East Lancashire Prostate Cancer Support Group Newsletter

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What's Inside

Men's testosterone levels largely determined by where they grow up

Date: **June 25, 2018**

Source:**Durham University Story Science Daily**

Men's testosterone levels are largely determined by their environment during childhood, according to new research.

The Durham University-led study suggests that men who grow up in more challenging conditions where there are lots of infectious diseases, for example, are likely to have lower testosterone levels in later life than those who spend their childhood in healthier environments.

The study, published in Nature Ecology and Evolution, challenges the theory that testosterone levels are controlled by genetics or race.

As high testosterone levels potentially lead to an increased risk of prostate enlargement and cancer, the researchers suggest that any screening for risk profiles may need to take a man's childhood environment into account.

The study found that Bangladeshi men who grew up and lived as adults in the UK had significantly higher levels of testosterone compared to relatively well-off men who grew up and lived in Bangladesh as adults. Bangladeshis in Britain also reached puberty at a younger age and were taller than men who lived in Bangladesh throughout their childhood.

The researchers say the differences are linked to energy investment as it may only be possible to have high testosterone levels if there are not many other demands placed on the body such as fighting off infections.?In environments where people are more exposed to disease or poor nutrition, developing males direct energy towards survival at the cost of testosterone.

The researchers collected data from 359 men on height, weight, age of puberty and other health information along with saliva samples to examine their testosterone levels. They compared the following groups: men born and still resident in Bangladesh; Bangladeshi men who moved to the UK (London) as children; Bangladeshi men who moved to the UK as adults; second-generation, UK-born men whose parents were Bangladeshi migrants; and UK-born ethnic Europeans.

Lead author of the study, Dr Kesson Magid from Durham University's Department of Anthropology (UK), said: "A man's absolute levels of testosterone are unlikely to relate to their ethnicity or where they live as adults but instead reflect their surroundings when they were children."

Men with higher levels of testosterone are at greater risk of potentially adverse effects of this hormone on health and ageing. Very high levels can mean increased muscle mass, increased risk of prostate diseases and have been linked to higher aggression. Very low testosterone levels in men can include lack of energy, loss of libido and erectile dysfunction. The testosterone levels of the men in the study were, however, all in a range that would unlikely have an impact on their fertility.

Co-author Professor Gillian Bentley from Durham University, commented: "Very high and very low testosterone levels can have implications for men's health and it could be important to know more about men's childhood circumstances to build a fuller picture of their risk factors for certain conditions or diseases."

Aspects of male reproductive function remain changeable into adolescence, up to the age of 19 and are more flexible in early rather than late childhood, according to the research. However, the study suggests that, in adulthood, men's testosterone levels are no longer heavily influenced by their surroundings.

Senior co-author Gillian Bentley and colleagues have also previously found that the environment in which girls grow up can affect their hormone levels, fertility and risk levels for reproductive cancers as adults.

The research was funded by the Economic and Social Research Council (ESRC), the Royal Society and Prostate Cancer UK, and involved researchers from the University of Chittagong (Bangladesh), Durham University (UK), and Northwestern University (USA).

Story Source:

Materials provided by Durham University. Note: Content may be edited for style and length.

Journal Reference:

Kesson Magid, Robert T. Chatterton, Farid Uddin Ahamed, Gillian R. Bentley. Childhood ecology influences salivary testosterone, pubertal age and stature of Bangladeshi UK migrant men. Nature Ecology & Evolution, 2018; DOI: 10.1038/s41559-018-0567-6

Aggressive prostate and lung cancers are driven by common mechanisms, researchers find

Date: **October 4, 2018**

Source: **University of California - Los Angeles Health Sciences**

Story Science Daily

UCLA researchers have discovered a common process in the development of late-stage, small cell cancers of the prostate and lung. These shared molecular mechanisms could lead to the development of drugs to treat not just prostate and lung cancers, but small cell cancers of almost any organ.

The key finding: Prostate and lung cells have very different patterns of gene expression when they're healthy, but almost identical patterns when they transform into small cell cancers. The research suggests that different types of small cell tumors evolve similarly, even when they come from different organs.

The study, led by Dr. Owen Witte, founding director of the UCLA Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research and professor of microbiology, immunology and molecular genetics, was published in the journal Science. Witte collaborated with scientists from UCLA's Crump Institute for Molecular Imaging and the UCLA Jonsson Comprehensive Cancer Center.

Cancers that become resistant to treatment often develop into small cell cancers -- also known as small cell neuroendocrine carcinomas, or SCNCs -- which generally have extremely poor prognoses. Certain cancers can evade treatment in part by changing cell types -- from aggressive adenocarcinoma to small cell carcinoma, for example.

Previous research hinted that small cell cancers from different organs may be driven by common mechanisms, but the UCLA study is the first to so clearly describe the steps in their evolution.

"Small cell cancers of the lung, prostate, bladder, and other tissues were long thought to be similar in name alone -- and they were treated by oncologists as different entities," Witte said. "Over the past few years, though, researchers have increasingly begun to realize that there are similarities in the cancers, and that's what our work confirms."

Dr. Jung Wook Park, the study's first author, and UCLA collaborators explored the potential parallels between the cancer types by transplanting human prostate cells with five genes, known collectively as PARCB, into mice. When those cells grew in the mice, they displayed unique features of human small cell neuroendocrine carcinomas.

The team also identified that for small cell neuroendocrine carcinomas to develop in the prostate, two tumor suppressor genes, TP53 and RB1, which are known for protecting normal cells from transforming into cancer cells, had to be simultaneously inactivated when PARCB was introduced.

Additional tests confirmed striking similarities between the PARCB-SCNC cells and small cell prostate cancer cells from humans. In particular, RNA expression and the turning on

and off of certain genes were nearly identical.

"The similarities between the PARCB-SCNC cancers and human small cell prostate cancer samples were extraordinary," Witte said. "If you blindly gave the data sets to any statistician, they would think they were the same cells."

The team also looked at large databases of gene expression, to compare the patterns of gene expression in their PARCB-SCNC cells to cancers of other organs. They found that the pattern of gene expression in PARCB-SCNC cells was extremely similar to those of both prostate and lung small cell cancers.

Next, they tested whether PARCB genes could alter healthy cells from human lungs into small cell lung cancers, and the scientists found that they could.

The team now is working on mapping which genes control the entire cascade of events that underlies the transition to small cell cancer.

"Our study revealed shared 'master gene regulators' -- the key proteins that control expression of multiple genes in small cell cancer cells," Witte said. "Studying the network of the master gene regulators could lead to a new way of combating deadly cancers."

The research was supported by the Broad Stem Cell Research Center Stem Cell Training Program and Hal Gaba Fund for Prostate Cancer Research, the UCLA Medical Scientist Training Program, the UCLA Specialized Program of Research Excellence in Prostate Cancer, the National Institutes of Health, the National Cancer Institute, the Prostate Cancer Foundation, the Department of Defense, the American Cancer Society and the W.M. Keck Foundation.

Story Source:

Materials provided by University of California - Los Angeles Health Sciences. Original written by Alice Walton. Note: Content may be edited for style and length.

Journal Reference:

Jung Wook Park, John K. Lee, Katherine M. Sheu, Liang Wang, Nikolas G. Balanis, Kim Nguyen, Bryan A. Smith, Chen Cheng, Brandon L. Tsai, Donghui Cheng, Jiaoti Huang, Siavash K. Kurdistani, Thomas G. Graeber, Owen N. Witte. Reprogramming normal human epithelial tissues to a common, lethal neuroendocrine cancer lineage. Science, 2018; 362 (6410): 91 DOI: 10.1126/science.aat5749

From Left to Right Hazel Goulding (Treasurer) Leon D Wright (IT Admin) Stuart Marshall (Secretary) Steve Laird (Vice Chairman) Dave Riley (Chairman)

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We are a group of local people who know about prostate cancer. We are a friendly organisation dedicated to offering support to men who have had or who are experiencing the effects of this potentially life threatening disease.

The East Lanc's Prostate Cancer Support Group offers a place for free exchange of information and help for local men and their supporters (family and friends) who may be affected by this increasingly common form of male cancer.

At each meeting we strive to be a happy, supportive and upbeat group of people; encouraging open discussion on what can be a very difficult and perhaps for some an

Upcoming Events.

We would like to run the prostate cancer awareness week commencing 19th November and wondered if someone could man a stand in our canteen over lunchtime one or two days that week (11.30am – 1pm) and on Friday 23rd morning (8.30 am – 10.00am ish) to catch people coming for breakfast.

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Distinguishing fatal prostate cancer from 'manageable' cancer now possible

October 18, 2018, University of York

Scientists at the University of York have found a way of distinguishing between fatal prostate cancer and manageable cancer, which could reduce unnecessary surgeries and radiotherapy.

A recent study showed that more than 25 men were being unnecessarily treated with surgery or radiotherapy, for every single life saved. It is believed that success rates could be hindered as a result of treating all prostate cancers in the same way.

A team at the University of York and the University of British Columbia, Canada, however, have designed a test that can pick out life-threatening prostate cancers, with up to 92% accuracy.

Financial burden

Professor Norman Maitland, from the University of York's Department of Biology, said: "Unnecessary prostate treatment has both physical consequences for patients and their families, but is also a substantial financial burden on the NHS, where each operation will cost around £10,000.

"Cancers that are contained in the prostate, however, have the potential to be 'actively monitored' which is not only cheaper, but has far fewer negative side-effects in patients with non-life threatening cancer."

It is now understood that to find the different levels of cancer, scientists have to identify genes that have been altered in different cancer types. The team analysed more than 500 cancer tissue samples and compared them with non-cancer tissue to search for patterns of a chemical group that is added to part of the DNA molecule, altering gene expression.

Chemical alterations

A person's age, what they eat and how they sleep, for example, impacts on chemical alterations to genes and which ones are turned on and off. This is part of the normal functioning of the human body and can tell individuals apart, but the process can sometimes go wrong, resulting in various diseases.

Professor Maitland said: "In some diseases, such as cancer, genes can be switched to an opposite state, causing major health issues and threat to life.

"The challenge in prostate cancer is how to look at all of these patterns within a cell, but

hone in on the gene activity that suggests cancer, and not only this, what type of cancer—dangerous or manageable?

"To put it another way: how to do we distinguish the tiger cancer cells from the pussycat cancer cells, when there are millions of patterns of chemical alterations going on, many of which will be perfectly healthy?"

Computer algorithm

The team needed to eliminate the 'noise' of the genetic patterns that make individuals unique, to leave them with the patterns that indicate cancer. They were able to do this using a computer algorithm, which left the team with 17 possible genetic markers for prostate cancer.

Dr. Davide Pellacani, who began these studies in York, before moving to the University of British Columbia, said: "Using this computer analysis, not only could we see which tissue samples had cancer and which didn't, but also which cancers were dangerous and which ones less so.

"Out of almost a million markers studied, we were able to use our new tools to single out differences in cancer potency."

To take this method out of the laboratory, the team are now investigating a further trial with new cancer samples, and hope to involve a commercial partner to allow this to be used for patients being treated in the NHS.

Explore further: New genetic compound marker could help early diagnosis of aggressive prostate cancer

More information: Davide Pellacani et al, Phenotype-independent DNA methylation changes in prostate cancer, British Journal of Cancer (2018). DOI: 10.1038/s41416-018-0236-1

Journal reference: British Journal of Cancer

Provided by: University of York

Spotlight Event - Wednesday 7th November 2pm - 3.30pm

I am pleased to invite you to our forthcoming Spotlight event which will be about the redevelopment of the radiology and CT scanner facility. At the event you will hear consultant radiologist Dr Damian Mullan talk about the planned changes to the radiology department, the installation of a four dimensional CT scanner and the difference it will make to our patients.

The radiology department was originally opened in the 1980s and with changes to technology and the number of patients being treated, the department is now in need of transformation. The redevelopment will include the installation of a cutting edge four dimensional CT scanner which is one of only a few in the country. The scanner takes detailed real time images of the area to be treated so procedures can be done at the same time as the scan, reducing the need for more invasive open surgery. The redevelopment will mean better facilities for our patients with improved waiting and changing areas. It will also increase the size of the existing scanning rooms giving patients improved accessibility and provide space for our new 4D CT scanner.

We are currently fundraising for this important new project and the Spotlight events are a chance to celebrate the impact that you, our supporters, have on patients every day. They are free to attend and open to anyone who would like to hear more about our work.The event will take place in the auditorium at the Education Centre （department 17）, The Christie, Wilmslow Road, Manchester, M20 4BX. Registration will be available 30 minutes prior to the event.

If you would like to attend the event, please email spotlightevents@christies.org with your name and the number of places you would like to book. Alternatively, you can call me on 0161 446 8616. You are very welcome to bring friends or family along with you.

Yours sincerely

Amanda Eccles
Marketing and Engagement Officer

tackle
prostate cancer
Action for patients and their families

22 Oct 2018

Dear Dave

PCUK have asked us if we would circulate this request to take part in a survey.

I am aware this is to improve the services PCUK offer to those supporting prostate cancer patients but I am also aware that many of our groups make use of PCUK services, hence our agreement to help with the survey. If you could forward this to your members it would be appreciated.

PCUK Survey for partners and family members
The Health Information team at Prostate Cancer UK would like to develop and make our information resources better for partners and family members. We have created a survey for people who are or have been close to someone who has been diagnosed with prostate cancer. You may be:
· a partner or spouse
· a family member
· a friend.

It should take around 10 minutes to complete and your answers will be completely anonymous.

Complete the survey here

https://www.surveymonkey.com/r/7NMT7N8

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