

How being obese fuels prostate cancer: Fat cells release a protein that 'accelerates the spread of the disease'

By **Lisa Ryan For Dailymail.com**, www.dailymail.co.uk
January 13th, 2016

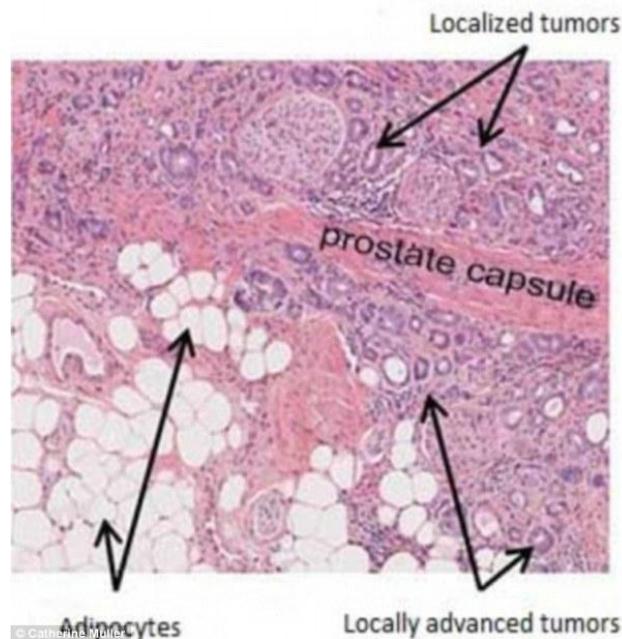
Men who are overweight or obese have an increased risk of developing aggressive prostate cancer, scientists have warned.

They discovered fat cells secrete a protein that accelerates the spread of the disease.

The protein, known as CCL7, sends signals to cancer cells encouraging them to spread to nearby organs, the French study found.

Though their experiments were conducted in mice, the researchers noted human fat cells also release CCL7.

They hope their findings could lead to new therapies to combat the disease, particularly in obese patients.



Obese men have an increased risk of aggressive prostate cancer, a study has found. Scientists discovered a protein known as CCL7, is secreted from fat cells

Photo by: adipocytes

Prostate cancer is the second most common form of the disease affecting men in the US.

In 2012, the most recent year for which figures are available, 177,489 men were diagnosed with the disease, while 27,244 men died, according to the CDC.

Meanwhile in the UK, there were 43,436 new cases and 10,837 deaths in the same year, Cancer Research UK statistic reveal.

Obesity has long been linked to a various different cancers, including breast, bowel and womb cancer.

But the links between weight and prostate tumors are less well understood.

Dr Aine McCarthy, Cancer Research UK's science information officer, told BBC:

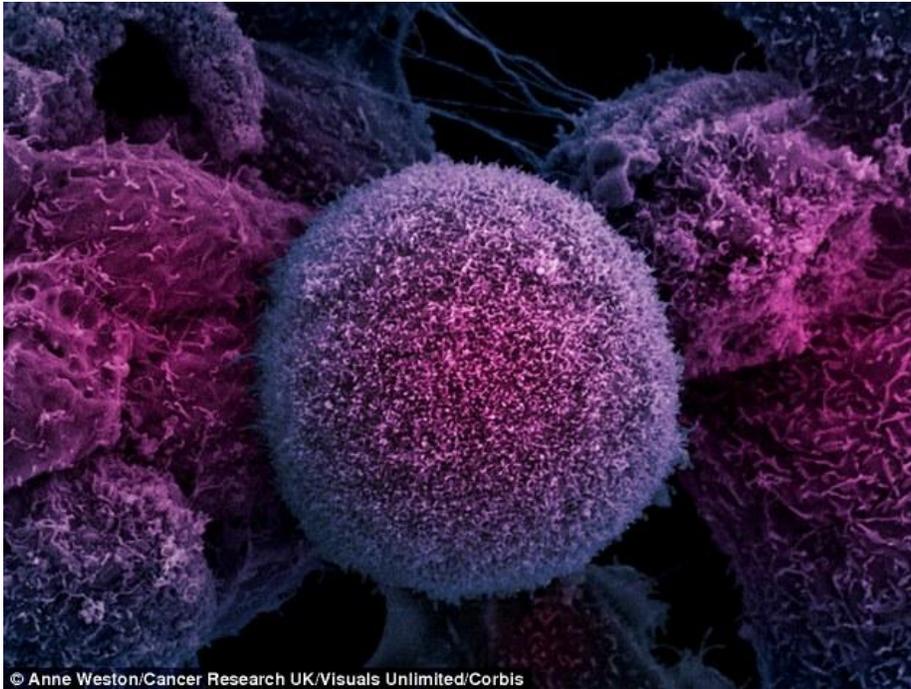
'This research in mice sheds light on why obese men with prostate cancer are more likely to have aggressive tumors.

'It shows for the first time how fat cells surrounding the prostate use chemical signals to talk to tumor cells, enticing them to move and spread around the body.'

Researchers from the Toulouse University identified CCL7 being diffused from fat cells surrounding the prostate.

They noted that the protein sends signals to attract prostate cancer cells, encouraging them to move out from the prostate gland and invade nearby organs.

To test the influence of obesity on this mechanism, the scientists conducted experiments in mice.



© Anne Weston/Cancer Research UK/Visuals Unlimited/Corbis

The study could lead to new therapies to reduce the aggressiveness of prostate cancer in obese patients

They found that, in obese mice who had been fed a high-fat diet, tumor progression and dissemination outside the prostate was increased, as compared to mice with normal body weight.

They also noted raised level of CCL7 and its target receptor CCR3, in obese

mice.

Researchers said when tumor cells that no longer express CCR3 were implanted in mice, prostate tumor progression was significantly reduced – especially in obese mice.

This same mechanism occurs in obese men, according to scientists.

An investigation of more than 100 human tumor samples found that the tumors with high levels of CCR3 have more frequent local dissemination.

Furthermore, those tumors are also more aggressive and resistant to treatment.

Because molecules that target CCR3 are already being developed for use in other diseases, the scientists hope to explore this ‘new therapeutic pathway.’

In doing so, the goal is to reduce the aggressiveness of prostate cancer in obese patients.

The study was published in the journal Nature Communications.