

Nutrition, Physical Activity and Cancer Prevention: Current Challenges, New Horizons

Report from WCRF conference

The latest science and knowledge about nutrition, physical activity and cancer prevention was presented by experts from around the world at the 2010 WCRF International Conference. Elphee Medici, Registered Dietitian reports on the highlights from the event and on the suggestions made for influencing policy.

The first international World Cancer Research Fund (WCRF) two-day conference in September provided a fascinating insight into the **joint WCRF/American Institute for Cancer Research (AICR) 2nd expert report on Food, Nutrition, Physical Activity and the Prevention of Cancer** and its subsequent 2009 publication: **Policy and Action on Cancer**.

Attention was drawn to the global cancer epidemic with particular focus on developing countries, major dietary and lifestyle contributors, impact of early nutrition and diet/gene interaction.

Dr. Wild - International Agency for Research on Cancer (IACR) - presented key factors to the continuing global cancer crisis:

- Ageing and Increasing population
- Tobacco
- Diet
- Obesity/Overweight/Physical Activity
- Infections
- Radiation
- Reproductive factors
- Alcohol
- Occupation
- Environmental Pollutants

Prof Riboli, Imperial College London, reviewed the main findings of the 2nd WCRF/AICR Expert report which highlighted that diet and lifestyle habits have the joint potential to reduce cancer risk by up to 45%.

- BMI <25
- Fibre ≥30g/day
- Processed meat < once a week
- Red meat < once a week
- Alcohol avoidance – especially in the UK where alcohol consumption intakes increase breast cancer risk by 22%.
- Physical Activity ≥21 minutes per day

Nutrition, Physical Activity and Cancer Prevention: Current Challenges, New Horizons

Report from WCRF conference

Despite over 30% of cancers being preventable, global prevalence is exploding with dietary and lifestyle habits heading the wrong direction - especially in developing countries. *Dr. Branca, WHO*, presented **the global health status**:

- 5.5 million premature deaths a year from cancer
 - 2million in developing countries
- 1 billion adults are overweight and obese.
 - 1/10th children
- 60% of the globe is inactive
- An overall increase in fat and saturated fat intakes – especially in developing countries.
- 60-70% of the globe are struggling to achieve 5-a-Day with Africa and South East Asia faring worst.
- Alcohol consumption is increasing.
- Snacking and processed foods are pushing salt intakes up - with Thailand and Mexico seeing a 50% rise in purchases in just 5 years.
- Exclusive breast-feeding for the first 6 months of life is not being achieved and breast feeding is on the decrease.

The current crisis has resulted in the first UN summit on the resolution of NCD to take place in September 2011.

Obesity and body fatness are key contributing factors for most cancers. Adiposity influences hormonal balance and can increase cancer risk through elevations in circulating oestrogen, insulin, insulin growth factors (IGF) and glucose. Obesity is associated with many cancers including colorectal, breast, prostate, endometrial and liver.

Prof. James - International Obesity Task Force - highlighted the **burden of obesity on the cancer crisis**, challenging current accepted BMI thresholds. Whilst the US population and European children seem to be hitting a plateau in obesity rates, the rest of the world is seeing an explosion with many countries suffering the impact of dropping traditional healthier diets. Women seem to be fare worst especially in the Middle East.

Scientific evidence demonstrates that body weight becomes a disease burden when **BMI** is greater than 21 and for a significantly reduced risk from disease including cancer, the acceptable upper limit should be reduced to ≤ 23 .

For the current obese population, research identifies Bariatric surgery as a viable solution to reduce risk of obesity related cancers within 7 years of surgery.

Nutrition, Physical Activity and Cancer Prevention: Current Challenges, New Horizons

Report from WCRF conference

Prof. Uany, describing himself as a paediatrician by training, focused on how **early life is most sensitive to cancer inducing processes**. Cancer biology may be determined from maternal hormones, early diet, carcinogenic exposure, menarche and puberty, birth weight, early growth, dietary preferences, attained height, obesity, breast feeding etc. Infants over 4kg at birth and longer babies carry a significantly higher risk of cancers in later life due to elevated IGF-1. Key protective factors include breast feeding through its association with lower incidence of obesity and better satiety control, later weaning and early exposure to a variety of foods for significantly increased food acceptability.

The adaptation of a Western lifestyle by **low income and developing countries** correlates with an explosion in preventable cancers. In addition to the burden of an ageing population, developing countries within a matter of one to two decades have seen a dramatic change to their health status and lifestyle patterns:

- Increase in smoking
 - 1/5th of under 10 year olds in India smoke
- Reduced breast feeding and increase in bottle feeding
- Rapidly escalating levels of obesity
- Increased fat and saturated fat intake
- Increased meat consumption
- Increased sugar intakes – mainly soft drinks
- Increased consumption of cheap snack and processed foods
- Reduction of up to 60% in physical activity
- Increased alcohol intake

Further challenges for low to middle income populations:

- Poor health care accessibility
- Commercial pollutants
- Limited literacy

Prof James felt **marketing** was central to manipulating food choice, quoting that up to 95% of our food choices are made subconsciously.

A number of speakers stated that **fast food chains and global food manufacturers** were key contributors to global epidemics. A solution could only be reached by collaborating with them to help set better policing of the food supply chain, set stronger legislative and fiscal policies with effective implementation.

Prof Lam and Prof. Chor provided us with the **Asia perspective** – highlighting the rapid westernisation of Asia over the past few decades at the expense of traditional diets and lifestyles. Although research has lacked quality, promising evidence exists for soya intake – especially in adolescents, vegetable and fruit intake, green tea and traditional Chinese medicine. For breast cancer survivors, a BMI <23 and soya consumption were found to be protective against mortality and recurrence.

Nutrition, Physical Activity and Cancer Prevention: Current Challenges, New Horizons

Report from WCRF conference

Hot topics

An overview on **vitamin D**'s role in cancer protection by *Dr. Jenab – IARC* – demonstrated that the evidence was both consistent and persuasive for colonic cancer prevention at serum vitamin D levels ≥ 75 nmol/l. Vitamin D's cancer protective properties centre on its action on cell proliferation and differentiation, apoptosis, oxidative stress and inflammatory.

The **metabolic syndrome** is also thought to play a role in the cancer process. *Prof Stattin, University Umea, Sweden*, highlighted the complexity of investigating this multi-factorial disease state, but believes that evidence points strongly to glucose control as central to most cancers, particularly breast cancer.

Mechanisms

Research continues to investigate the impact of diet and environment on genetics with the two key areas for further investigation, **epigenetics** and **metabolomics**. *Prof Mathers*, using the example of colonic cancer, presented the theory of epigenetics where diet and environmental factors are shown to damage the DNA (DNA methylation) involved with the cell repair system, thus impacting on the cells ability to recover and susceptibility to cancer growths.

The WCRF data collection system

Teresa Norat, Imperial College London announced that the WCRF databases on diet and physical activity for Prostate, Breast, Pancreas and Bowel cancers should be ready to be accessed by all health professionals and scientists by May 2011. Watch this space.

Cancer Survivors

An exciting new area of investigation for the WCRF is the **impact of body fatness, diet and lifestyle on cancer survivors' quality of life and tumour recurrence** presented by *Dr. Harvie, Genesis Prevention Centre*. Evidence indicates that for cancer survivors, body weight and at least 150mins physical activity a week improve prognosis. Higher body weight at diagnosis can increase nodes and tumour size and can also impact on recurrence of tumours. Obese individuals demonstrate a 41% increased risk of recurrence and risk increases with as little as 5kg weight gain during treatment. For breast cancer sufferers, a diet low in fat may reduce recurrence by 40%.

Responsible press coverage of science

Richard Evans – WCRF UK, Dr. Goldacre and Dr. Dangour – the London School of Hygiene and Tropical Medicine, emphasised that scientists and health professionals should be pro-active with the press by posting complaints to both journalist and editor, as well as offering to submit balanced articles and helping to train journalists on interpreting science. Press releases are very powerful tools to gain media coverage, however, care is needed when compiling them to ensure misinterpretation is kept to a minimum.

Nutrition, Physical Activity and Cancer Prevention: Current Challenges, New Horizons

Report from WCRF conference

Conclusion

The WCRFs work highlighted the urgent need for implementing global and national policies to thwart the current cancer epidemic. Body fatness – the core contributor to so many other non-communicable diseases – is clearly at the centre of the cancer epidemic. Efforts need to focus particularly on low to middle income countries before obesity is out of control. More research is needed for a better understanding of the impact of diet and environment on genetic predisposition to cancer as well as the benefits of individual nutrients.

References

- The conference details, abstracts and video clips of the presentation can be found on: www.wcrf.org/research/cancer_conference/index.php
- WCRF / AICR 2nd Expert Report: Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective. Washington DC: AICR
- WCRF / AICR Policy and Action for Cancer Prevention
to request a copy or download either of the above reports go to:
www.dietandcancerreport.org/