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Research Article

New Risks to Our Health

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Abstract

The latest news and scientific investigations in the field of food chemistry up to May 2026 indicate a strong focus on the safety of additives and microplastic contamination.

In addition to important issues related to the safety of processed foods and the interaction of chemicals with human health

Keywords: Brominated Vegetable Oils, Allergies and Digestive, Bloodstream and Lungs, Nanoplasts.

Here are the most prominent developments:

1. Unknown and Secret Chemicals in Food:

An investigation conducted at the beginning of 2026 revealed the addition of 49 chemicals, including plant extracts (such as green tea and cinnamon), to food products without adequate safety review by health authorities. These chemicals were found in more than 900 products, such as granola bars. The investigation also revealed the addition of chemicals of unknown safety "secretly" to the food supply. Twenty-two of these were extracts whose safety was not clearly established.

Examples of Suspicious or Hazardous Substances:

- **Potassium Bromate:** Used in baked goods.
- **Titanium Dioxide:** Used as a whitener in foods.
- **Propyleparaben:** A preservative.
- **FD&C Red No. 3:** An industrial coloring agent.
- **Brominated vegetable oils:** Used in beverages.

Sources of Chemical Contamination:

- **Food Packaging:** Chemicals can leach from packaging and containers into food.
- **Food Adulteration:** The use of chemicals to mask signs of spoilage in products.
- **Undeclared Additives:** Substances not explicitly listed in the ingredients.
- **Health Risks:** Risks range from allergies and digestive problems to long-term threats such as cancer (as in the case of dioxins), as well as the endocrine-disrupting effects of some substances.

Recommendations for Avoiding them:

Experts advise focusing on eating whole (natural) foods and avoiding highly processed and packaged products to reduce exposure to these unknown substances.

2. Warning About Nanoparticles

(The Danger of Nanoparticles from Packaging): Experts have warned that heating food in plastic containers, espe-

cially when freezing and then heating, releases micro- and nano-plastic particles that leach into the food. These particles bypass the body's defenses and reach the brain, where their accumulation may be linked to diseases such as Alzheimer's.

Studies have shown that heating food in plastic containers releases these particles, which can leach directly into the food and reach the bloodstream and lungs, raising biochemical concerns about neurological diseases like Alzheimer's. Nanoparticles pose an invisible and imminent threat to public health and the environment. They can penetrate biological membranes, cells, and even the blood-brain barrier, leading to serious illnesses and altering gut bacteria. These particles are found in bottled water (at a rate of 240,000 particles per liter), food, and air, and accumulate in the environment and soil.

Key Risks of Nanoplasts (Scientific Warnings):

- **Direct Health Risk:** Nanoplasts and their associated chemicals (PFAS) can disrupt the composition of breast milk and affect the digestive system and intestinal lining.
- **Tissue Penetration:** Due to their extremely small size, these particles can enter the bloodstream and vital organs, potentially causing cellular damage and inflammation.
- **Environmental Impact:** They adhere to soil particles, causing them to clump together, and they pollute aquatic ecosystems, leading to the death of marine organisms.
- **Toxin Transport:** They act as carriers for toxic chemicals and heavy metals within the body.

Tips to Reduce Nanoplast Exposure:

- Avoid using canned foods and beverages.
- Minimize the use of plastic for heating food (microwaved).
- Drink filtered water instead of bottled water.
- Avoid storing hot foods in plastic containers.

3. Toxins in Wrapping Paper:

Recent studies have shown that recycled paper products used for packaging may contain the chemical bisphenol A (BPA) and photobleaching agents, which can dissolve in fats and leach into food, affecting fertility and the immune system. Wrapping paper and food wrapping in general can contain toxic and harmful substances, especially when used improperly or with hot and fatty foods. Studies indicate that some of these chemicals can leach into food and be ingested.

Here are the most prominent toxins and risks associated with wrapping paper:

- **Perfluoroalkyl substances (PFAS):** These chemicals are

used in the layers of paper and cardboard packaging to resist grease and water. They are known as "perennial chemicals" that do not break down easily and are linked to serious health problems, including liver disease, cancer, and immune disorders.

- **Aluminum foil:** Using aluminum foil to wrap hot, acidic, or high-salt foods increases the leaching of aluminum into the food. Excess aluminum accumulation in the body can lead to aluminum poisoning and other health problems.
- **Printing ink and newspaper:** Health authorities such as the US Food and Drug Administration (FDA) have warned against using paper and newspaper to wrap food, as the ink contains harmful biological materials that can contaminate food and cause health problems if consumed.
- **Bisphenol A (BPA):** Found in some types of paper wrapping or receipts that may come into contact with food, this chemical is an endocrine disruptor.
- **Bacteria resulting from improper storage:** Wrapping leftovers in aluminum foil can provide a suitable environment for the growth of dangerous bacteria such as *Staphylococcus aureus*, which produces toxins that cause nausea and food poisoning.

Tips to avoid poisoning:

- Avoid using aluminum foil for cooking or heating food; reserve it for cold wrapping only.
- Avoid paper wrapping that appears to have a plastic or wax coating of unknown origin.
- Do not wrap hot food in paper not intended for that purpose.

4. Ultra-Processed Foods and the Microbiome:

Research (February 2026) indicates that ultra-processed foods cause chemical imbalances and alter the gut microbiome, impacting overall health.

Ultra-processed foods disrupt the balance of the gut microbiome (beneficial bacteria) by reducing its diversity, thus promoting the growth of harmful bacteria. This imbalance leads to increased inflammation, obesity, heart disease, and diabetes, due to the lack of fiber and essential nutrients in these foods.

The Impact of Ultra-Processed Foods on the Microbiome and Gut:

- **Imbalance:** The artificial ingredients, trans fats, and high sugars in these foods eliminate beneficial bacteria and feed harmful bacteria.
- **Fiber Deficiency:** These foods lack the fiber necessary to nourish a healthy microbiome, weakening the intestinal wall.

- **Chronic Inflammation:** Microbiome damage is a major contributing factor to an increased risk of chronic inflammatory diseases, obesity, and type 2 diabetes.
- **Weakened Immunity:** Poor gut health resulting from malnutrition is linked to a generally weakened immune system.

Examples of ultra-processed foods that harm the microbiome:

- Fast food (burgers, pizza, French fries).
- Soft drinks and artificial juices.
- Processed meats (sausages, hot dogs, mortadella).
- Packaged sweets and biscuits.

Tips for Protecting your Gut Microbiome:

- **Increase Whole Foods:** Focus on vegetables, fruits, and whole grains.
- **Reduce Additives:** Avoid products containing preservatives, artificial colors, and flavors.
- **Eat Natural Fiber:** Consume nuts, seeds, and legumes to promote beneficial bacteria. 5- Reliance on restrictive diets or "goodness diets" that cause chemical imbalances

There are Chemical Criticisms of Certain Diets:

Nutrition consultants have recently criticized the reliance of some diets (such as the "goodness diet") on "chemical manipulation" that permits processed foods containing trans fats and phosphate salts, while prohibiting natural foods, which constitutes scientific misrepresentation.

What is known as the "chemical diet," or strict diets that rely on high protein concentrations and very specific types of food, faces sharp scientific and chemical criticisms, as specialists believe they burden the body and contradict biological instincts.

Here are the Most Prominent Chemical and Physiological Criticisms of These Diets:

1. Imbalance in the Body's Chemical Balance

Mineral imbalance: Focusing on protein while reducing carbohydrates leads to rapid water loss, causing an imbalance in electrolyte levels (potassium, sodium, and magnesium) in the blood. This can lead to health risks such as heart rhythm disturbances. Cellular dehydration: Some of these diets rely on restricting water intake, leading to tissue dehydration and a buildup of toxins that the kidneys cannot efficiently filter.

2. Chemical strain on the Kidneys and Liver

- **Elevated Ammonia:** Excessive protein intake leads to increased ammonia production as a byproduct of protein metabolism, placing a heavy burden on the kidneys to filter these large amounts.
- **Ketogenic Acidosis:** When the body is deprived of carbohydrates, it begins burning fat for energy (ketosis), producing ketone bodies that increase blood acidity, which can cause bad breath and general fatigue.

3. Chemical Inconsistencies in Diet Rules (Such as the "Good Diet")

- **Banning milk while allowing butter:** This type of diet prohibits milk and yogurt, claiming they contain harmful substances, while allowing cream and butter derived from them. However, these products may contain traces of proteins and sugars from the prohibited source, revealing a chemical inconsistency in the permitted substances.
- **Illogical Allowed and Forbidden Diets:** Allowing processed products containing vegetable oils and chemical treatments (such as spreadable chocolate) while prohibiting fresh vegetables or eggs (a high-quality protein source) is not based on sound chemical or nutritional principles.

4. Muscle Loss Instead of Fat Loss

- Chemically, when the body doesn't find enough energy from carbohydrates, it may resort to breaking down muscle tissue (proteolysis) for energy, especially with a micronutrient deficiency.

5. This Leads to Weight Loss from Muscle and Water, Not fat.

Experts have found that these diets rely on the principle of "quick fixes" for weight loss rather than the body's chemical health, and are often unsustainable and cause functional damage to organs.

6. Incorrect Timing of Eating

Recent studies (up to early 2026) indicate that the timing of eating is just as important as the type of food. Eating late at night, especially right before bed, is one of the most dangerous dietary habits for health.

Here are the most prominent risks and the latest medical advice:

- **Heart risk:** Late, heavy dinners strain the heart and cir-

culatory system, increasing the risk of strokes and heart problems.

- **High blood sugar and diabetes:** Eating at night significantly raises blood sugar levels, especially if the meal contains carbohydrates, increasing the risk of developing type 2 diabetes.
- **Weight Gain and Obesity:** The slower metabolism (calorie burning) during sleep leads to food being stored as fat instead of being burned.
- **Digestive Problems:** Lying down immediately after eating causes acid reflux, heartburn, and indigestion.

Therefore, experts recommend leaving at least 3 to 4 hours between the last meal and bedtime to avoid these risks.

The best time for dinner is early in the evening, and the meal should be light to avoid health problems.

These developments highlight the growing awareness of the hidden chemical hazards in processed and packaged foods. Scientific research is moving towards linking sustainable therapeutic nutrition with green chemistry to develop safer foods and reduce reliance on manufactured chemicals in common foods.

Sustainable therapeutic nutrition and green chemistry represent a modern approach that connects human health with environmental protection by developing safe medicines and foods based on sustainable and environmentally friendly technologies.

This approach aims to balance scientific innovation with environmental sustainability, designing natural and nutritious alternatives that reduce pollution and health risks.

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