated Fat (g)
Oatmeal, cooked	6.0	27.4	2.7	0.5
Scrambled Eggs	12.6	0.8	9.5	3.1
Whole Wheat Bread	6.4	24.6	2.3	0.4
Orange	1.2	15.4	0.2	0.0
Milk, 1% low fat	8.2	12.2	2.4	1.5
Water, plain	0.0	0.0	0.0	0.0

What is your recommended calorie intake (DRI)?

Recommended calorie intake is the estimated number of calories a person needs each day to maintain energy balance. It varies based on age, sex, height, weight, and physical activity level.

Students can estimate their daily calorie needs using USDA DRI calculator or the calorie level guidance in the dietary guidelines for Americans.

Group	Estimated daily calorie range
Adult women	~1,600–2,400 calories/day
Adult men	~2,200–3,000 calories/day

After estimating your calorie needs, compare them with your 3 - day average calorie intake and ask:

Are you eating more than your body needs?

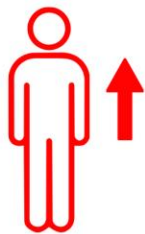
Are you eating less than your body needs?

Are you eating close to your recommended intake?

Compare Your Intake With Your Body's Needs



More Than Your Body Needs



Your intake is above your recommended range. This may lead to excess weight gain over time.

Less Than Your Body Needs



Your intake is below your recommended range. This may cause low energy and nutrient deficiencies..

Close to Your Recommended Intake



Your intake is within the recommended range. This supports good health and daily performance.



Know your numbers. Make better choices. Feel better every day. ❤️

Step 3: Compare your food consumption with the Dietary Reference Intake (DRI)

1. Extract nutrient values for each food:

- a. Calories
- b. Carbohydrates
 - Dietary Fiber
 - Added Sugars
- c. Proteins
- d. Total Fats
 - Saturated Fat
- e. Vitamin D

- f. Calcium
 - g. Potassium
 - h. Iron
 - i. Sodium
 - j. Cholesterol
2. Calculate the average daily intake for each nutrient.
 3. Compare values with Dietary Reference Intake (DRI) (Refer to [Table A1-2](#), Dietary Guidelines for Americans(2025-2030)²
 4. Use this comparison to identify areas for improvement, such as increasing fiber, fruits, vegetables, and whole grains, or reducing added sugars, sodium, and saturated fat.

NUTRIENT	DRI* (Daily Reference Intake)	INTAKE (From Sample Dietary Record)	% OF DRI
Energy	2,200 kcal	2,140 kcal	97%
Protein	52 g	51.6 g	99%
Carbohydrate	236–341 g	285.4 g	84%
Total Fat	46–81 g	61.3 g	76%
Saturated Fat	< 21 g	16.2 g	77%
Monounsaturated Fat	—	21.8 g	—
Polyunsaturated Fat	—	15.6 g	—
Trans Fat	< 2 g	0.1 g	5%
Cholesterol	< 300 mg	210 mg	70%

Step 4 – Improve your dietary habits

- Use DRI comparison results to identify areas for improvement
- Read Nutrition Facts before purchasing the food
- Focus on building healthier and sustainable eating habits
- Make practical dietary changes
- Increase nutrient-dense foods (fruits, vegetables, whole grains)
- Reduce excess sugar, sodium, and unhealthy fats
- Improve meal balance and portion sizes

01	Will your diet cause: Weight gain? Weight loss?
02	Are you eating a variety of foods?
03	Are you getting enough: Protein? Fiber? Vitamins?
04	List foods for nutrients you are lacking?
05	How do you view your diet as a whole?
06	List 3 changes you will make

TSU dietary awareness and health initiative

Tennessee State University supports the Make America Healthy Again (MAHA) initiative by promoting nutrition education, dietary awareness, and research-based practices. The university integrates these goals into academic programs, student engagement activities, and community outreach.

Key components include:

- Dietary Assessment Programs within coursework to track student dietary patterns.
- Nutrition Awareness Workshops to improve knowledge of healthy eating on campus.

- Student Research Opportunities focused on diet and health, such as gut health and diet, precision nutrition, among others.
- Community Outreach programs to extend impact beyond campus, such as the Expanded Food and Nutrition Education Program (EFNEP).

Challenge – 3-Day Diet Challenge

- Open to all students, faculty, and staff
- Record dietary intake for 3 consecutive days
- Submit completed dietary log
- Receive personalized feedback on nutrient intake and dietary patterns

Simple Tips for Healthy Eating:

Eat balanced meals, include all major food groups, limit ultra-processed foods, and stay well hydrated.

Call to Action:

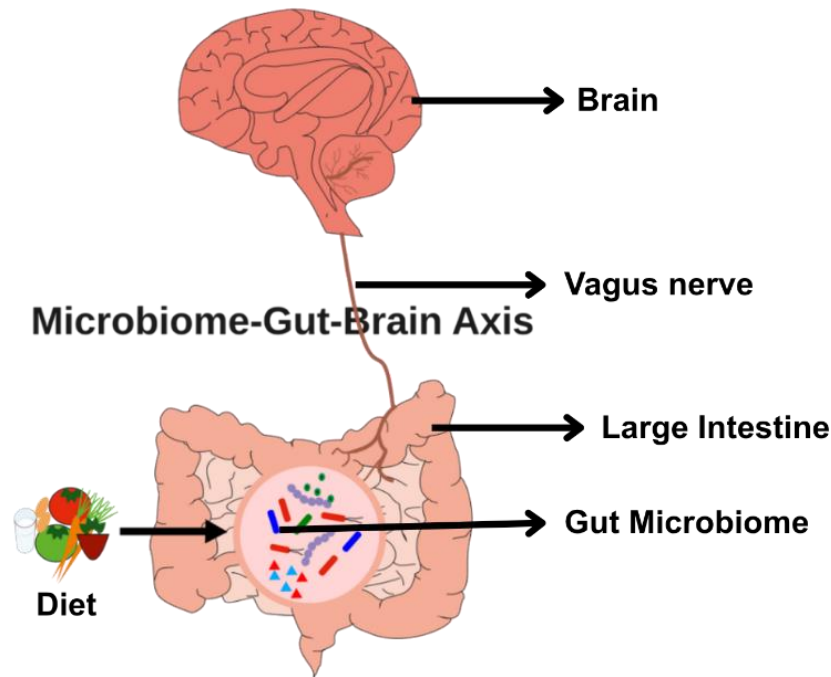
Start today—track your diet, analyze your intake, and improve one habit at a time.

Examples of ongoing research work

Gut Health and Diet

Diet plays a critical role in shaping the gut microbiome, which consists of trillions of microorganisms that influence digestion, immunity, and overall health. A balanced diet rich in fiber, fruits, vegetables, whole grains, and fermented foods supports the growth of beneficial gut bacteria and promotes microbial diversity. In contrast, diets high in highly processed foods, added sugars, and low fiber can disrupt this balance and negatively affect gut health.

Maintaining a healthy gut microbiome is essential for proper nutrient absorption, metabolic function, and disease prevention, underscoring the importance of diet for long-term health outcomes.

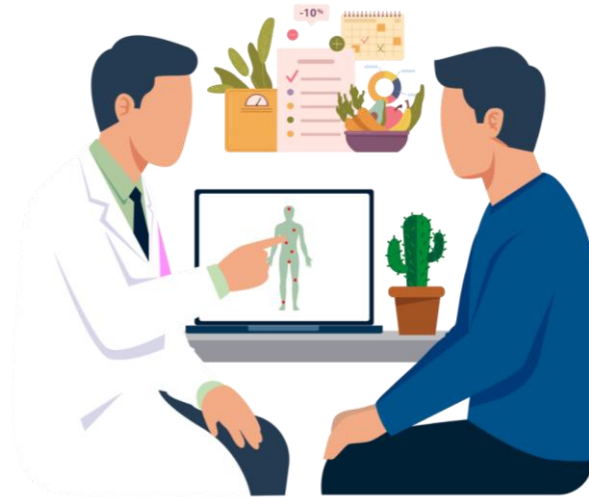


Aleti et al., 2023

Advancing toward precision nutrition

Precision nutrition is an emerging approach that tailors dietary recommendations based on individual characteristics, such as genetics, health status, lifestyle, and gut microbiome. Unlike general dietary guidelines, it recognizes that individuals may respond differently to the same foods and nutrients.

By considering these individual differences, precision nutrition aims to improve health outcomes and support the prevention and management of chronic diseases. Dietary assessment plays an important role in this approach by helping identify personal eating patterns and guiding more targeted and effective nutrition strategies.



Conclusion

Improving dietary habits is essential for addressing the growing burden of chronic diseases in the United States. Through dietary awareness, nutrition education, and practical assessment strategies, individuals can make informed food choices that support long-term health. Tennessee State University plays a key role in promoting these initiatives and fostering a healthier campus community.



Small Food Choices

Big Health Impact

TSU-26-480(C)-8c-82068 – Tennessee State University is an EEO employer.

References:

1. Aleti, G., Troyer, E. A., & Hong, S. (2023). G protein-coupled receptors: A target for microbial metabolites and a mechanistic link to microbiome-immune-brain interactions. *Brain, behavior, & immunity - health*, 32, 100671.
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