



## Less common cancers

Much of Health 2020 research has focused on cancers of the breast, prostate and bowel because these are the most common cancers affecting Australians and are therefore easier to study. Recently we have begun to focus more on the less common cancers which make up less than half of all new cancers diagnosed but cause more than half of all cancer deaths in Australia. Because these cancers are uncommon, and have poor prognosis, less epidemiological research has been carried out on them and little is known about why some people are at higher risk.

Health 2020 participants have contributed importantly to our understanding of risk factors associated with these less common cancers by pooling our data with other similar studies. For example, Health 2020 has pooled data with international teams for research on glioma (a brain cancer), multiple myeloma, pancreas and kidney cancers.

An increased risk of death from **multiple myeloma** (MM) was found to be associated with both overall obesity and for women who remain obese throughout adulthood. This may be due to the level of adiponectin, a hormone produced by fat cells. Adiponectin levels are usually higher in people who are leaner. Higher levels of adiponectin were found to be associated with a lower risk of developing MM, especially for overweight and obese people.

**Pancreas cancer** was also found to be associated with overall obesity, central obesity (fat around the waist), and with being overweight or obese in young adulthood. Researchers also showed that consuming dairy products such as milk, cheese and yoghurt, as well as calcium and vitamin D which are nutrients found in these foods, was not associated with pancreas cancer.

However, alcohol consumption of more than 3 standard drinks (375 ml of regular beer, 100 ml of wine or 30 ml of straight spirits) a day was associated with increased risk.

Health 2020 data have helped confirm earlier reports of an association between adult height and risk of **glioma** for men, especially for the subset of glioblastomas, although the association was less clear for women. More research is needed to determine if the genetic and environmental factors that influence adult height are also associated with the risk of glioblastoma.

Health 2020 has also contributed to studies of **kidney cancer**, showing that higher intakes of fruit and vegetables are associated with a lower risk; while no association was found with intakes of meat, fish or poultry. Another study found that higher levels of vitamin B6 in the blood were associated with a lower risk. Vitamin B6 is found in meat, fish, poultry, organ meats (such as liver), nuts, lentils, some fruits and vegetables, and Vegemite.

These findings illustrate the important contribution of Health 2020 participants to what we now know about some less common cancers.



## Calcium and health

Previously we reported Dr Belal Khan was researching calcium intake among Health 2020 participants and whether this has an effect on heart and bone health.

Calcium intake is important for maintaining bone density but we do not know whether it can help prevent bone fractures, which are common in older people, or whether high intakes may be harmful. Dr Khan's research found that men and women with the highest calcium intakes were at lower risk of bone fractures, non-fatal cardiovascular disease (CVD) and death from all causes, compared to those with the lowest intakes. There was no indication that a high calcium intake could be harmful. His research suggests the recommended daily intake of calcium for men and women of 70 years and older (1400 mg/day) is likely to be beneficial.

Dr Khan's data were also used by Xianwen Shang for his recently completed PhD. Xianwen investigated the effect of omega-3 fat consumption and abdominal aortic calcification (AAC). The aorta is the main artery supplying the body with blood from the heart. Aortic calcification is associated with atherosclerosis and increased risk of CVD. We often hear about the benefits of long chain omega-3 fats (found in oily fish) but alpha-linolenic acid is another omega-3 fat (found in nuts and seeds) and is more commonly consumed by Australians than the omega-3 fats from oily fish. Xianwen found that higher



intakes of both alpha-linolenic and total omega-3 fats were associated with lower AAC for women but not for men. It is possible an association was not found for men due to the relatively low intakes of omega-3 fats by Health 2020 participants.

Xianwen also found that a higher quality diet, as assessed by the Alternative Healthy Eating Index-2010 (AHEI-2010), was associated with less AAC. A high AHEI-2010 score is associated with high consumption of whole grains, vegetables, fruits, nuts, and legumes and low intakes of meats and sugar-sweetened beverages. Xianwen's research highlights the importance of following the current dietary guidelines for Australians.

## Health benefits of Vitamin D

Previously we reported on collaborators who were working with us to measure vitamin D in blood samples collected from Health 2020 participants when they joined the study. This work is the subject of Alicia Heath's recently completed PhD thesis.

Vitamin D is an important topic, as many Australians are found to have low levels. It is well known that vitamin D is needed for strong healthy bones but research also suggests an association between low levels of vitamin D and an increased risk of a range of other health problems.

Vitamin D exists as two main forms which can be measured in our blood: D<sub>3</sub> (produced on exposure to sunlight) and D<sub>2</sub> (produced by fungi and yeasts and used in some dietary supplements and food additives, mainly in the USA).

Alicia found that higher levels of total vitamin D or D<sub>3</sub>, which was most of the vitamin D in Health 2020 participants, were associated with a lower risk of death; specifically deaths due to cancer, respiratory or digestive diseases and a lower risk of developing diabetes. For the participants for whom any vitamin D<sub>2</sub> was detected, the risk of death was higher than for those for whom none was detected. These results suggest that vitamin D<sub>3</sub> might be helpful in preventing type 2 diabetes and premature death, whereas vitamin D<sub>2</sub> might have an adverse effect on health.

Future observational studies should distinguish between these two forms of vitamin D to explore whether they are differently associated with health outcomes other than bone health.

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## Physical activity and eye health

Exercise may be beneficial for your eyes. Earlier this year, a study published in the *British Journal of Ophthalmology* explored the relationship between being physically active and age-related macular degeneration (AMD). AMD is the leading cause of irreversible severe vision loss in older Australians. The study was based on the past exercise habits of over 20,000 Health 2020 participants who had photographs taken of their eyes between 2003 and 2007. It found that women who exercised the most in the past were less likely to have the intermediate form of AMD than women who were less active. It also suggested that men and women who were very active were less likely to have the most severe types of AMD. These findings along with previous reports about diet and alcohol from the Health 2020 researchers remind us of the importance of maintaining a healthy lifestyle in order to care for the health of our eyes.

## Helping now for the next generation

We talk to Health 2020 participant Rosemary Castles about why she supports the work of Cancer Council Victoria.

I don't remember if I first became involved with Cancer Council Victoria before or after I signed up for Health 2020, it's been so long!

Some of my family have had prostate and lung cancer. Quite a few friends and acquaintances have had various forms – my school friend died very young, before she was 40. It's such an insidious disease that can affect anyone.

There would be very few people in the community who haven't been touched by cancer in some way, and it makes you think about how fortunate you are and what you can do to help. That's why I joined the Health 2020 study.

And because I have faith in the other work Cancer Council is doing, I donate monthly, take part in Daffodil Day and I have also left a bequest in my will. They're the ways I think I can help make a difference.

Through my involvement with Cancer Council, I've been able to see how important research is and it's encouraging to see what's being achieved. So I'll keep giving now – because every little bit helps – and, by leaving a gift in my will, I hope to support future research that will help generations to come.



Rosemary Castles

If you have been inspired by Rosemary's story and would like more information about bequests or other ways of supporting Cancer Council Victoria, please call 1800 780 003 or email [HEALTH2020@cancervic.org.au](mailto:HEALTH2020@cancervic.org.au).



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**State** **Postcode**

**Mail to:**

Health 2020  
615 St Kilda Road, Melbourne 3004

**OR email the details to:**  
HEALTH2020@cancervic.org.au

**OR phone the details to:**  
1800 780 003

## How is your data being used?

The information you have generously provided has been invaluable for research into many conditions including cancer, arthritis, cardiovascular disease and eye disease.

Below is a selection of scientific papers that have recently been published using data from Health 2020 participants. Some of this research has involved researchers from across Australia and around the world.

Chong, E. W., Y. Wang, L. D. Robman, et al. Age Related Macular Degeneration and Total Hip Replacement Due to Osteoarthritis or Fracture: Melbourne Collaborative Cohort Study. PLoS One. 2015 10(9): e0137322.

Del Gobbo, L. C., F. Imamura, S. Aslibekyan, et al.  $\omega$ -3 Polyunsaturated Fatty Acid Biomarkers and Coronary Heart Disease: Pooling Project of 19 Cohort Studies. JAMA Intern Med. 2016 176(8): 1155-1166.

Dugue, P. A., A. M. Hodge, M. T. Brinkman, et al. Association between selected dietary scores and the risk of urothelial cell carcinoma: A prospective cohort study. Int J Cancer. 2016 139(6): 1251-1260.

Gaudet, M. M., M. Barrdahl, S. Lindstrom, et al. Interactions between breast cancer susceptibility loci and menopausal hormone therapy in relationship to breast cancer in the Breast and Prostate Cancer Cohort Consortium. Breast Cancer Res Treat. 2016 155(3): 531-540.

Heath, A. K., E. J. Williamson, D. Kvaskoff, et al. 25-Hydroxyvitamin D concentration and all-cause mortality: the Melbourne Collaborative Cohort Study. Public Health Nutr. 2016: 1-10.

Hodge, A., E. J. Williamson, J. K. Bassett, et al. Dietary and biomarker estimates of fatty acids and risk of colorectal cancer. Int J Cancer. 2015 137(5): 1224-1234.

Jayasekara, H., R. J. MacInnis, A. M. Hodge, et al. Lifetime alcohol consumption and upper aero-digestive tract cancer risk in the Melbourne Collaborative Cohort Study. Cancer Causes Control. 2015 26(2): 297-301.

Karahalios, A., J. A. Simpson, L. Baglietto, et al. Change in weight and waist circumference and risk of colorectal cancer: results from the Melbourne Collaborative Cohort Study. BMC Cancer. 2016 16: 157.

Michailidou, K., J. Beesley, S. Lindstrom, et al. Genome-wide association analysis of more than 120,000 individuals identifies 15 new susceptibility loci for breast cancer. Nat Genet. 2015 47(4): 373-380.

Rodriguez, A. J., D. Scott, B. Khan, et al. Low Relative Lean Mass is Associated with Increased Likelihood of Abdominal Aortic Calcification in Community-Dwelling Older Australians. Calcif Tissue Int. 2016.

Rudolph, A., R. L. Milne, T. Truong, et al. Investigation of gene-environment interactions between 47 newly identified breast cancer susceptibility loci and environmental risk factors. Int J Cancer. 2015 136(6): E685-696.