

USC Center for Personalized Brain Health



Hello!

Welcome to the September 2025 CPBH Newsletter, where we examine how ultra-processed foods drive overeating and highlight the benefits of whole foods for satiety and brain health. At CPBH, we remain dedicated to preventing dementia before onset and preserving brain health for the future. Thank you for joining our mission to prevent dementia before onset and preserve brain health.

Sincerely,

Dr. Hussein Yassine, Director, CPBH

Why Ultra-Processed Foods (UPFs) Make Us Overeat, and What It Means for Your Brain

Diets high in ultra-processed foods (UPFs) are consistently linked to overeating and long-term health risks. Scientific evidence is growing around how processed foods, beyond calories and nutrients, can shape appetite, metabolism, and even brain health. Let us interpret the science and provide you with meaningful steps to take.

Evidence from a Randomized Controlled Trial

A randomized controlled trial (Hall et al., 2019) directly tested the impact of UPFs. **20 healthy adults were divided into two groups, following different diets for 14 days:** one ultra-processed, the other unprocessed. All meals were designed to be matched for calories, energy density, macronutrients, sugar, sodium, and fiber. **The only variable was the degree of processing.** Participants could eat as much as they wanted during each phase.

The results were striking:

- On the ultra-processed diet:
 - Participants consumed 508 extra calories per day
 - They **gained about 2 pounds** in just two weeks
 - They **ate faster**—17 vs. 11 calories per minute
 - The excess intake came primarily from carbohydrates and fat, while protein intake stayed stable
- On the unprocessed diet, participants **lost 2 pounds** on average

This trial is one example within a larger body of evidence suggesting that **processing itself—not just nutrient content—can influence appetite and weight regulation.** When foods are nutritionally identical on paper but produce drastically different consumption patterns, it suggests that the physical structure and processing of food, not just its nutrient content, directly influences our eating behavior and weight regulation. The study provides the first correlative evidence that ultra-processed foods actively promote overconsumption through mechanisms we're still working to understand. This isn't about willpower or personal discipline. It's about how these foods interact with our brain's appetite control systems.

What Makes a Food “Ultra-Processed”?

Not all processing is harmful. Freezing vegetables or fermenting yogurt improves storage and digestibility. Ultra-processing, however, is a distinct category defined by the **NOVA classification** (Monteiro et al., 2019):

- **Group 1:** Unprocessed or minimally processed foods – Fruits, vegetables, eggs, milk, or meat that are cleaned, frozen, or fermented but remain close to their natural state.

- **Group 2:** Processed culinary ingredients – Oils, butter, sugar, and salt extracted from whole foods for cooking.
- **Group 3:** Processed foods – Simple combinations of Groups 1 and 2, such as canned fish, cheese, or fresh bread.
- **Group 4:** Ultra-processed foods (UPFs) – Industrial formulations with ingredients rarely used in home kitchens (e.g., protein isolates, hydrogenated oils, flavor enhancers, emulsifiers, artificial colors, preservatives).



Research shows that **UPFs disrupt satiety signals, encourage overeating**, and are associated with higher risk of obesity, metabolic disorders, and dementia (Gomes et al., 2022; Henney et al., 2023). Their effects go beyond calories, reflecting the way their engineered structure interacts with appetite regulation.

The “Plant-Based = Healthy” Misconception

Plant-based doesn't automatically mean healthy. Studies show that vegetarians and vegans often consume more UPF products than meat-eaters, including highly processed meat substitutes, protein bars, and packaged snacks (Gehring et al., 2021).

A plant-based burger with 20 industrial ingredients can affect appetite regulation much like any other UPF. By contrast, whole, minimally processed foods—whether plant or animal based—are more nutrient-dense and metabolically supportive. Examples include grilled salmon, eggs, plain yogurt, beans, and fresh vegetables. **The key isn't whether food comes from plants or animals—it's the degree of industrial processing it has undergone.**

“It’s really hard for people to change their habits,” Dr. Yassine noted. **“Take it one step at a time.”** (How Ultra-Processed Foods Affect Your Brain, NYT, 2024) Even gradual dietary shifts away from ultra-processed products can help reset your natural hunger cues, reduce systemic inflammation, and support long-term metabolic and cognitive health.

Practical Brain-Health Strategies

At the Center for Personalized Brain Health, Dr. Yassine recommends a step-by-step approach in reducing ultra-processed foods intake:

- Start by reducing sugary drinks: Replace soda or sugary juices with water or unsweetened (or lightly sweetened) iced tea.
- Swap processed red meats for cleaner proteins: Shift toward fish, chicken, lentils, beans, and nuts.
- Increase fiber-rich whole foods: Add more fruits, vegetables, legumes, and whole grains to support gut and brain health.
- Cook mostly from basic ingredients—simple one-pan meals, batch-cooked grains/beans, and frozen veggies keep it easy.
- Build plates around a whole-food trio like protein (eggs, fish, beans), fiber/starch (potatoes, oats, brown rice), and healthy fat (olive oil, nuts).
- When buying packaged foods, favor less than 5 ingredients and check labels for sodium, added sugars, and emulsifiers.

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Easy Brain-Health Swaps

You don't need a perfect diet to secure benefits. Small, repeatable swaps toward whole foods add up. Try one swap below this week.

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Breakfast Sandwich Swap:

✗ Common UPF Version:



- English muffin (with preservatives and emulsifiers)
- Processed sausage patty
- American cheese (processed cheese product)
- Hash browns
- Orange juice

✓ Better Option (Whole-Foods-Based):



- Whole-grain toast
- Homemade turkey patty
- Avocado slices or real cheddar cheese
- Egg cooked in olive oil
- Baked sweet potato wedges
- Whole orange or herbal tea

Nutritional gain: More fiber, healthy fats, and fewer additives.

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The "Mac & Cheese" Lunch

✗ Common UPF Version:



- Boxed macaroni & cheese (includes powdered cheese with emulsifiers, dyes)
- Frozen chicken nuggets
- Canned green beans (with salt and BPA-lined can)

✓ Better Option (Whole-Foods-Based):



- Whole wheat pasta + homemade sauce (cheddar, whole milk, butter, pinch of mustard, garlic powder)
- Baked chicken (chicken breast, olive oil, whole-wheat bread crumbs, spices)
- Fresh or frozen green beans, lightly steamed or sautéed

Nutritional gain: Eliminates synthetic additives and provides higher-quality protein and micronutrients.

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"Taco Night" Dinner

✗ Common UPF Version:



- Store-bought taco shells (preservatives, hydrogenated oils)
- Pre-seasoned ground beef (with anti-caking agents and MSG)
- Shredded cheese (with anti-clumping agents)
- Bottled salsa and sour cream

✓ Better Option (Whole-Foods-Based):



- Homemade corn tortillas (or clean-ingredient store version with just corn, lime, water)
- Ground beef or beans with DIY taco seasoning
- Grated block cheese
- Homemade salsa (chopped tomato, cilantro, lime, onion)
- Plain Greek yogurt as a probiotic-rich sour cream substitute

Nutritional gain: Reduced additives, more fiber, healthy fats, and antioxidant-rich herbs.

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Dessert Swap

✗ Common UPF Version:



- Packaged store-bought cookies (enriched white flour, palm oil, soy lecithin, artificial flavors)
- Strawberry ice cream (added gums, food coloring, stabilizers, corn syrup)

✓ Better Option (Whole-Foods-Based):



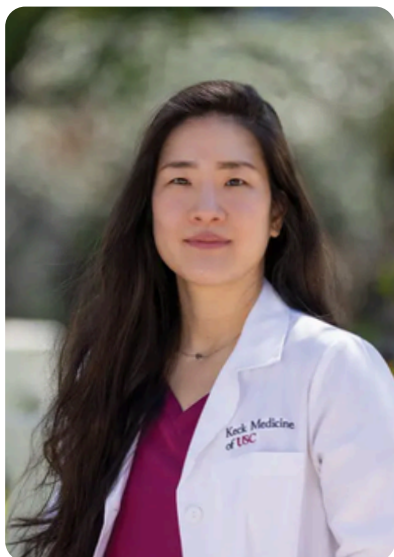
- **Banana Oat Cookies:**
 - Ripe bananas, rolled oats, cinnamon, vanilla, chopped nuts
- **Frozen Yogurt & Berry Bowl:**
 - Plain Greek yogurt, frozen berries, drizzle of honey
 - Sprinkle of ground flaxseed or chopped walnuts for brain-healthy omega-3s

Focus on whole grains, antioxidants, protein, and gut-friendly fiber.

Meet the Prevention Clinic

Transforming Alzheimer's through Personalized Medicine

The USC Center for Personalized Brain Health Prevention Clinic at Keck Medicine offers proactive, personalized care to reduce dementia risk. Focusing on the APOE ε4 gene—linked to late-onset Alzheimer's, the center uses advanced imaging and biomarker analysis to assess brain health. Patients receive tailored interventions combining lifestyle, genetic, and medical strategies. Those with family history or concerns can undergo genetic testing and in-depth evaluations for early prevention with experts like Jinseo Choi.



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USC GeneScreen
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del Alzheimer de la USC

Meet the Center Leadership

Dr. Hussein Yassine

Dr. Yassine, Professor at the Keck School of Medicine of USC and Director of the Center for Personalized Brain Health, is at the forefront of research exploring the intersection of neurology and nutritional sciences, with a focus on how lipids, particularly omega-3 fatty acids, affect Alzheimer’s disease. His work is especially important in understanding the impact of these fatty acids on cognitive decline in those carrying the APOE ε4 gene variant, a known Alzheimer’s risk factor.



Dr. Yassine collaborates with experts across multiple fields to drive progress in early detection and treatment strategies, contributing significantly to our collective mission to address Alzheimer’s disease.

Meet the team: <https://keck.usc.edu/cpbh/team/faculty/>

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