



PHYSICAL ACTIVITY AND CANCER

Cancer is one of the leading causes of death in the Caribbean. There are many kinds of cancer: in fact cancer is the general name given to a group of more than 100 diseases which all develop as a result of abnormal cell-growth. The abnormal cells usually form into a tumour (a lump or mass) but there are some cancers, like leukaemia, which do not form tumours, and it must be noted that not all tumours are cancerous. Some of the well-known types of cancer in the Caribbean include breast cancer, prostate cancer, cancers of the colon, cervix, stomach, rectum and lung cancer. Less frequently are ovarian and endometrial cancer, as well as leukaemia and cancers found in the thyroid, bladder, kidney and pancreas.

Physical activity is said to reduce the chance of developing certain types of cancers, so in this issue of **Nyam News**, we will be

taking a look at the evidence for relationships between physical activity and some types of the disease.

Cancers in Women

There is a body of evidence which suggests that physically active women have up to a forty percent reduced risk of developing breast cancer. Most of the evidence suggests that physical activity reduces breast cancer risk in both premenopausal and postmenopausal women. Various indices of exposure to oestrogen are positively associated with the risk of breast cancer. These indices include early menarche, lack of lactation, late menopause and a high number of ovulatory cycles. One mechanism by which high levels of physical activity may protect against breast cancer is by reducing oestrogen exposure.

Epidemiological studies have reported a decreased risk of breast cancer among college athletes, women in high activity jobs as well as women who have high levels of energy expenditure. There is also a positive association between breast cancer and obesity. Physical activity and exercise are therefore important keys in reducing breast cancer through the role they play in fighting obesity. It is also critical that, while engaging in physical activity, women also monitor their eating habits in an effort to reduce the risk of developing breast cancer. For instance, it is recommended that postmenopausal women reduce the consumption of fat in the diet. This has been proven to lower the risk of the development of breast cancer or its recurrence after treatment.

Physically active women tend to have less body fat than sedentary women and this could

be associated with early menopause. Although regular, vigorous activity is thought to be of greatest benefit, even women who only occasionally engage in physical activity can experience a reduced risk of developing breast cancer compared to inactive women. A number of studies also suggest that the effect of physical activity may be different across levels of Body Mass Index (BMI), with the greatest benefit seen in women in the normal weight range. That is, lean women are less susceptible to the development of breast cancer.

There is also a relationship between breast cancer and hormonal changes in women. Physical activity causes changes in hormone metabolism, body mass and immune function, which may prevent tumour development.

There is conclusive evidence indicating that physical activity, through its effects on the menstrual cycle (such as delaying the onset of menstruation and lowering oestrogen levels), is directly associated with a reduced risk of breast cancer. It is also found that both recreational and occupational physical activity reflects favourably on the risk of breast cancer, especially in premenopausal women.

While some studies on hormone-dependent cancer in women have found no significant association between physical activity on the risk of ovarian cancer, others have shown that sedentary women had twice as many cases of ovarian cancer when compared to active women. A number of studies have found

that women who are physically active have a thirty to forty percent (30-40%) reduced risk of endometrial cancer, especially among young women and women who are most active. Changes in body mass and alterations in the level and metabolism of sex hormones, such as oestrogen, are the major biological mechanisms thought to explain the association between physical activity and endometrial cancer.

Cancers in Men

Prostate cancer is the second most studied cancer in epidemiological research. Results of the relationship between physical activity and prostate cancer are inconsistent. While several studies indicate it is probable that physical activity decreases the risk of developing prostate cancer by ten to thirty percent (10-30%), others have found no evidence to support this finding. In fact, some studies have shown that athletically active college men have an increased chance of developing prostate cancer in later life.

It is unclear whether physical activity reflects positively or negatively on testicular cancers as supporting evidence is limited and contradictory. There is evidence which implies that leisure time physical activity shows no effect on testicular cancer, but high occupational activity is associated with approximately two times the increase in testicular cancer. Therefore, no meaningful conclusion can be drawn about the relationship between physical

activity and testicular cancers until further studies have been conducted.

Lung Cancers

Some studies have found that individuals who are physically active may have a 30 percent to 40 percent reduced risk of developing lung cancer. Such studies have found higher rates of lung cancer among those who are physically inactive compared to those who are active, after accounting for smoking status. However, many of these studies are difficult to interpret because smokers who are able to engage in physical activity may have much better lung function. Researchers hypothesize that improvements in pulmonary function and ventilation in the physically active, compared to sedentary individuals, may explain the possible association between lung cancer and reduced physical activity. Also, the relationship between physical activity and lung cancer is less clear for women than it is for men.

Colorectal Cancers

Individuals who are physically active can reduce their risk of developing colon cancer by 40 to 50 percent, with the greatest reduction in risk among those who are most active. A decreased risk of colon cancer has been consistently reported for physically active men. Studies offer compelling evidence that regular physical activity, following the treatment of colorectal cancer (colon and

rectum combined), can decrease the risk of its recurrence. Many researchers believe physical activity increases colonic peristalsis (the wave-like contractions that move food along the digestive tract), which in turn promotes regular bowel movements. This means that the length of time the colon is exposed to potential carcinogens (cancer causing agents) may be decreased, and this factor can partially explain the lower risk of colon cancer in active people. Physical activity has also been found to alter a number of inflammatory and immune factors, some of which may influence colon cancer risk.

Studies continue to report an inverse relationship between physical activity and the risk of colon cancer. These studies either measured physical activity by

tracking individuals over time to ascertain colon cancer response, or compared histories of physical activity among colon cancer patients. The findings are consistent for both men and women. Others have studied the effect of physical activity on colon cancer in early adulthood and have found no relationship. This suggests that early physical activity has no effect on colon cancer in later life. It is therefore recommended that, in order to yield maximum benefits of reduced colon cancer that individuals maintain physical activity throughout the entire lifespan. There is still limited information available on the relationship between colon, colorectal and rectal cancer. A few studies, however, have supporting evidence on an inverse

relationship between the incidence of all three diseases and physical activity.

Evidence continues to be accumulated that high levels of physical activity are associated with a reduced risk of some cancers. One hypothesis is that physical inactivity reduces insulin sensitivity, leading to a growth promotional environment which may facilitate neoplasia (the abnormal proliferation of cells). Another possibility is that our non-specific immune system may be improved by physical activity – exercise has been associated with the release of immunostimulatory factors which in turn activate various populations of immune cells. We may not know exactly what physiological mechanisms can reduce the cancer risk in our bodies but it seems clear that increasing our level physical activity is a wise strategy. ♦

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