

Colon cancer and the microbes in your gut

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A typical Western diet, rich in meat and fats and low in complex carbohydrates, is a recipe for colon cancer, Professor Stephen O'Keefe from the University of Pittsburgh, USA, told the Society for General Microbiology meeting at Harrogate today (Tuesday 31 March). He described an expanding body of evidence to show that the composition of the diet directly influences the diversity of the microbes in the gut, providing the link between diet, colonic disease and colon cancer.

People eating a healthy diet containing high levels of complex carbohydrate had significant populations of micro-organisms in their [gut](#) called Firmicutes. These bacteria use the undigested residues of starch and proteins in the colon to manufacture short-chain fatty acids and vitamins such as folate and biotin that maintain colonic health. One of these fatty acids, butyrate, not only provides most of the energy to maintain a healthy gut wall, but it also regulates cell growth and differentiation. Both experimental and human studies support its role in reducing [colon cancer](#) risk.

However, gut microbes may also make toxic products from food residues. Diets high in meat will produce sulphur - this decreases the activity of 'good' bacteria that use methane and increases the production of hydrogen sulphide and other possible carcinogens by sulphur-reducing bacteria.

"Colon cancer is the second leading cause of cancer-related deaths in adults in Westernized communities." said Professor O'Keefe, "Our results suggest that a diet that maintains the health of the colon wall is

also one that maintains general body health and reduces heart disease".

"A diet rich in fibre and resistant starch encourages the growth of good bacteria and increases production of short chain fatty acids which lessen the risk of cancer, while a high meat and fat diet reduces the numbers of these good bacteria." Professor O'Keefe went on. "Our investigations to date have focused on a small number of bacterial species and have therefore revealed but the tip of the iceberg, our colons harbour over 800 bacterial species and 7,000 different strains. The characterization of their properties and metabolism can be expected to provide the key to colonic health and disease".

Source: Society for General Microbiology

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