

FOR HEALTH PROFESSIONALS

Informed

News on diet, lifestyle and cancer prevention



World Cancer
Research Fund

Big plate, small waist

The evidence of an obesity-cancer connection is stronger than ever. Here we investigate how energy density and appetite regulation can influence body weight, and how patients can reach a healthy weight without compromising on taste and satisfaction.

One of the crucial concepts of the WCRF/AICR Second Expert Report is that decreasing overweight and obesity rates would also modify the risk of those cancers linked to body fatness. Obesity is the consequence of an imbalance between energy intake and energy expenditure. The recent obesity 'epidemic' is proof that keeping the balance can be challenging for many people. Health professionals can play a key role in helping people maintain a healthy weight.

Keeping the balance

Although we have physiological control mechanisms that are designed to help balance our energy intake and expenditure, the maintenance of a healthy weight is more complex than a simple biological equation. In fact, genetic, environmental and psychological factors all contribute to the risk of overweight and obesity. However, there are some physiological factors that are particularly important in keeping the balance right.

A key example is satiety (the feeling of fullness after eating that helps delay how soon we need our next meal), which is part of appetite regulation. Individual biological differences, the type of diet and the level of physical activity all interact to influence this mechanism, which in turn affects energy intake.

Weight, volume and calories

Recently, more evidence has pointed to the leading role energy density plays in influencing satiety. The basic principle is that eating a large amount of energy in a small volume of food is less satiating than consuming the same energy in a larger volume of low energy-dense food [1].

Energy density is the amount of energy per unit of food weight.

Foods with more than about 225-275kcal/100g are defined as high in energy density in the Second Expert Report. Fat is the most energy-dense food component (9kcal/g), while fibre is the least energy dense (1.5kcal/g) and water is energy free. This means the inclusion of foods high in water and fibre can significantly decrease the energy density of meals. Low energy-dense diets are typically high in vegetables, fruits and cereals, especially wholegrains.

On the other hand, diets high in fat and sugary foods, such as many fast foods and confectionery products, are often high in energy density [2]. In addition, many of these commonly consumed, highly processed foods may be low in micronutrients, which tend to be plentiful in low energy-dense diets.

Energy density or portion size?

Research has reported that both portion size and energy density have an independent and cumulative effect on energy intake. On a day-to-day basis, people tend to eat a consistent amount of food, as calculated by weight or volume. However, it has been shown that increasing the portion size of available

THE DRINKS PARADOX

Sugary beverages, including fizzy drinks and fruit juices, cannot be described as energy dense due to their high water content, but they have been implicated in excess body weight. This may be because the body does not accurately compensate for the energy consumed in drinks. Our appetite and satiety control mechanisms do not seem to respond as efficiently to liquid calories as they do to solid ones, which can lead to passive over-consumption.

For more on sugary drinks see the back-page article on salt and overweight.



food can lead to over-consumption, especially when food is tasty and varied.

A recent study published in the *American Journal of Clinical Nutrition* found that when the portion size of foods offered during a meal was reduced by 25 per cent, the subjects consumed 10 per cent less energy. When energy density was reduced by 25 per cent (by cutting the fat content and adding vegetables) total energy intake was reduced by 24 per cent without changing the volume of food eaten.

Although both portion size and energy density influence body weight, modifying energy density could be a more effective way to control weight gain than reducing portion size.

Keep the portion size, lose the fat

Lowering the energy density of diets can be both effective and easy to achieve. An approach that encourages patients to eat normal sized portions of low energy-dense food has the potential to induce weight loss without compromising on satisfaction and taste, and could be encouraged by health professionals. For example, this could be achieved by eating a first course of soup made without cream, or a salad with a light dressing (made with, for example, lemon, vinegar and a little oil), or by incorporating plenty of vegetables, pulses or wholegrain cereals into meals. Emphasis should be given to taste, seasonality and colour rather than to small portions of unexciting food. WCRF UK supports this advice and recommends that we limit consumption of fast food and highly processed products.

References

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WCRF/AICR Continuous Update project

Following the global success of the Second Expert Report, WCRF/AICR is committed to maintaining its role as the leader in the field of food, nutrition, physical activity and cancer prevention.

The Continuous Update is a new WCRF/AICR initiative, which aims to keep the evidence from the Second Expert Report updated. In collaboration with Imperial College London, we are building on the evidence that was collected for the Second Expert Report by continuously updating it with new research as it is published, using a systematic review process. A Panel of experts has been given the task of regularly reviewing the new evidence and revising the Recommendations when appropriate.

The Continuous Update project will benefit not only the scientific research

community, but also healthcare professionals. The regular review of our Recommendations will ensure that advice on lifestyle and cancer prevention strategies will always be based on the most recent and reliable evidence.

The first update, which is focusing on breast cancer, is currently under way; so far, more than 140 new studies have been reviewed and analysed. The results of the first systematic review will be released this summer. For the latest news on the Continuous Update visit: www.dietandcancerreport.org



Supplements and cancer risk

Despite limited evidence in favour of the health benefits of micronutrient supplements, sales of these are growing in developed countries. More than half of the British population buys some form of dietary supplement. Multivitamins are the most popular, taken by one third of supplement users [1].

Furthermore, a recent study from the National Cancer Institute in the US reveals that people with chronic diseases are likely to be dietary supplement users and that having cancer is one of the primary reasons [2]. But how effective and, most importantly, how safe are vitamin supplements in the prevention and treatment of cancer?

The truth about the benefits and risks of supplements

Although certain micronutrients probably protect against some cancers in certain types of people, WCRF UK does not recommend supplement use among the general population. Our Second Expert Report highlights that the evidence supports consuming foods that contain relevant micronutrients, rather than supplements. Often these foods also contain other beneficial bioactive compounds, which are absent in supplements. It is still not well established whether the benefits of consuming these foods come from the micronutrients or from other compounds for which the micronutrients act as a marker.

The Second Expert Report concludes that there is only limited evidence about the risks and benefits of supplements when taken in physiological doses (levels similar



to the amounts found in diets) in the general population, as these are difficult to establish with confidence [3]. However, while some micronutrients might be safe or even beneficial at low doses, they can become harmful at higher intake levels, especially in some at-risk groups.

The Second Expert Report states that there is convincing evidence that high doses of beta-carotene can increase lung cancer risk among smokers.

Healthy nutritional habits in early years

The Second Expert Report emphasises the important role that early nutritional behaviours play in the prevention of cancer and other chronic conditions later on in life. This 'life-course approach' aims to promote healthy eating throughout life, starting from birth and even before [1].



Good nutritional status during a child's early years is not only important for growth and development, but also for lifelong health benefits. Optimum nutrition in early childhood can be the start of lasting healthy dietary habits, which can help to prevent obesity, heart disease, diabetes and cancer [2].

During their early years, children have special nutritional needs, reflecting a period of rapid growth and development. This is the time when children learn new behaviours and establish a relationship with food [3].

The mechanisms that help to regulate appetite are established very early in life. The role of parents and carers is crucial in the early development of food preferences and eating behaviours. It has been shown that infants who are not offered a variety of foods and textures regularly during their early years tend to become fussy eaters [4]. Infants may need to try new foods more than once to acquire a taste for them; so, early refusals should not deter parents from offering the food again in the future.

An effective way for parents to encourage healthy eating is for them to

eat the same food that they want their children to try [3]. Children learn by imitation and the importance of the parental role model should not be underestimated. Here are some practical tips to help the parents of growing children:

- ◆ **Eat together** to make meals a social, pleasant experience, and to promote a varied diet by imitation and role modelling.
- ◆ **Have regular meal times** to avoid children becoming too hungry and to establish healthy habits early on.
- ◆ **Reward healthy eating** with encouraging signals, not with sweet treats.
- ◆ **Do not encourage refusal behaviours** by giving too much attention or by force-feeding.

Reliable and up-to-date nutritional guidance is available for health professionals and parents. The Department of Health booklet *Birth to five* [4] offers practical advice on healthy eating and nutritional behaviour in early years. For more information on prevention strategies throughout life, including early nutrition and breastfeeding, visit www.wcrf-uk.org/breastfeeding

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How to convince patients to reduce red meat intake

The Second Expert Report recommends we limit red meat consumption to no more than 500 grams (cooked weight) per week and avoid processed meat to reduce cancer risk. There is convincing evidence of a link between red and processed meat and colorectal cancer. At the same time, worldwide red meat intake has doubled in the last few decades and is still increasing. In the UK, people consume on average more than 900 grams of red meat and meat products per person a week [1]. Bacon and ham are the most popular in this category, eaten by more than 70 per cent of the population on a regular basis.

This means that encouraging patients to reduce their intake of foods that are traditional and popular might seem challenging. However, a recent Food Standards Agency survey [2] shows that health professionals are the most trusted group when it comes to nutritional matters, meaning that your advice can have a strong impact on patients' dietary choices.

Practical tips for a healthy diet

Small changes in eating habits can help to decrease cancer risk. The current WCRF UK Recommendations are designed to be feasible and realistic. People can still enjoy eating red meat as part of a healthy diet, if they reduce the quantities they consume. Cutting, or ideally avoiding, intake of processed meat like bacon, ham, and sausages, would be even more beneficial. Smaller portions of red meat can be bulked up by adding pulses, vegetables and unrefined carbohydrates.

Although WCRF UK does not recommend vegetarian and vegan (no food of animal origin) diets, it is important to reassure patients that

reducing red meat intake will not put them at risk of nutritional deficiencies, notably of iron, zinc, vitamin B12 and protein.

A large survey in the EPIC study [3], comparing meat-eaters with non meat-eaters, reported that macronutrient intake, including protein, was within the Department of Health guidelines for both groups. Mean micronutrient intake was also generally above the UK Reference Nutrient Intake (RNI). The exceptions were vitamin B12 and calcium in vegan subjects, who might require extra care when planning their meals to obtain an adequate intake of these nutrients.

Here are some red meat alternatives rich in zinc, iron and vitamin B12.

Zinc: seafood, poultry, chickpeas, nuts, seeds, green peas, yoghurt.

Iron: seafood, poultry, pulses, seeds, greens, tofu and some dried fruit. Non-haem iron, found in vegetable sources, is better absorbed with vitamin C.

Vitamin B12: eggs, milk and cheese.

Introducing a mix of these foods every day will help ensure an adequate intake of zinc, iron and vitamin B12 even if red meat intake is reduced. The key message is that gradual changes will provide health benefits without compromising protein and micronutrient status. Check our special publication offer on the back page for more practical tips on a healthy diet.

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This is a cause of concern considering the popularity of vitamin supplements among cancer patients.

Recent findings from the VITAL (VITamins And Lifestyle) prospective study [4] support WCRF UK findings. The researchers, who investigated the effects of vitamins on lung cancer patients from a group of 77,221 people, reveal that neither multivitamins, vitamin C or folate reduce the risk of cancer. The study also linked long-term vitamin E supplementation with increased lung cancer risk, especially among smokers.

In addition, the results of another large prospective study from the National Institute of Health [5] show a link between heavy multivitamin use and higher risk of advanced and fatal prostate cancer.



On the other hand, the Second Expert Report recognises that selenium and calcium at specific doses probably protect against, respectively, prostate and colon cancer. Thus, different levels of intake can modulate cancer risk in different ways.

What to recommend to patients?

WCRF UK acknowledges that supplements may be advisable for some specific groups. The most common examples include folic acid supplementation for women who may become pregnant, vitamin B12 for elderly people with decreased natural vitamin B12 absorption, and vitamin D supplementation for those groups, like older or dark-skinned people, with insufficient sunlight exposure.

Overall, although some special categories of individuals might benefit from supplement use, the emphasis of the Recommendation is on nutrient-rich foods and balanced dietary patterns [3]. Health professionals should discourage the use of supplements as a substitute for a healthy diet rich in fruits and vegetables, or as a way to reduce cancer risk.

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Cycle your way to health

The Department for Transport recently announced a substantial grant to be spent on cycling training for more than 80,000 school children by March 2009 [1]. As nearly half of all car trips are less than 3.2km (2 miles) long, there is potential to encourage cycling as an alternative form of transport for school commutes and other short journeys.

The project is part of the Bikeability scheme, which started in 2007. It provides children with the skills necessary to cycle safely on today's city roads, and raises awareness of the dangers they might encounter. Cycling England [2], a government-backed association, offers free activities for both children and adults, such as bicycle maintenance workshops and demonstrations, to promote cycling in the community.

As well as being healthy, cycling can also be a fast, cheap, 'green' and

enjoyable way to travel to school for children and to work for their parents. It is also an easy way to incorporate a routine of daily exercise into busy

schedules, helping people to maintain a healthy weight. For example, a school commute of 20 minutes cycling at a leisurely pace of 8km/h (5 miles/h) will burn approximately 120 calories.

WCRF UK welcomes and supports this scheme as a tool to promote physical activity and reduce the risk of obesity in the fight to prevent cancer.

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The British Dietetic Association (BDA) Annual Conference & Exhibition



17th – 19th June 2008
The Adelphi Hotel, Liverpool
www.bda.uk.com/conference

WCRF UK will be exhibiting and Professor Annie Anderson will be speaking about our Second Expert Report.

Visit www.wcrf-uk.org/conferences for more upcoming conferences and events

Association for the Study of Obesity (ASO) Conferences: Obesity and its Management
25th – 27th June 2008
Liverpool Medical Institution, Liverpool
www.cnguk.org/Conference

International Society for the Developmental Origins of Adult Health & Disease (Dohad) Workshops

4th July 2008
University of Nottingham
www.dohadsoc.org
A one-day workshop aimed at promoting research into the fetal and developmental origins of health and disease.

Salt and overweight link

A new study from the University of London [1] has found a significant association between salt intake and sugar-sweetened soft drink consumption in children.

The researchers assessed data for 1,688 participants from the National Diet and Nutrition Survey (NDNS) on young people aged four to 18. The results revealed that the average salt intake in UK four-year-old children was 4.6g per day, 50 per cent more than the 3g per day recommended by the government. The average intake increased with age, up to 6.8g per day at 18 years.

Fluid consumption, of which on average 31 per cent was in the form of sugar-sweetened soft drinks, also increased with age. Data analysis showed that an increase in salt intake of 1g per day was associated with a 100g per day rise in fluid intake and an increase of 27g per day in the consumption of sugar-sweetened soft drinks.

This study suggests that halving the average salt intake among British children to 3g per day could potentially lead to a decreased consumption of 2.3 sugary drinks per child a week, with a consequent reduction in energy intake of almost 250 kcal per week. With almost a fifth of UK children under the age of 16 now obese [3], the effects of reducing salt intake could be crucially important.

As highlighted in the Second Expert Report [2], regular consumption of sugary drinks can lead to weight gain, due to their high contribution to passive energy intake and their weak effect on satiety regulation.

WCRF UK recommends avoiding sugary drinks and limiting the consumption of salt and foods processed with salt, which has been linked to stomach cancer and raised blood pressure. As suggested by this study, children with a high-salt diet may also be indirectly increasing their risk of obesity. This means that the health benefits of decreasing salt consumption may be even more significant than previously thought.

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Exercise may reduce cancer-related fatigue

A recent study suggests that exercise may benefit individuals who are suffering from cancer-related fatigue (CRF) both during and after cancer treatment.

The number of people living with a diagnosis of cancer has risen substantially in the past decade as a result of improved treatment, and so there are an increasing number of people having to deal with the long-term consequences of the disease. CRF affects 70 to 100 per cent of cancer patients, and is now recognised as an important symptom of the disease and its treatment [1].

The study, published in the Cochrane Database of Systematic Reviews 2008, reviewed 28 randomised controlled trials that had investigated the effect of exercise on CRF in adults [1]. Twenty-two comparisons were incorporated into the meta-analysis and provided data for 920 participants who received an exercise intervention, compared to 742 who did not (the controls).

The results showed that the exercise intervention was statistically more effective than the control and suggested that exercise can reduce CRF. However, there is not yet sufficient evidence on the best type or intensity of exercise to reduce the symptoms [1].

The Second Expert Report states that based on the available evidence, it is not yet possible to make judgements that apply specifically to cancer survivors. However, it also acknowledges that physical activity has the potential to improve their wellbeing and quality of life.

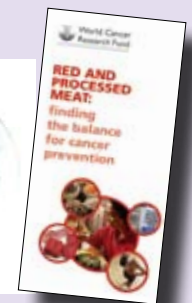
WCRF UK recommends that, after treatment, cancer survivors should follow the Recommendations for Cancer Prevention, which include being physically active for at least 30 minutes every day.

References

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Red and processed meat: finding the balance for cancer prevention



This new leaflet explains the effects of red and processed meat on cancer risk based on the findings of WCRF/AICR's Second Expert Report: *Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective*. It also includes healthy alternatives to help people reduce their intake of red and processed meat.

To request a free copy, email informed@wcrf.org or telephone 020 7343 4205.

WCRF UK is offering a 25% discount on this publication until the end of August.

Check our Publications Catalogue to place your order for this and other publications.

Please circulate this newsletter to colleagues to help us spread the message that cancer is a largely preventable disease.

Informed is available free of charge to all health professionals.

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