



MINISTÉRIO DA EDUCAÇÃO
UNIVERSIDADE FEDERAL DA INTEGRAÇÃO LATINO-AMERICANA
INSTITUTO LATINO-AMERICANO DE CIÊNCIAS DA VIDA E DA NATUREZA
CENTRO INTERDISCIPLINAR DE CIÊNCIAS DA VIDA
PROGRAMA DE PÓS-GRADUAÇÃO EM BIOCÊNCIAS
CURSO ACADÊMICO E PRESENCIAL DE MESTRADO
PROCESSO SELETIVO DE ALUNOS REGULARES
2024.1
PROVA DE PROFICIÊNCIA EM LÍNGUA INGLESA

A presente prova possui caráter eliminatório, constituindo a primeira etapa do PSR (Processo Seletivo Regular), do curso de mestrado do PPG-BC (Programa de Pós-Graduação em Biociências), da UNILA (Universidade Federal da Integração Latino-Americana), no 2024.1 (primeiro semestre letivo do ano de 2024), regulamentado pelo Edital PPG-BC nº. 2023/26, suas retificações e resultados.

A prova avaliará os candidatos através da compreensão da ideia central do texto e da interpretação e resolução de questões relacionadas ao texto original.

Para ser aprovado na presente etapa da seleção, é necessário obter nota igual ou superior a 50 (cinquenta) pontos.

A presente prova consistirá de 10 (dez) questões referentes a 02 (dois) textos em inglês, sendo 05 (cinco) questões por texto, ao valor máximo de 10 (dez) pontos por questão, até 100 (cem) pontos pela prova.

Para respondê-las, **assinale apenas uma alternativa por questão na presente folha resposta, sem rasuras**. Respostas no gabarito com rasuras ou mais de uma alternativa assinalada serão desconsideradas.

As questões 1, 2, 3, 4 e 5 referem-se ao **primeiro texto em anexo**, de GOLDING, Michael; & *The Conversation US. Fathers' drinking may affect fertility and fetal brain development: historically, only women's drinking was considered a risk during pregnancy, but new research points to the role of fathers' habits as well. Scientific American, New York, USA, 21 nov. 2023.* Disponível em <<https://www.scientificamerican.com/article/fathers-drinking-may-be-linked-to-fetal-alcohol-syndrome/>>. Acesso em 01 dez. 2023.

As questões 6, 7, 8, 9 e 10 referem-se ao **segundo texto em anexo**, de YOUMSHAJEKIAN, Lori. *How do ultraprocessed foods affect your health? Ultraprocessed foods have become a mainstay of modern diets and could be taking a toll on our health. Scientific American, New York, USA, 08 nov. 2023.* Disponível em <<https://www.scientificamerican.com/article/how-do-ultraprocessed-foods-affect-your-health/>>. Acesso em 01 dez. 2023.

É vedada a consulta ou o uso de quaisquer artigos, livros, documentos, equipamentos ou instrumentos, impressos, eletrônicos e/ou audiovisuais durante a presente prova, sendo permitida apenas a utilização de dicionários impressos.

A aplicação da presente prova iniciará às 09h30 e encerrará às 11h30, do dia 20 de dezembro de 2023, quarta-feira, no *campus* Jardim Universitário, prédio Ginásio, sala G-102-2, horário limite para cada candidato entregar a folha-resposta anexa ao PPG-BC, identificada apenas pelo número de inscrição no presente PSR.

Número de inscrição do(a) candidato(a):									
GABARITO RESPONDIDO PELO(A) CANDIDATO(A)									
Questões do primeiro texto					Questões do segundo texto				
1	2	3	4	5	6	7	8	9	10
A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E

Foz do Iguaçu, Estado do Paraná, 20 de dezembro de 2023.



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Questão 01. *"While most of the attention is given to the mom's drinking while pregnant, my team and I focus on male drinking in the weeks and months before conception. Our studies are the first to demonstrate that male drinking before pregnancy is a plausible yet completely unexamined factor in the development of alcohol-related craniofacial abnormalities and growth deficiencies."* O trecho em destaque aponta que:

- a) O foco das pesquisas da equipe é na bebida alcóolica das mulheres pré-concepção que podem causar anormalidades relacionadas ao álcool ao feto.
- b) Não há problemas de a gestante consumir bebida alcóolica durante a gestação ou a pré-concepção.
- c) O consumo masculino de álcool antes da gravidez é um fator plausível para anormalidades craniofaciais e deficiências de crescimento.
- d) Os achados deste estudo são amplamente pesquisados, divulgados e conhecidos tendo em vista que o álcool consumido na gestação culmina em deficiências de crescimento.
- e) As anormalidades fetais são produzidas com o consumo materno de bebidas alcoólicas, sem interferência do consumo masculino para a mesma substância.

Questão 02. *"Although differences in how much and when pregnant women drink can contribute to the variation in how fetal alcohol syndrome develops, these factors alone cannot explain the **wide range** and severity of symptoms."* O termo destacado quer dizer:

- a) Ampla variedade.
- b) Restrito alcance.
- c) Tendência difusa.
- d) Espectro incerto.
- e) Baixa dispersão.

Questão 03. *"Using this same mouse model, we also determined that these craniofacial changes persist into later life. Specifically, we identified abnormalities in the jaw and the size and spacing of the adult teeth. Abnormal alignment of the upper and lower teeth is another recognized symptom of fetal alcohol syndrome in humans. Besides our research, other studies have identified behavioral changes in the offspring of male mice who regularly consume alcohol. In addition, clinical studies suggest that paternal drinking increases the risk of heart defects in people."* O texto destacado sugere que:

- a) Os estudos anteriores identificaram mudanças no comportamento da prole de machos que possuíam consumo regular de álcool.
- b) Estudos clínicos sugerem padrões que o consumo de álcool paterno aumenta exclusivamente o risco de problemas na formação dentária.
- c) O alinhamento dos dentes detectado nos ratos ocorre em um padrão que é distinto daquele observado na síndrome do alcoolismo fetal em humanos.
- d) O padrão de consumo de álcool em fêmeas possui interferência irrelevante no risco de defeitos cardíacos na prole.



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e) A prole de machos que consumiam álcool regularmente demonstrou anormalidades craniofaciais diferentes daquelas observadas em estudos clínicos.

Questão 04. *“Therefore, our studies demonstrate that chronic male alcohol exposure – defined as consuming more than five drinks per day in a four-hour window – could drive all three of the core fetal alcohol syndrome birth defects.”*. Sobre a exposição crônica masculina ao álcool, a quantidade destacada é de:

- a) período de cinco horas com o consumo um pouco mais que cinco bebidas por dia.
- b) até cinco bebidas por dia em um período de quatro horas.
- c) mais do que quatro bebidas por dia em um período de cinco horas.
- d) mais do que cinco bebidas por dia em um período de quatro horas.
- e) entre quatro e cinco bebidas por dia num período de quatro horas.

Questão 05. Acerca da fertilização *in vitro* o estudo apontou, **exceto**:

- a) O foco dos tratamentos de fertilização *in vitro* continuam na saúde materna.
- b) Cerca de 2% dos bebês que nascem nos Estados Unidos da América são concebidos através de tecnologias de reprodução assistida.
- c) A exposição masculina ao álcool reduz as chances de se engravidar após a fertilização *in vitro*.
- d) Se o homem faz uma ingestão grande, não crônica, mas esporádica de álcool antes de fornecer esperma, não há interferência na probabilidade da parceria em engravidar.
- e) O estudo apontou que o uso de álcool pelos homens é algo relevante que deve ser considerado para os casais que buscam ter filhos utilizando a fertilização *in vitro*.



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Questão 06. Os efeitos negativos dos alimentos ultraprocessados, enfatizados no texto, podem ser um resultado do que eles faltam, referindo-se à:

- a) Presença ou ausência de nutrientes específicos.
- b) Redução do teor de fibras ao processar os alimentos.
- c) Quantidade grande de calorias.
- d) Alta quantidade de gorduras.
- e) Concentração elevada de sal.

Questão 07. Analise as afirmativas a seguir e assinale aquela que estiver **incorreta** em relação ao texto:

- a) Os alimentos ultraprocessados contêm um ingrediente que não é normalmente encontrado em residências ou que passou por um processo industrial que um cozinheiro doméstico não seria capaz de replicar.
- b) Os alimentos ultraprocessados possuem uma variedade de aditivos que ajudam a unir os ingredientes, aumentar sua vida útil ou torná-los mais palatáveis.
- c) Cerca de quase 60% das calorias diárias que os adultos norte-americanos consomem provêm de alimentos ultraprocessados. É pior para crianças e adolescentes, cuja dieta é quase 70% ultraprocessada.
- d) Alimentos como pães fortificados ou biscoitos ricos em proteínas apesar de terem algum processamento são considerados extremamente saudáveis.
- e) Estudos sugerem uma ligação entre o maior consumo de alimentos ultraprocessados com uma mudança profunda na composição da microbiota intestinal.

Questão 08. No texto, sugere-se que o consumo de alimentos ultraprocessados foi associado a, **exceto**:

- a) Diabetes tipo 2 e doenças cardiovasculares.
- b) Ganho de peso e obesidade.
- c) Contaminação por agrotóxicos e neoplasias.
- d) Depressão e ansiedade.
- e) Transtornos mentais e saúde intestinal.

Questão 09. “*Ultraprocessed foods undergo an industrial process to move from farm to table. This often includes steps such as hydrogenation, which produces semisolid oils, and hydrolysis, which enhances flavors. These foods also have a variety of additives that help bind the ingredients together, increase their shelf life or make them more palatable.*”. O termo “**these**” no trecho refere-se a:

- a) Fazenda.
- b) Alimentos ultraprocessados.
- c) Aditivos.
- d) Ingredientes.
- e) Fibras.



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Questão 10. Na frase: “*Scientists **still don’t know for sure** why humans gravitate toward ultraprocessed foods.*”. O termo destacado indica:

- a) incerteza.
- b) impossibilidade.
- c) probabilidade.
- d) compulsoriedade.
- e) associação.

NOVEMBER 21, 2023 | 5 MIN READ

Fathers' Drinking May Affect Fertility and Fetal Brain Development

Historically, only women's drinking was considered a risk during pregnancy, but new research points to the role of fathers' habits as well

BY [MICHAEL GOLDING & THE CONVERSATION US](#)



Little to no attention has been given to the father's potential contribution to fetal alcohol syndrome disorders. Credit: [Cavan Images/Getty Images](#)

Diet ▾

The following essay is reprinted with permission from [The Conversation](#), an online publication covering the latest research.

Men drink more, are more likely to binge drink and are almost four times [more likely to develop alcohol use disorder](#) than women, according to the Centers for Disease Control and Prevention.

Yet when it comes to diagnosing babies born with birth defects associated with

alcohol consumption, such as [fetal alcohol syndrome](#), historically only the [mother's drinking habits are taken into consideration](#).

Research clearly shows that [sperm carry a vast amount of epigenetic information](#) – meaning heritable shifts in the way genes are expressed that don't result from changes in the DNA sequence – that strongly influences fetal development and child health. Yet most doctors and other health care providers do not take into account the influence of paternal health and lifestyle choices on child development.

I am a [developmental physiologist](#), and my research explores the ways that [male drinking affects fetal development](#).

While most of the attention is given to the mom's drinking while pregnant, my team and I focus on male drinking in the weeks and months before conception. Our studies are the first to demonstrate that male drinking before pregnancy is a [plausible yet completely unexamined factor](#) in the development of alcohol-related craniofacial abnormalities and growth deficiencies.

THE INTENSE FOCUS ON MOM

In 1981, the U.S. surgeon general issued a public health warning that [alcohol use by women during pregnancy](#) was the cause of physical and mental birth defects in children.

This warning came in response to growing recognition that a group of severe physical and mental impairments in children, now commonly known as fetal alcohol syndrome, were [correlated with maternal alcohol use during pregnancy](#).

Today, doctors and scientists recognize that [as many as 1 in 20 U.S. schoolchildren may exhibit some form of fetal alcohol spectrum disorders](#), a term referring to a wide range of [alcohol-related physical, developmental and behavioral deficits](#), many of which cause lifelong challenges for those affected.

According to the CDC, this syndrome can occur when [alcohol in the mother's blood](#) passes to the baby through the umbilical cord. This has led to the firmly [accepted](#) belief that alcohol-related birth defects are caused only by

maternal alcohol use during pregnancy and are the woman's fault.

The medical community reinforces this perception by requiring pediatricians to compel mothers to confirm and document their prenatal alcohol use before they can formally diagnose children with alcohol-related birth defects or neurobehavioral disorders associated with prenatal alcohol exposure. Nonetheless, there are multiple documented instances in which children diagnosed with fetal alcohol syndrome were born to mothers who denied that they consumed alcohol during pregnancy.

For example, in one study, 41 mothers denied having consumed alcohol during pregnancy despite their child receiving a diagnosis of fetal alcohol syndrome. In this circumstance and others like it over the past 40 years, the commonly accepted assumption and explanation is that these mothers lied about their alcohol use during pregnancy.

According to the CDC, there is no known safe amount of alcohol use during pregnancy or while trying to get pregnant. Despite this recommendation, alcohol use during pregnancy is widely reported.

However, reported drinking levels do not directly correlate with a child developing alcohol-related birth defects, and not all women who drink give birth to children with fetal alcohol syndrome. This contradiction has resulted in conflicting public messaging.

Although differences in how much and when pregnant women drink can contribute to the variation in how fetal alcohol syndrome develops, these factors alone cannot explain the wide range and severity of symptoms. Therefore, unknown factors beyond maternal alcohol use must contribute to this debilitating disorder.

DAD IS THE MISSING PIECE

Alcohol is a social drug, so when women drink, they often do so with their male partner. Building from this perspective, my laboratory used a mouse model to determine what happens if mom, dad or both parents drink.

Fetal alcohol syndrome is associated with three core birth defects: facial

abnormalities, including small eyes and malformations in the middle of the face; reduced growth of the head and brain; and fetal growth restriction, a condition that occurs when babies are born smaller than average. Building on a previous study in humans, we used facial recognition software to study the effects of alcohol consumption on the faces of mice born to mothers, fathers or both parents who consumed alcohol before conception.

In a study published early this year, we captured a [digital image of the mouse's face](#). We then digitally assigned facial landmarks, including specific parts of the eyes, ears, nose and mouth. The computer program then determined if maternal, paternal or dual parental alcohol exposures changed the proportional relationships between each of these landmarks.

Our study using this mouse model revealed that chronic male alcohol exposure affects the [formation of the offspring's brain, skull and face](#). We also observed [microcephaly](#), the underdevelopment of the head and brain, as well as lower birth weight, which became worse the more the male parent drank.

Therefore, our studies demonstrate that chronic male alcohol exposure – defined as consuming more than five drinks per day in a four-hour window – could drive all three of the core fetal alcohol syndrome birth defects.

Using this same mouse model, we also determined that these [craniofacial changes persist into later life](#). Specifically, we identified abnormalities in the jaw and the size and spacing of the adult teeth. Abnormal alignment of the upper and lower teeth is another [recognized symptom of fetal alcohol syndrome in humans](#).

Besides our research, other studies have identified [behavioral changes in the offspring](#) of male mice who regularly consume alcohol. In addition, clinical studies suggest that paternal drinking [increases the risk of heart defects](#) in people.

EFFECTS ON MALE FERTILITY AND PREGNANCY

Our studies also support more [immediate impacts of alcohol consumption on male fertility](#) and the ability of couples to [achieve a healthy pregnancy](#). These observations may be especially relevant for couples struggling to have children.

The CDC estimates that about 2% of all babies born in the U.S. are [conceived using assisted reproductive technologies](#). While the focus of in-vitro fertilization treatments [remains maternal health and lifestyle choices](#), our studies reveal that male alcohol exposure decreases the chance of becoming pregnant after undergoing IVF.

Significantly, our research showed that the more a man drinks before providing sperm, the [lower the chances of his partner becoming pregnant](#) – in some cases, by almost 50%.

LOOKING AHEAD

Annual estimates suggest that the cumulative costs of fetal alcohol spectrum disorders to the health care and educational systems range from [US\\$1.29 billion to \\$10.1 billion annually](#). Given these exorbitant costs and the devastating lifelong effects on affected individuals, ignoring paternal drinking habits in public health messaging overlooks a significant contributing factor.

The first published investigations into the effects of maternal exposure to toxins on birth defects in the 1950s and '60s were met with skepticism and disbelief. Today, it is widely accepted that [maternal exposures to certain drugs](#) cause birth defects.

I fully anticipate that some within the medical and scientific communities, as well as the public, will forcefully deny that paternal drinking matters. However, until doctors start asking the father about his drinking, we will never fully know the contributions of paternal alcohol exposure to birth defects and child health.

This article was originally published on [The Conversation](#). Read the [original article](#).

MICHAEL GOLDING is professor of physiology at Texas A&M University.

[More by Michael Golding](#)

Curated by professional editors, *THE CONVERSATION* offers informed commentary and debate on the issues affecting our world.

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NOVEMBER 8, 2023 | 8 MIN READ

How Do Ultraprocessed Foods Affect Your Health?

Ultraprocessed foods have become a mainstay of modern diets and could be taking a toll on our health

BY [LORI YOUNSHAJEKIAN](#)Credit: [Joe Belanger/Alamy Stock Photo](#)

Nutrition ▾

You might think you know a processed meal when you see one, but here's some food for thought: nearly everything you can eat at the supermarket has undergone some kind of processing—such as washing, blanching, canning, drying or pasteurizing. In other words, if there is any change from the way the food began to the way it ends up on a shelf, it counts as processed.

But then there are *ultraprocessed* foods. Both frozen chopped spinach and canned sausages are processed, but the latter has undergone much more

processing than the former. Ultraprocessed foods undergo an industrial process to move from farm to table. This often includes steps such as hydrogenation, which produces semisolid oils, and hydrolysis, which enhances flavors. These foods also have a variety of additives that help bind the ingredients together, increase their shelf life or make them more palatable.

According to some estimates, nearly 60 percent of the daily calories U.S. adults consume are from ultraprocessed foods. It's worse for kids and teenagers, whose diet is almost 70 percent ultraprocessed.

But a growing number of studies have linked higher consumption of ultraprocessed foods to a long list of health effects, and scientists are only just beginning to understand why.

WHAT ARE ULTRAPROCESSED FOODS?

Chicken nuggets, chips and hotdogs are considered ultraprocessed, but so are things such as fruit yogurts, mass-produced bread and even some canned foods.

As a rule of thumb, these are any foods that cannot be made in an ordinary kitchen—in other words, they contain an ingredient that is not typically found in homes or one that has undergone an industrial process that a home cook would not be able to replicate.

“A whole lot of things that you could never imagine can be done [to food],” says Barry Popkin, a professor of nutrition at the University of North Carolina at Chapel Hill. “You can't tell simply by the ingredients.” For example, he says, “it'll be flour, but you really don't know that wheat flour has been decomposed in such complex ways and then put back together.”

Researchers commonly use a four-part scale known as NOVA to categorize foods based on the extent of industrial processing they involve. The categories are unprocessed or minimally processed foods (which include vegetables and eggs); processed culinary ingredients (those that are usually added to food and rarely eaten alone, such as oils, butter and sugar), processed foods (those that are made from a combination of the first two groups, such as homemade bread) and ultraprocessed foods (those made with industrially modified raw

ingredients and additives).

When NOVA first came about in 2009, it offered a new way of looking at food beyond its nutritional value. Take fortified breads or protein-rich cookies, for example: Compared with their unfortified equivalents, they would be considered relatively nutritious. But through the lens of NOVA, both are ultraprocessed.

Other researchers, such as [Julie Hess](#), a nutritionist at the U.S. Department of Agriculture's Agricultural Research Service and former vice president of scientific affairs at the National Dairy Council, contend that NOVA is not the best or most consistent way to identify an ultraprocessed food. She argues that not all ultraprocessed foods are the same, in terms of nutrition. "When we say ultraprocessed food, are we going to include things like canned beans? Are we including canned oranges and dried peaches?" Hess says. "That question of nutrient density isn't currently reflected in the NOVA categorization system."

Popkin is proposing another way to identify foods as ultraprocessed in a forthcoming paper. He says that having just one of 12 types of additives—including specific flavors, emulsifiers, foams, thickening agents and glazing agents—as an ingredient is a feature of all ultraprocessed foods. The presence of artificial coloring and flavorings would already be a telltale sign for about 97 percent of these foods, he says.

ARE ULTRAPROCESSED FOODS BAD FOR YOUR HEALTH?

Many people believe that eating ultraprocessed food will make them gain weight or cause a host of other health issues, and some evidence backs this up. Research has tied ultraprocessed food consumption to a slew of health conditions, including [obesity](#), [type 2 diabetes](#), [some cancers](#), [cardiovascular disease](#), and even [mild depression and anxiety](#), but a clear mechanism for harm hasn't been identified.

A landmark paper in 2019 was the [first to show a cause-and-effect link](#) between ultraprocessed foods and weight gain. A group of 20 healthy volunteers was confined to a ward at the National Institutes of Health Clinical Center in Bethesda, Md., where the participants were randomly assigned to

receive a diet of either ultraprocessed or minimally processed food for two weeks and then were switched to the other diet for the next two weeks. For example, a person receiving the ultraprocessed diet would start their day with foods such as packaged cereal and a blueberry muffin or croissants and turkey sausages. Someone on the minimally processed diet would instead get Greek yogurt and fruit or a fresh omelet and sweet potato hash.

On average, people in the ultraprocessed diet group consumed about 500 calories more per day, compared with those in the minimally processed diet group. Participants in the former group also ate faster and gained about two pounds after two weeks. On the minimally processed diet, participants ate less and lost about the same amount of weight as they gained on the processed diet. In both settings, participants were given access to about double the number of calories they needed and were told to eat as much as they wanted.

Kevin Hall, the study's principal investigator and a clinical researcher at the National Institute of Diabetes and Digestive and Kidney Diseases, says he designed the investigation because he thought the NOVA classification system—which doesn't account for the nutrients contained in different foods—was “nonsense.” He says he matched the foods in both diets to have the same total amount of nutrients, including fat, carbohydrates and fiber, “because I thought the nutrients were going to drive the effects,” Hall says. “And I was wrong.”

Hess, who was not involved in the study, notes some limitations. There were “very, very different” foods in the two groups, she says—in other words, the study didn't match the diets for quality. Hall says the two diets used different foods because it would have been “very difficult to make homemade versions of many popular ultraprocessed foods while also maintaining precise control over their nutrition content.” Hess's own lab designed a diet in which 90 percent of the calories were from ultraprocessed foods, and it still met most national guidelines for nutrients—calling into question how useful NOVA is for determining the healthfulness of a food when existing dietary guidelines are used as a benchmark.

Others say findings such as Hall's study suggest that processing may change how a food affects our body, independent of the nutrients that food contains.

“It goes to show how much [the \[U.S. dietary\] guidelines](#) are focused on nutrients,” says Filippa Juul, a nutritional epidemiologist at the New York University School of Global Public Health. “You could have any food and just tune up the nutrients; it doesn’t mean the food is necessarily healthy ... or has the same activity as nutrients that are in [unprocessed] foods.”

Studies have also suggested [a link between higher consumption of ultraprocessed foods](#) and a profound change in the composition of gut microbes. And an altered gut microbiome has been linked to mental health conditions.

The negative effects of these foods might also be a result of what they lack: fiber. The act of industrially processing a food [can lower its fiber content](#), which can make one less satiated after eating it. Fiber also feeds bacteria in the gut, and the absence of this nutrient [may explain the link between diet, depression and gut health](#), too.

“There are probably some subcategories [of ultraprocessed foods] that are perfectly fine—maybe even really good for you—and others that are particularly damaging,” Hall says. “I just don’t think we know which ones [are which].” Part of the problem with ultraprocessed foods is that they’re often packed with calories yet leave us craving more.

WHY DO WE LIKE ULTRAPROCESSED FOODS SO MUCH?

Scientists still don’t know for sure why humans gravitate toward ultraprocessed foods. One hypothesis, according to Hall, is that we might not be able to resist their combination of ingredients. Think about the last time you ate just one chip out of a bag—it’s almost impossible not to eat more.

In a 2021 study Hall attempted to [compare a low-carbohydrate diet with a high-carbohydrate one](#) to examine the effect on energy intake. When people were presented with meals that were high in both fat and sugar, fat and salt or carbohydrates and salt, people tended to eat more calories, he says. “These are so-called hyperpalatable foods,” Hall adds.

Such foods [essentially have artificially enhanced palatability](#) that exceeds the palatability any ingredient could produce on its own—in other words, they

have a combination of fat, salt or sugar “that would never exist in nature,” Juul says. Previous research has shown that foods combining fat and carbohydrates were better at activating the brain’s reward system than foods with just one of those ingredients. The ultraprocessed meals in Hall’s study also had more calories per bite than the minimally processed diet.

Some researchers hypothesize that certain foods are addictive. People don’t lose control over eating bananas, but with ultraprocessed foods, they show all the hallmarks of addiction, says Ashley Gearhardt, a professor of psychology and a nutritionist at the University of Michigan. Addictive drugs activate the striatal dopamine system—the brain’s pleasure center—by creating a dopamine spike followed by a rapid crash. “It’s like a quick hit that isn’t sustaining,” Gearhardt says. Ultraprocessed foods mimic nicotine and ethanol in the magnitude of that effect in the brain.

“That makes sense because the reward system of the brain was really shaped by the need to get calories,” Gearhardt says. The addictive agent in food could be one of many things, she says—taste, smell, sugar, fat and additives are all potential culprits. Studies in animals have shown that stopping the consumption of ultraprocessed foods—much like other addictive substances—elicits withdrawal symptoms such as anxiety and agitation.

SHOULD ULTRAPROCESSED FOOD BE REGULATED?

There are people who want to do away with ultraprocessed foods altogether and others who say there are not enough data to warrant any action, according to Hall. “It’s not realistic to say, ‘Well, we’re just going to cut out 50 percent of the food,’” he says. “Who’s going to make everybody’s meals?” Ultraprocessed foods are a lot cheaper and more convenient than less processed ones, Hall says. In his study, the minimally processed meals cost 40 percent more to buy and took the chefs longer to prepare.

Spending hours hunched over a kitchen bench to churn butter is not the answer. But reducing consumption of ultraprocessed foods doesn’t mean we have to make everything from scratch.

“There’s an enormous number of things you can do,” says Popkin, who eats

unprocessed foods apart from an occasional iced tea sweetened with the sugar substitute Splenda. “There’s a hell of a lot of packaged real food out there.” He suggests looking for minimally processed options that make cooking faster, such as a salad mix or chopped vegetables.

We have to do our best to make healthy choices, Gearhardt says, but everything is stacked against us. As a food scientist herself, she leaves the grocery store befuddled. “It’s easy to say we should just tell the individual to do better while everything in the environment is set up for the industry to profit,” she says.

In an ideal world, we would focus on making healthy alternatives convenient and affordable and reducing marketing to kids, Gearhardt says. “We need to take some courageous action and have some common sense that this food environment is not good for anybody,” she adds.

RIGHTS & PERMISSIONS

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