DIET AND LIFESTYLE AFTER CANCER

There is now emerging evidence to suggest that many people living with and beyond cancer (PLWBC) can influence their own destiny through lifestyle and self help strategies. Numerous scientific studies have shown that lifestyle factors can slow the rate of cancer progression or help reduce the risk of relapse. This, however, do not work for everyone, as each patient's stage, grade and biological pattern of their disease is unique so what works for one person may not work for another. The good thing is though, even if a healthy living programme does not help your cancer it will certainly help with many of the side effects of cancer treatments, help your body in other ways and empower you with a sense of self determination.

In the past, lifestyle strategies have been under valued and under resourced but now the major contribution they can make to routine management is being increasing recognised as the evidence becomes more robust. In the UK, the National Cancer Survivorship Initiative is a partnership between the government, academic institutions and charities. It has developed evidence-based instructions for Hospitals (www.ncsi.org). The background evidence for this initiative, from the Macmillan side, was led by Professor Thomas. The most important strategies have been summarised below:



Physical activity: The BMJ recently published an analysis of 34 randomised controlled trials evaluating exercise programmes and concluded that regular activity significantly reduces fatigue, improves mood, psychological well-being, weight control and overall quality of life. Other cohort trials, have linked 3-5 hours of physical activity a week, especially if combined with other with lifestyle manoeuvres, with a reduce rate of cancer progression and a reduced risk of relapse after radical treatments. For exercise to sustained in the long term it should be enjoyable and fortunately there are many choices including gardening (the green gym), dancing, brisk walking, golf, running, cycling, swimming or formal exercise classes¹.

Obesity: Being overweight increases the risk of developing cancer in the first place. There is also evidence that obese individuals present with more aggressive types of cancer which are harder to treat and less likely to be cured after radical treatments. They also have more side effects and risk following cancer treatments such as poor wound healing, infection, blood clots, hot flushes, lymphoedema, radiotherapy skin reaction, joint pains and fatigue. If eating less and exercising does not reduce the weight, a good tip is to fast one day a week.

Sugar and carbs: There is an increasing emphasis on reducing calorie (energy) excess. Not only does this lead to obesity it produces changes in the blood stream which cancers love

such a rise in insulin like growth factor. Foods which are rapidly absorbed are the worse culprits as they increase the blood sugar rapidly after consumption particularly processed sugar, refined wheat in bread and pasta.

Healthy fats: A number of studies have linked the consumption of oily fish with a lower relapse rate in bowel and breast cancer although the situation in prostate cancer is more complex.

Vitamin D: Patients with low vitamin D have a higher risk of a number of cancers and have a higher risk of relapse. What is not known yet is whether taking vitamin D supplements after cancer is beneficial. Consensus option is that maintaining adequate vitamin D levels, mainly through sensible sun exposure, is important, if not to reduce relapse risk but maintain healthy bones.

Fruits, berries, nuts, pulses, soy and plant based proteins: The famous Dean Ornish study showed that a healthy diet and exercise regimen slowed PSA progression and more recently an extension of this trial showed it actually slows your aging clock. Women with early breast cancer taking higher than the recommended "5 a day" amount of fruits and vegetable have been found to lower their risk of recurrence risk by one third especially if combined with physically activity [Pierce 2009]. Other trials have reported lower breast cancer recurrence associated with regularly drinking regular green tea, eating foods rich in dietary lignans and soy products. Individuals with skin cancer who had high lutein and zeaxanthin (leafy green vegetables) intake had a lower rate of subsequent new cancer formation.

Concentrating foods into supplements

If certain foods have anti-cancer effects, then a logical extrapoloation of the data is to enhance their effect by concentrating them into a pill either as a means to correct for poor diets or further enhance the benefits in those already with adequate diets. There have two main categories supplements commercially available. The first involves chemicals extracted from food or made synthetically with are thought to be the anti-cancer candidates. The second involves concentration of a whole polyphenol rich foods. The majority of the studies, to date, have evaluated extracted chemicals such as vitamins and minerals. The results of these trials have largely been inconclusive unless they were correcting a known deficiency and some involving vitamins A and E and selenium may increase the risks of cancer.

Polyphenol rich food supplements. A wide range of foods contain these natural chemicals particularly herbs, spices, green vegetables, teas and colourful fruits. Although a lot more scientific work still needs to be done, there is particularly strong laboratory evidence for anticancer benefits of pomegranate, green tea, turmeric and broccoli extracts². All four have antioxidant properties so are able to protect the DNA within our cells by moping up the free radicals produced from ingested or inhaled carcinogens. Their anti-cancer properties are, however, more complex and far-reaching for a wide range of common cancers. Pomegranate extract rich in ellagic acid, and green tea, rich in epigallocatechin gallate (EGCG) has been

shown to directly inhibit cancer cell growth and persuade cancer cells to die after a certain

time, like normal cells (apoptosis). Green tea has been shown to stop cancer cells becoming more aggressive and prevent new blood vessels growing into tumours (angiogenesis). Broccoli, rich in isothiocyanate (ITCs) and its metabolite sulforaphane, have been found to spark numerous genetic changes, activating cancer suppressor genes and switching off promotion genes. Curcumin, which gives turmeric its yellow colour, has been shown to preventing the invasion and migration of cells and halt the growth of stem cells that give rise to cancer without harming normal breast cells.

In humans, a series of large scientific studies of polyphenol rich foods, either on their own or in combination are registered with International research bodies. The largest of these trials was the UK, the National Cancer Research Network Pomi-T study. It combined four different food types (berry, vegetable, spice and leaf) in order to provide a wide spectrum of polyphenol nutrients, whilst at the same time avoiding over-consumption of one particular type. It involved over two hundred men, with localised prostate cancer managed with active surveillance

or watchful waiting experiencing a PSA relapse following initial radical interventions. They were randomised to receive an oral capsule containing a blend of pure and whole pomegranate, green tea, broccoli and turmeric, or a placebo for 6 months.

Two hundred and three men with confirmed prostate cancer, 59% managed with primary active surveillance or 41% experiencing a progressive PSA relapse following previous radical

radiotherapy interventions were randomised to receive twice a day Pomi-T or an identical placebo but the men along with the trials team were blind to which they were taking. This non-commercial trial was sponsored by the charity Prostate Action, approved by the National Ethics Committee, was peer reviewed by the National Cancer Research Institute (NCRI) Complementary Therapies Research Committee. The randomisation process was



outsourced and the trial methodology, collection and storage of data were verified and independently audited by an external agency to ensure adherence to European Good Clinical Practice. The UK manufacturers of the food supplement adhered to good manufacturing practice guidelines and performed in house analysis for authenticity and purity.







The results: The study completed recruitment ahead of schedule and found a highly statistically significant, 63% reduction in the median PSA progression rate compared to placebo even after only 6 months. The oral presentation at the American Society of Clinical Oncology conference Chicago, by the chief investigator Professor Robert Thomas, a consultant oncologist at Bedford and Addenbrooke's Cambridge University



Hospitals received immediate acclaim from the 28,000 attending oncologist and World wide recognition from academic institutions. It was seen as a major breakthrough for nutritional research groups which for years awaiting adequately powered well designed RCT's in this area.

Pomi-t influenced men treatment options. A further analysis presented at the Uk's National Cancer research Institute Conference revealed a fascinating extra benefit which could save millions for the NHS and spare numerous men the toxicity unnecessary aggressive treatments. In addition to PSA, the intake of Pomi-T had a significant impact on the management decisions of men in the trial. 5.9% on Pomi-T as opposed to 23.4% in the placebo group opted to leave AS or WW for more aggressive management pathways. This difference of 17.5% was highly statistically significant (Chi² p=0.014). Some men opting for other treatments had radiotherapy or surgery but most had medical castration which can cause a number unpleasant effect including depression, hot flushes, weight gain, osteoporosis and erectile dysfunction not to mention the costs of intervention such as radiotherapy, surgery or hormones.

Secondary end points: As these food were specifically chosen not to have any phytoestrogenic properties, it was not a surprise that there was no effect on average serum sex hormone analysis amoung the men in the study. It was well tolerated with only 6% experiencing some loose bowel movements. There was no effect on cholesterol, INR or BP amoung men taking warfarin or ramipril. Since the study numerous regular takers have reported improvements in joint pains (prompting a future study in both males and females)³.



Long-term correlation with underlying disease. A further analysis presented at MASCC Copenhagen showed that there was a 100% correlation between disease progressing on MRI (a-B in adjacent image) and PSA progression. This reassuringly shows that Pomi-t does not just have a PSA effect⁴.

What is next? The Institute of Preventive Medicine in the UK are including Pomi-T in a further multinational national study involving men with prostate cancer – THE PROVENT STUDY. A further RCT's is also in design in involving individuals with other cancers evaluating whether it helps relieve of joint pains and improve exercise levels. Following the success of this study, the research trials committee are now seeking funding to design and conduct a series of studies involving Pomi-T for individuals with other cancers as well as evaluating its effect of other symptoms such as joint pains, tinnitus and prostatitis. The product has been commercialised and has its own website (pomi-t.co.uk)



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