Editorial

Exercise: an anti-cancer agent

Victor Grech

Elevated levels of insulin and insulin-like growth factor (IGF) have been implicated as risk factors for cancer, and indeed, fasting and fasting-mimicking diets appear to promote protection of normal cells and induce cancer cell death.[1] It is for this reason that it is believed that these two hormones are also the leading candidates to explain the correlation between obese and diabetic individuals and cancer risk.[1] Moreover, these individuals are less likely to have a good prognosis under such circumstances than leaner equivalents.[1-2]

The concern is that cancer in young adults is occurring with increasing frequency in developed countries and this may be associated with increasing population levels of overweight and obesity, which are reaching pandemic proportions.[3] The potential for a catastrophic increase in obesity-associated cancers in young adults is frightening.[3]

The modern trend for increasing sedentariness also prompts additional related concerns in that exercise has been shown to have wide-ranging benefits not only for the body and the mind, but also for the immune system.[4]

Victor Grech PhD (London), PhD (Malta), FRCPCH, FRCP(UK), DCH
Department of Paediatrics
Mater Dei Hospital
Msida, Malta
victor.e.grech@gov.mt

It has been demonstrated that immune system effectiveness declines by circa 2-3% a year from the second decade of life, which is why the elderly are more susceptible to infections, auto-immune disorders and cancer.[4] T-cells are effective markers of immune function and it has been shown that vigorous activity preserves immune function such that individuals in their seventh and eighth decades of life have immune function comparable to twenty-year olds.[4]

More specifically endurance cyclists were shown to have significantly higher serum levels of the thymoprotective cytokine IL-7 and lower IL-6, which promotes thymic atrophy. Additional evidence of reduced immunesenescence, included lower Th17 polarization and higher B regulatory cell frequency than inactive peers. However, physical activity did not protect against all aspects of immunesenescence: CD28−veCD57+ve senescent CD8 T-cell frequency did not differ between cyclists and inactive peers.[4]

In physically active elderly individuals, preserved immune function may also allow better vaccine responses, such as to seasonal influenza.[4] The same study group was incidentally also shown not lose muscle mass or strength, and did not experience an increase in body fat, all of which are usually associated with the ageing process.[5]

In short, keeping fit and exercising into old age reduces cancer risk.

References

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Cover Picture:
'View of St. Angelo from the old fish market in Valletta'
Watercolours
By Christian Camilleri

Christian Camilleri is an anaesthesia trainee who began painting in childhood. His preferred medium and subject consist of watercolour figures, portraits and battle scenes. He derives inspiration from both Baroque and early 20th Century sources.