

# THE LANCET Oncology

## W Press Release

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### **COMPREHENSIVE LIFESTYLE CHANGES IMPROVE LEVELS OF ENZYME TELOMERASE INVOLVED IN CELL AGEING**

A pilot study has revealed for the first time that comprehensive lifestyle changes increase the levels of the enzyme telomerase, vital for maintenance of the telomeres in cells that control cell ageing. These early findings are published in an **Article** early **Online** and in the November edition of *The Lancet Oncology*.

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Telomeres are DNA-protein complexes at the end of chromosomes that directly affect how quickly cells age—they protect the ends of chromosomes and help them remain stable. As telomeres become shorter and their structural integrity weakens, then cells age and die more quickly. In simple terms, as your telomeres get shorter, your life gets shorter. Telomerase is an enzyme that repairs and lengthens telomeres, which are also vital for maintenance of immune-system cells. Shortening of telomeres is emerging of a marker of disease risk and premature death in many types of cancer, including breast, prostate, colorectal, and lung cancers. Poor lifestyle factors known to promote cancer and cardiovascular disease could also lower telomerase activity, but previous studies have not addressed this.

Professor Dean Ornish, Preventive Medicine Research Institute, Sausalito, CA, USA, and colleagues at the University of California, San Francisco, USA, did a pilot study of 30 men diagnosed with low-risk prostate cancer, who were asked to make comprehensive lifestyle changes. These consisted of a 3-day intensive residential retreat, and a diet with only 10% of calories from fat, low in refined sugars, and rich in whole foods, fruits, and vegetables. Their diet was further supplemented with vitamins and fish oil. They also did moderate aerobic exercise, stress management, relaxation techniques, and breathing exercises. Telomerase activity was measured at baseline and again at three months; 24 patients had sufficient data for analysis.

The researchers found that levels of telomerase in the blood increased by 29%. Increases in telomerase activity were also associated with decreases in 'bad' (LDL) cholesterol, and decreases in stress. The authors conclude: "To our knowledge, we have reported here the first

longitudinal study showing that comprehensive lifestyle changes—or any intervention—are significantly associated with increases in cellular telomerase activity levels and telomere maintenance capacity in immune-system cells.”

They add: “The implications of this study are not limited to men with prostate cancer. Comprehensive lifestyle changes may cause improvements in telomerase and telomeres that may be beneficial to the general population as well.”\*

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**Note to Editors**

\*Quote direct from author and cannot be found in text of **Article**.