

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
TWENTY FIRST CENTURY SCIENCE
BIOLOGY A**

A223/01/RB

Unit 3: Ideas in Context plus B7
(Foundation Tier)

RESOURCE BOOKLET

JUNE 2009

To be opened on receipt



INSTRUCTIONS TO CANDIDATES

- This booklet contains the article required to answer question 1.
- Take this article away and read it through carefully.
- Spend some time looking up any technical terms or phrases you do not understand.
- For the examination on **Friday 12 June 2009** you will be given a fresh copy of this article, together with a question paper.
- You will **not** be able to take your original copy into the examination with you.

INFORMATION FOR CANDIDATES

- This document consists of **4** pages. Any blank pages are indicated.

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Read the article about breast cancer and use it to answer question 1.

Wide hips increase risk of breast cancer

Scientists have found that female babies of mothers with wide hips are more likely to develop breast cancer later in life.

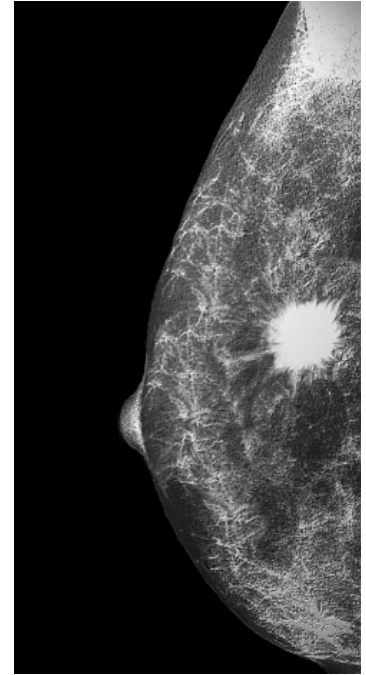
The scientists' research involved six thousand women. The scientists found that babies of women with wide hips are 3 times more at risk of developing breast cancer. If the pregnancy lasts for longer than normal term, and the babies have older brothers and sisters, the risk increases to 7 times.

The hip width is the distance from one hip bone across to the opposite hip bone. This is called the 'intercrystal diameter'. The scientists found that an intercrystal diameter of more than 30cm was a wide hip. For women with wide hips, their baby's risk of developing breast cancer later in life increased by 3 times. This risk factor increased even more if the pregnancy was longer than normal term.

Scientists think that this is linked to the level of the hormone oestrogen in the mother's body during pregnancy. It is thought that high levels of oestrogen in the blood at the beginning and end of pregnancy can cause changes in the immature breast tissue of the developing fetus. Women with wide hips produce more oestrogen, so their babies are exposed to higher levels of the hormone.

Doctors have used a synthetic oestrogen for many years. It has been given to women who were at risk of having a miscarriage. Using synthetic oestrogen doubled the risk of their babies getting breast cancer later in life.

Scientists are hopeful that now these links are understood, special drugs will be developed to lower oestrogen levels. The drugs could be given to pregnant women whose babies are at risk. This would be a major breakthrough in the prevention of breast cancer.



X-ray of breast showing cancerous tissue

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