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- Scientists have found damaging bacterial molecules that are undetectable in fresh foods, but abundant in junk food and processed items
- Affected foods include ready-chopped veg, pasta sauces and sandwiches

- The molecules, called 'pathogen-associated molecular patterns' (PAMPs) may increase the risk of conditions like heart disease and type 2 diabetes
- Finding also paves the way for healthier junk food, researchers say

By Madlen Davies for MailOnline

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Scientists say they have cracked what makes processed foods like burgers and ready meals harmful, paving the way for healthier junk food.

They have identified damaging bacterial molecules which are undetectable in fresh foods, but abundant in junk food and processed foods like ready-chopped vegetables, pasta sauces and sandwiches.

This suggests they grow during manufacturing process, where food is chopped and refrigerated.

The molecules, called 'pathogen-associated molecular patterns' (PAMPs) may increase the risk of conditions such as coronary artery disease and type 2 diabetes.

It is thought they cause our immune systems to overreact, damaging our health.

Scientists have discovered harmful molecules called 'pathogen-associated molecular patterns' (PAMPs) which may increase the risk of disease.

They are undetectable in fresh foods (left), but abundant in junk food and processed foods like minced meat and ready-chopped vegetables (right)

In fact, the reductions in waist circumference and white cell count from a low

PAMP diet may be equivalent to lowering a person's risk of type 2 diabetes by more than 15 per cent, the researchers said.

They now hope to find ways of removing PAMPs, thereby making food healthier without changing the taste or cost.

Lead researcher Dr Clett Erridge, of the University of Leicester, said: 'It has been understood for many years that frequent consumption of highly processed foods, particularly processed meats, is associated with increased risk of developing a range of diseases, including cardiovascular disease, type 2 diabetes and obesity.'

Now, he and his team have uncovered the mechanism by which processed foods increase the risk of developing these diseases.

THE HARMFUL MOLECULES THAT GROW WHEN FOOD IS PROCESSED

Scientists discovered processed foods contain harmful bacterial molecules. Called 'pathogen-associated molecular patterns' (PAMPs), they are believed to raise the risk of heart disease and type 2 diabetes.

When food is absolutely fresh, including any type of meat, fruit or vegetable, it contains undetectable levels of PAMPs.

However, once it has been chopped finely, especially if minced, the PAMP content rises rapidly, day on day, even when stored at refrigeration temperature.

They grow in food during the manufacturing process, when it is chopped and refrigerated.

Researchers found high levels of PAMPs in processed foods like minced meat, sausages, burgers and ready meals (especially lasagne, bolognese). Pasta sauces, sandwiches, some cheeses, chocolate and some types of ready-chopped vegetables, such as onions, also contain high levels.

They discovered that contaminating molecules arise in processed foods from the overgrowth of a specific type of bacteria during refrigeration or food manufacturing.

'These can cause our immune systems to over-react in a manner that might be damaging to health when we eat foods containing these molecules,' he said.

Dr Erridge and his team tested volunteers on a diet low in PAMPs for one week, and discovered it had vastly beneficial effects on their health. Firstly, their white blood cell count was reduced by 11 per cent.

A high white blood cell count can indicate another problem, such as infection, stress, inflammation, trauma, allergy, or certain diseases. Additionally, their 'bad' LDL cholesterol levels were reduced by 18 per cent.

If maintained, the reductions would be equivalent to lowering the risk of coronary artery disease by more than 40 per cent.

The volunteers also lost an average of 1.3lbs (0.6kg) in weight, and 1.5cm from around their waists.

+2

It is believed PAMPs grow during manufacturing process, where food is chopped, minced and refrigerated. Scientists believe identifying where they arise could pave the way for the creation of healthy junk food

The reductions in waist circumference and white cell count are equivalent to lowering their risk of type 2 diabetes by more than 15 per cent, researchers said.

When the same volunteers were fed food enriched in PAMPs, the beneficial changes were reversed, highlighting how the molecules are bad for our health.

The researchers believe their new method of detecting PAMPs could be used by food manufacturers.

It would allow them to help identify where in the manufacturing process the PAMP molecules are arising, such as which machines or which raw materials are introducing them.

Dr Erridge said: 'Crucially, we have found that some processed foods do not contain these molecules, and our results suggest it should be possible to manufacture almost any current food in a manner that results in a low content of harmful PAMP molecules.

'Our method can also be used to monitor progress in efforts to clean up the production process.'

He added removing the molecules from food could make foods healthier without changing the taste, texture, cost or ingredients.

The study was published in the journal *Nutrition, Metabolism and Cardiovascular Diseases*.

Read more: <http://www.dailymail.co.uk/health/article-3439255/Revealed-REAL-reason-junk-food-bad-Harmful-molecules-chopped-refrigerated-products-raise-risk-heart-disease-diabetes.html#ixzz40EnL5zta>

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