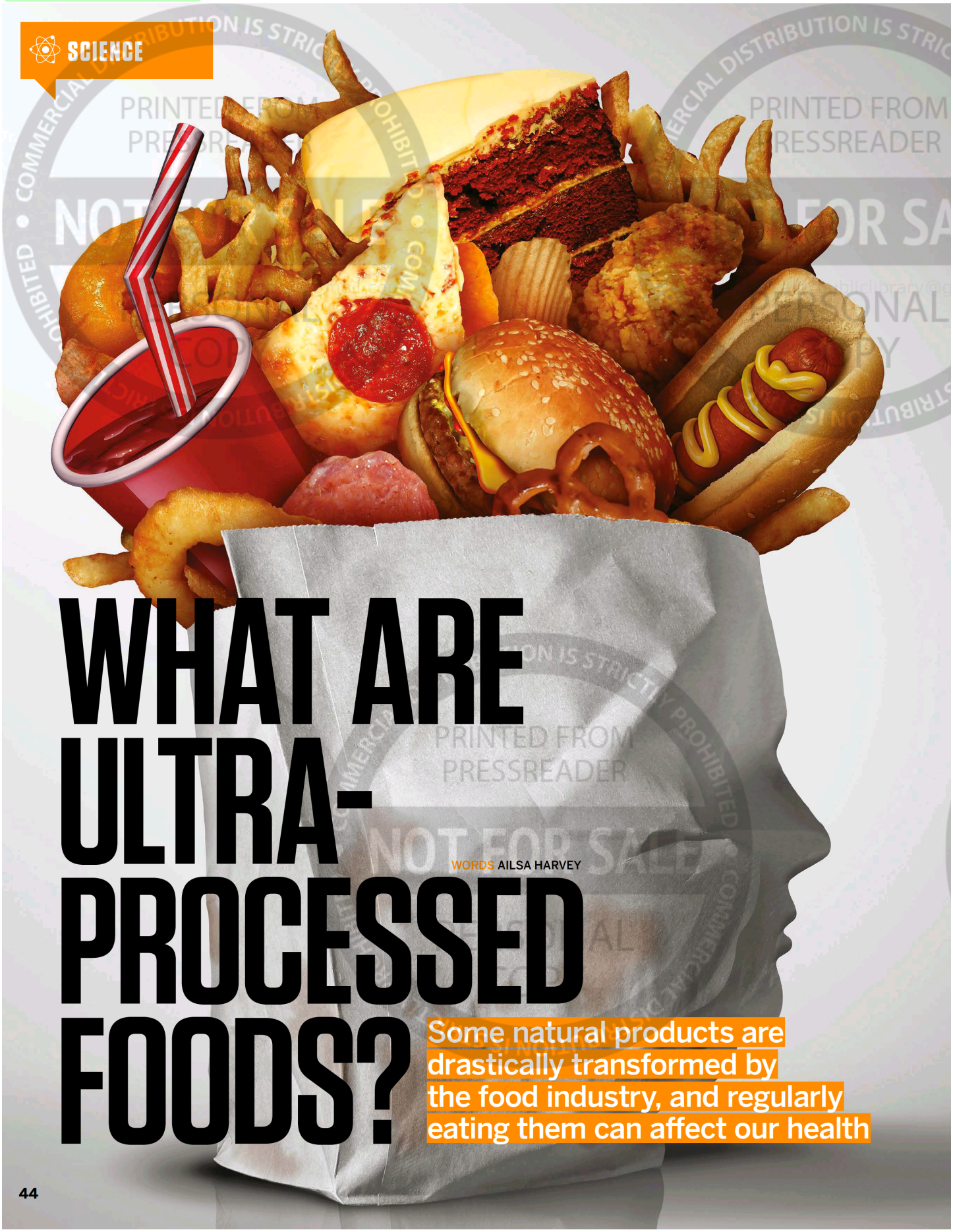
- Convenience foods



SCIENCE

WHAT ARE ULTRA-PROCESSED FOODS?

WORDS AILSA HARVEY

Some natural products are drastically transformed by the food industry, and regularly eating them can affect our health

DID YOU KNOW? If you increase ultra-processed food consumption by ten per cent, your cancer risk becomes 12 per cent higher

Many of the foods you prepare at home are likely to go through some processing, whether that be freezing, cutting, canning or cooking. Each act changes the chemistry of the food's molecules in some way. However, ultra-processed foods are those that undergo industrial-style processes far exceeding what you can do in your own kitchen. They are the types of food that encourage excessive eating – 'hyperpalatable' foods like ice cream, sausages and biscuits. Ultra-processed products often have more sugar and other ingredients that your brain can quickly become addicted to.

Did you know?
Around 5,000 substances can be added to food

Natural foods, like fruit, can change in taste and consistency as they ripen and grow. However, ultra-processed foods often have added chemicals and artificial flavours that prolong their shelf life. Ultimately, ultra-processed foods are designed for a palatable experience, with less consideration for the impact the product has upon entering the body. Heavily processed foods can be transformed into a large variety of products. In the meat industry, ultra-processing can assist in reducing waste, like scraps of meat that aren't so easily removed from the bone.

Products like hot dogs include mechanically separated meat, which involves specialised machines that can retrieve otherwise discarded trimmings of chicken, beef or pork that are ground to an even consistency and blended together into a thick paste. Chemicals are added to evenly flavour the mixture and hold the paste together before the paste is used to fill long, thin cases – such as animal intestines – to mould into a sausage shape. Heat and additives remove much of the beneficial nutrients of the meat and colouring is often added to encourage people to eat it.

"Ultra-processed products often have more sugar"


Lower grades of ham are made of reformed meat


Refined sugar makes processed foods thicker, sweeter and higher energy

NATURAL OR REFINED SUGAR

Some natural foods contain similar sugar concentrations to processed foods, but this doesn't make them equal nutritionally. Natural sugars have more minerals than refined sugars, while the latter is more likely to cause a blood sugar spike. Sucrose is a common type of refined sugar, which is extracted from sugar cane plants. Sugar crystals that are extracted from the plant are washed, dried and cooled, stripping the sugar away from the other nutrients of the plant. This is why refined sugar is often called 'empty calories'. It gives the body energy without the nutritional benefits.

Refined sugar is often added to ultra-processed foods and can sneak into your diet through foods you may not be aware have added sugar, such as salad dressings and condiments. Natural sugar, when eaten in a whole food, comes with many other beneficial nutrients, vitamins and minerals. It is also accompanied by dietary fibre to slow down its digestion and prevent too much entering the bloodstream at once.

THE FOOD SPECTRUM

How many processes has your food been through?

UNPROCESSED

If food is unprocessed, it hasn't been altered much or at all. This includes fruit, vegetables, nuts, seeds, eggs and fish when served in their natural state. These are also called whole foods, and natural nutrients like antioxidants are more likely to remain in the food and benefit the body.



PROCESSED INGREDIENTS

These ingredients have been sourced from nature, but have been changed slightly. Examples of processed culinary ingredients include sugar, salt, butter and oils. Some of the processes that the ingredients go through are drying, refining, pressing and milling.



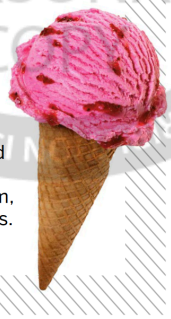
PROCESSED FOODS

Foods from the first two groups are combined to form processed foods. Usually two or three ingredients are added to produce foods such as cheese, bread, jam, pickles and tinned products. Some of this processing makes food safer to consume and gives a longer shelf life.



ULTRA-PROCESSED

These items usually look unrecognisable from their natural ingredients. They combine mixed ingredients and additives. Food dyes, preservatives and sweeteners alter foods' texture and appearance. Examples of ultra-processed foods are some soups, biscuits, sausages, ice cream, crisps and carbonated drinks.



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SCIENCE

PREPARATION TECHNIQUES

The main techniques used to produce and preserve ultra-processed food items are mechanical, thermal, chemical and packaging. Mechanical processing largely involves breaking down raw materials into small, evenly sized particles so that they can be mixed smoothly with other ingredients. This helps make textures more uniform, whether that be by milling, grinding, blending or slicing. Many products are then thermally treated to cook, sterilise or dry the food.

Because ultra-processed foods can include foods from a larger range of sources, heat treating it helps kill any contaminating microorganisms. High-temperature baking and canning of the food increases its shelf life and means that it can be sold further afield. Chemicals are sometimes added to ultra-processed foods, often to preserve them. Different chemicals work to disrupt the cellular processes of microorganisms (sodium benzoate), regulate the acidity (citric and acetic acid) and reduce the moisture content, where microbes could thrive (glycerol, sugar and salt). Finally, processed foods are packaged into airtight containers to keep them fresher for longer.



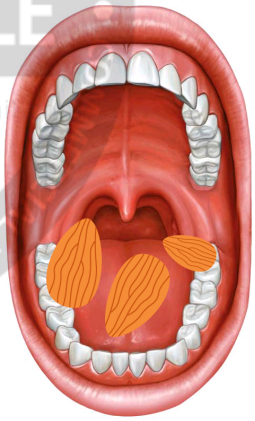
A food processing worker adds ingredients and additives into a large vat to be mixed and heat treated



HOW THE BODY HANDLES FOOD

The types of food you eat alter your digestion

DIGESTING U..PROCESSED



1 TRAPPED FAT
In unprocessed foods like almonds, fat is trapped in natural cell walls even after chewing.



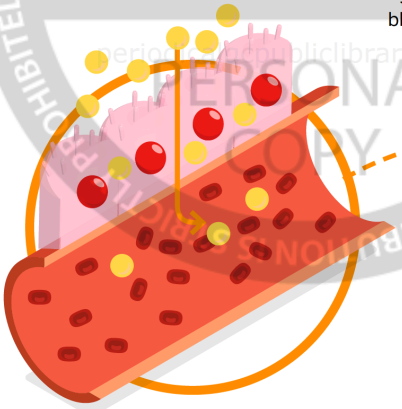
Did you know?
US food producers have used artificial dyes since the 1800s

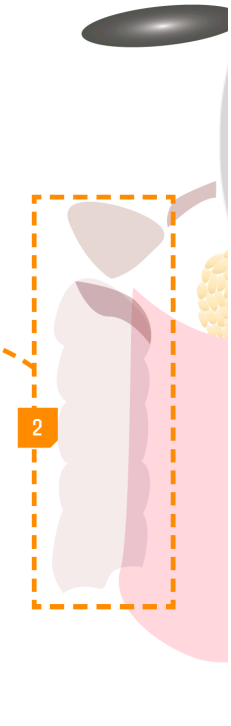


6 FULL OF FIBRE
There is more fibre in unprocessed foods, making the body feel full quicker. Fibre also increases gut health.

7 SLOW RELEASE
Carbohydrates are broken down more gradually in unprocessed foods. The slow release of energy can sustain the body for longer periods.

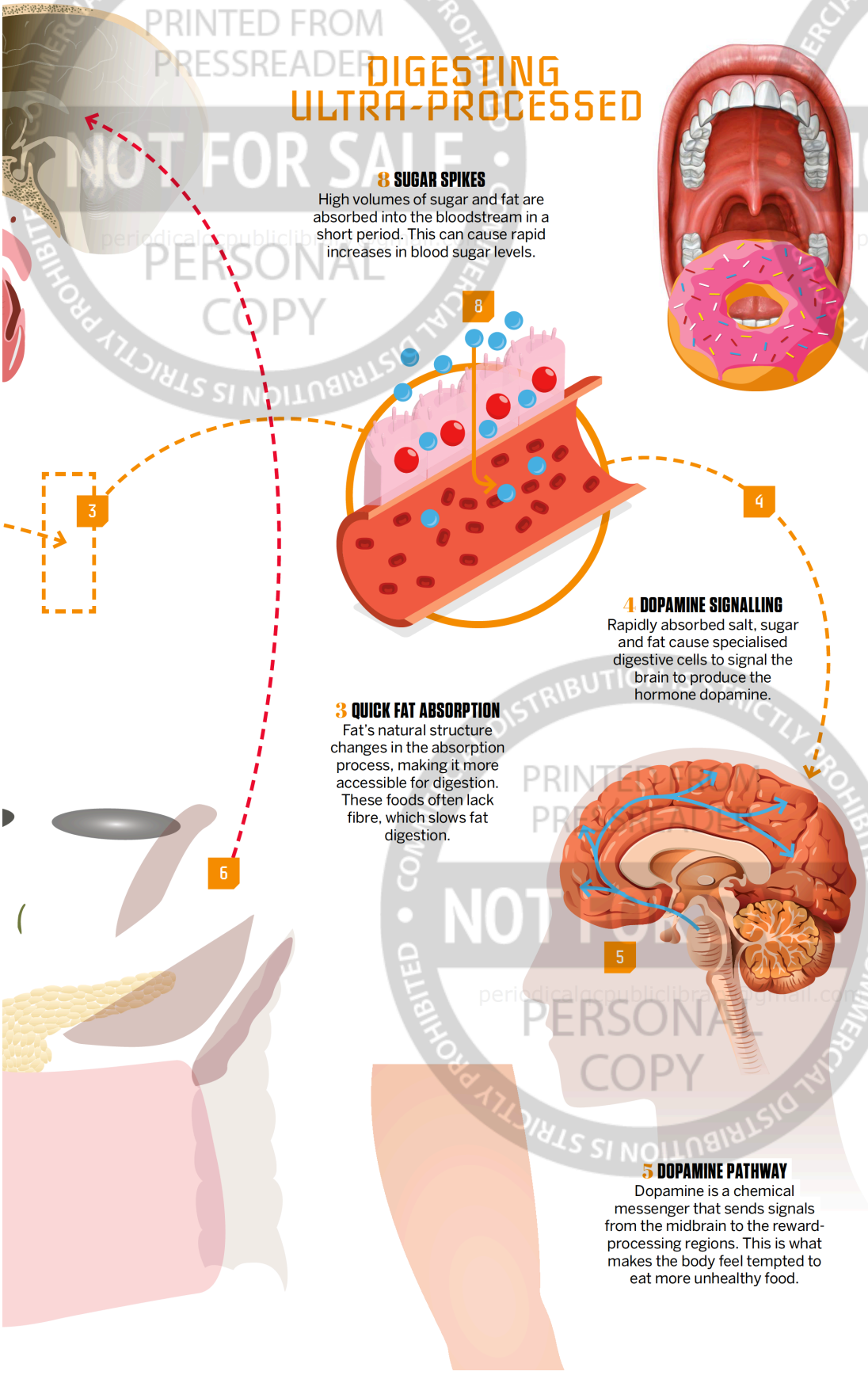
2 LOWER INTESTINE ABSORPTION
Natural food's complex structure means it takes longer to digest. This food also has more nutrients to absorb, so absorption into the bloodstream takes place in the lower intestine.





DID YOU KNOW? 75 per cent of the sodium Americans consume comes from processed foods

DIGESTING ULTRA-PROCESSED



8 SUGAR SPIKES
High volumes of sugar and fat are absorbed into the bloodstream in a short period. This can cause rapid increases in blood sugar levels.

4 DOPAMINE SIGNALLING
Rapidly absorbed salt, sugar and fat cause specialised digestive cells to signal the brain to produce the hormone dopamine.

3 QUICK FAT ABSORPTION
Fat's natural structure changes in the absorption process, making it more accessible for digestion. These foods often lack fibre, which slows fat digestion.

5 DOPAMINE PATHWAY
Dopamine is a chemical messenger that sends signals from the midbrain to the reward-processing regions. This is what makes the body feel tempted to eat more unhealthy food.

5 FACTS FOOD-RELATED HEALTH ISSUES

1 OBESITY
Ultra-processed foods generally contain more calories, sugar and fat. They also lack the nutrients that make the body feel full. This can lead to over-eating.

2 TYPE 2 DIABETES
Consuming excessive amounts of processed foods with added sugars causes spikes in blood sugar levels. Regularly eating these foods can cause the body to stop reacting to the hormone insulin, which works to regulate a person's blood sugar levels.

3 CARDIOVASCULAR DISEASES
The higher levels of sodium and fat in processed foods increases your chances of developing cardiovascular diseases. Fats can raise cholesterol and sodium your blood pressure.

4 DIGESTIVE DISORDERS
The low fibre in processed foods can cause constipation, haemorrhoids and bowel pain. Refined sugars can also lead to inflammation of the gut and unbalance its microbiome.

5 MENTAL HEALTH IMPACTS
Continually eating high-sugar foods can cause imbalance in blood sugar levels as they rise and crash. As a result, people experience mood swings, fatigue and irritability. When these imbalances are chronic, depression and anxiety are more likely.

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