**DAILY MAIL**

**Artificial pancreas 'reduces high stillbirth risk of pregnant diabetics'**

By [Daily Mail Reporter](http://www.dailymail.co.uk/home/search.html?s=y&authornamef=Daily+Mail+Reporter)  
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Diabetic mothers have a five-fold increased risk of having a stillbirth. This is because it is difficult to keep blood sugar levels steady during pregnancy

A wearable 'artificial pancreas' could dramatically reduce the risks of pregnancy in women with insulin-dependent diabetes, research has shown.

In tests, the device was shown to help keep blood sugar levels under control and prevent the potentially fatal complications that can affect diabetic mothers-to-be.

Babies of women with the condition have a five-fold increased risk of being stillborn and are three times more likely than average to die in their first months of life.

They also have double the normal risk of a major deformity. In addition, low blood glucose is a leading cause of death among pregnant mothers.

Two out of every three mothers who suffered from diabetes before getting pregnant have the type 1 disease, which affects around 300,000 people in the UK.

Type 2 diabetes, the most common form of the condition, is lifestyle-related and tends to affect older people past their reproductive age.

The artificial pancreas, a mobile phone-sized device worn on the hip, consists of a continuous glucose monitor (CGM) and an insulin pump.

The device automatically monitors blood glucose and pumps insulin into the circulation to maintain correct sugar levels.

Previous studies showed the system could help children with type 1 diabetes, but until now it had not been successfully tested on pregnant women.

Helen Murphy, from Cambridge University, who led the study funded by Diabetes UK, said: 'For women with type 1 diabetes, self-management is particularly challenging during pregnancy due to physiological and hormonal changes.

'Previous studies indicate that pregnant women with the condition spend an average of 10 hours a day with glucose levels outside the recommended target.

'These high blood glucose levels increase the risk of congenital malformation, stillbirth, neonatal death, pre-term delivery, macrosomia (oversized babies) and neonatal admission.

'So to discover an artificial pancreas can help maintain near-normal glucose levels in these women is very promising.'

Iain Frame, director of research at Diabetes UK, said: 'Although early days, this exciting area of research, funded by our donors, has huge potential to make pregnancy much safer for women with type 1 diabetes, and their babies.

'It's a fantastic example of how existing technologies, in this case, insulin pumps and CGMs, can be adapted and developed to benefit as many people with diabetes as possible.

'We now need to see an extension of this study, one which tests larger numbers of women, and then take it out of the hospital and into the home setting.'

Read more: <http://www.dailymail.co.uk/health/article-1352128/Artificial-pancreas-reduce-high-stillbirth-risk-pregnant-diabetics.html#ixzz21S7Eh6RO>

**BBC**

**Artificial pancreas could save lives during pregnancy**

Sugar levels are much harder to control during pregnancy

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An artificial pancreas given to pregnant women with diabetes could save mothers' lives and improve the health of their babies, researchers say.

Hormonal changes during pregnancy coupled with diabetes make regulating sugar levels difficult, which can have damaging consequences.

The [Diabetes Care](http://care.diabetesjournals.org/content/34/2/406) research shows an artificial pancreas can keep sugar at normal levels.

Diabetes UK, which funded the work, said it could make pregnancy safer.

Pregnancy worries

People with Type 1 diabetes are unable to control their blood sugar levels because their pancreas stops producing insulin.

It is a fatal condition which can be controlled by regular insulin injections, but that becomes much more complicated during pregnancy.

The safe range for blood sugar levels is much narrower then, and high or low levels which would be fine for an adult can damage a baby.

**“**To discover an artificial pancreas can help maintain near-normal glucose levels in these women is very promising” - Dr Helen Murphy Cambridge University

Dr Helen Murphy, from Cambridge University, told the BBC: "Half of all babies born to mothers with Type 1 diabetes are overweight or obese at birth because of too much sugar in the blood".

An earlier [study](http://www.bmj.com/content/333/7560/177.full.pdf) of pregnant women in England, Wales and Northern Ireland showed the rate of stillbirths and deaths in the first week was four times greater in women with Type 1 diabetes, affecting 32 out of every 1,000 pregnancies.

Pregnancy can also be dangerous for the mother, who can end up with lower blood sugar levels and sometimes lose the warning signs for potentially fatal hypoglycaemic attacks.

During pregnancy, women with Type 1 diabetes spend 10 hours every day with sugar levels outside those recommended.

Artificial Pancreas

Researchers at the Medical Research Laboratories in Cambridge fitted artificial pancreases to 10 women with the disease.

A sensor continually monitored sugar levels, which fed the information to a computer, which then told an insulin pump how much of the hormone to inject.

The early study showed that normal sugar levels could be maintained.

Dr Helen Murphy, from Cambridge University, said: "For women with Type 1 diabetes, self-management is particularly challenging during pregnancy due to physiological and hormonal changes.

"These high blood glucose levels increase the risk of congenital malformation, stillbirth, neonatal death, preterm delivery, macrosomia [oversized babies] and neonatal admission. So to discover an artificial pancreas can help maintain near-normal glucose levels in these women is very promising".

However she said it would probably require care before pregnancy to reduce the number of stillbirths and neonatal deaths.

Dr Iain Frame, director of research at Diabetes UK, said: "Although early days, this exciting area of research, funded by our donors, has huge potential to make pregnancy much safer for women with Type 1 diabetes, and their babies.

"We now need to see an extension of this study, one which tests larger numbers of women, and then take it out of the hospital and into the home."

The researchers say they have proved the concept works and hope to begin trials in the home later this year.

**GUARDIAN**

**Artificial pancreas could save lives of mothers-to-be with type 1 diabetes**

Mobile phone-sized device worn on hip could prevent potentially fatal complications in women with auto-immune disease

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A wearable artificial pancreas could dramatically reduce the risks of [pregnancy](http://www.guardian.co.uk/lifeandstyle/pregnancy) in women with insulin-dependent [diabetes](http://www.guardian.co.uk/society/diabetes), research has shown.

Tests revealed that the device helped keep blood sugar levels under control and prevent the potentially fatal complications that can affect diabetic mothers-to-be.

Type 1 diabetes is an auto-immune disease that stops the pancreas producing insulin. Babies of women with the condition have a five-fold increased risk of being stillborn, and are three times more likely than average to die in their first months of life.

They also have double the normal risk of a major deformity, while low blood glucose is a major cause of death among pregnant mothers.

Two out of every three mothers who have diabetes before getting pregnant have the type 1 disease, which affects around 300,000 people in the UK.

Type 2 diabetes – the most common form of the condition – is lifestyle-related and tends to affect older people who are past their reproductive age.

The artificial pancreas, a mobile phone-sized device worn on the hip, consists of a continuous glucose monitor (CGM) and an insulin pump.

It automatically monitors blood glucose and pumps insulin into the circulation to maintain correct sugar levels.

Previous studies showed the system could help children with type 1 diabetes, but until now it had not been successfully tested on pregnant women.

Helen Murphy of Cambridge University, who led the study, funded by Diabetes UK, said: "For women with type 1 diabetes, self-management is particularly challenging during pregnancy due to physiological and hormonal changes.

"Previous studies indicate that pregnant women with the condition spend an average of 10 hours a day with glucose levels outside the recommended target.

"These high blood glucose levels increase the risk of congenital malformation, stillbirth, neonatal death, pre-term delivery, macrosomia [oversized babies] and neonatal admission.

"So to discover that an artificial pancreas can help maintain near-normal glucose levels in these women is very promising."

Iain Frame, the director of research at Diabetes UK, said: "Although early days, this exciting area of research, funded by our donors, has huge potential to make pregnancy much safer for women with type 1 diabetes, and their babies.

"It's a fantastic example of how existing technologies – in this case, insulin pumps and CGMs – can be adapted and developed to benefit as many people with diabetes as possible.

"We now need to see an extension of this study, one which tests larger numbers of women, and then take it out of the hospital and into the home setting."

**REUTERS**

**"Artificial pancreas" shows promise in pregnancy**

LONDON | Sun Jan 30, 2011 7:06pm EST

LONDON (Reuters) - Scientists have shown how an "artificial pancreas" can help pregnant women with type 1 diabetes and say their finding could significantly reduce cases of stillbirth and death among diabetic expectant mothers.

British researchers used a so-called "closed-loop insulin delivery system" or artificial pancreas, in 10 pregnant women with Type 1 diabetes and found it provided the right amount of insulin at the right time, maintained near normal blood sugar, and prevented dangerous drops in blood sugar levels at night.

"To discover an artificial pancreas can help maintain near-normal glucose levels in these women is very promising," said Helen Murphy of Cambridge University, who led the study.

The experimental artificial pancreas was created by combining a continuous glucose monitor, or CGM, with an insulin pump, both of which are already used separately by many people with type 1 diabetes.

Previous trials in children with the condition found that using an artificial pancreas system at night improved blood glucose control and reduced hypoglycaemia -- when the level of glucose in the blood falls too low.

The bodies of type 1 diabetes sufferers become unable to properly break down sugar and if untreated, blood vessels and nerves are destroyed, organs fail and patients can die.

Pregnancy can be particularly risky for women with diabetes as hormonal changes make it very difficult to keep blood glucose levels within a safe range, especially at night.

As a result of high blood glucose levels, babies of women with diabetes are five times as likely to be stillborn, three times as likely to die in their first months of life and twice as likely to have a major deformity, the researchers said.

Data from previous studies suggest that pregnant women with type 1 diabetes spend an average of ten hours a day with glucose levels outside recommended targets, said Murphy, whose findings were published in the journal Diabetes Care.

This increases the risk of birth defects, stillbirth, neonatal death, preterm delivery, oversized babies and other complications.

Type 1 diabetes, an autoimmune disease in which the body destroys its own ability to make insulin, accounts for around 10 percent of all people with diabetes. The more common type 2 diabetes is often linked to bad diet and lack of exercise.

Iain Frame, director of research at the charity Diabetes UK, which part-funded the study, said that although it was a small and early stage trial, the results were encouraging.

"It's a fantastic example of how existing technologies...can be adapted and developed to benefit as many people with diabetes as possible," he said in a statement.

The researchers said more studies were now needed on larger numbers of women to validate their findings, and to see if the system could be developed for use outside of a hospital.

(Reporting by [Kate Kelland](http://blogs.reuters.com/search/journalist.php?edition=us&n=kate.kelland&), editing by Ralph Boulton)

**SCOTSMAN**

**'Pancreas on the hip' will make births safer for diabetic mothers**

Published: 30 January 2011

**SCIENTISTS have developed an "artificial pancreas" to cut dramatically the risks for pregnant women with diabetes.**

The device, which is worn on the side of the body, helps to keep blood sugar levels under control and prevent the potentially fatal complications that can affect women with insulin-dependent diabetes during their pregnancy.

The discovery was welcomed by health campaigners and patients, many of whom take great risks in deciding to have a baby, knowing the problems their diabetes could cause.

Type 1 diabetes is an auto-immune disease which stops the pancreas producing insulin, meaning that patients have to take regular doses of the hormone to control their sugar levels.

The babies of women with the condition have a fivefold increased risk of being stillborn and are three times more likely than average to die in their first months of life.

These babies also have double the normal risk of a major deformity, while low blood glucose is a leading cause of death among pregnant mothers.

In a effort to address this problem, researchers at Cambridge University wanted to create a device that would act as a pancreas during a pregnancy, when controlling their condition is even more vital.

The artificial pancreas that they came up with is a mobile phone-sized device which is worn on the hip.

The device consists of a continuous glucose monitor (CGM), to measure blood sugar levels, and an insulin pump.

The device automatically monitors blood glucose and pumps insulin into the circulation to help maintain the correct sugar levels.

Previous studies have shown that such a system could help children with type 1 diabetes, but until now it had not been tested successfully on pregnant women.

Helen Murphy, from Cambridge University, who led the study, which is published in journal Diabetes Care, said: "For women with type 1 diabetes, self-management is particularly challenging during pregnancy, due to physiological and hormonal changes.

"Previous studies indicate that pregnant women with the condition spend an average of ten hours a day with glucose levels outside the recommended target."

Dr Murphy said that high blood glucose levels increased the risk of congenital abnormalities, stillbirth, neonatal death, premature birth and macrosomia, which leads to oversized babies.

"So to discover an artificial pancreas can help to maintain near-normal glucose levels in these women is very promising," she added.

Iain Frame, the director of research at Diabetes UK, welcomed the findings.

"Although early days, this exciting area of research, funded by our donors, has huge potential to make pregnancy much safer for women with Type 1 diabetes, and their babies," Mr Frame said.

"It's a fantastic example of how existing technologies - in this case, insulin pumps and CGMs - can be adapted and developed to benefit as many people with diabetes as possible."We now need to see an extension of this study, one which tests larger numbers of women, and then take it out of the hospital and into the home setting."

Two out of every three mothers who suffered from diabetes before they became pregnant have the type 1 disease, which affects about 300,000 people in the UK.

Some 27,000 people in Scotland are thought to suffer from Type 1 diabetes.

Type 2 diabetes, the most common form of the condition, is linked to obesity and tends to affect older people past their reproductive age.

DAILY SUN

‘Artificial pancreas’ shows promise in pregnancy

  London: Scientists have shown how an “artificial pancreas” can help pregnant women with type 1 diabetes and say their finding could significantly reduce cases of stillbirth and death among diabetic expectant mothers.British researchers used a so-called “closed-loop insulin delivery system” or artificial pancreas, in 10 pregnant women with Type 1 diabetes and found it provided the right amount of insulin at the right time, maintained near normal blood sugar, and prevented dangerous drops in blood sugar levels at night.“To discover an artificial pancreas can help maintain near-normal glucose levels in these women is very promising,” said Helen Murphy of Cambridge University, who led the study.The experimental artificial pancreas was created by combining a continuous glucose monitor, or CGM, with an insulin pump, both of which are already used separately by many people with type 1 diabetes.Previous trials in children with the condition found that using an artificial pancreas system at night improved blood glucose control and reduced hypoglycaemia — when the level of glucose in the blood falls too low.The bodies of type 1 diabetes sufferers become unable to properly break down sugar and if untreated, blood vessels and nerves are destroyed, organs fail and patients can die.Pregnancy can be particularly risky for women with diabetes as hormonal changes make it very difficult to keep blood glucose levels within a safe range, especially at night.As a result of high blood glucose levels, babies of women with diabetes are five times as likely to be stillborn, three times as likely to die in their first months of life and twice as likely to have a major deformity, the researchers said.Data from previous studies suggest that pregnant women with type 1 diabetes spend an average of ten hours a day with glucose levels outside recommended targets, said Murphy, whose findings were published in the journal Diabetes Care.This increases the risk of birth defects, stillbirth, neonatal death, preterm delivery, oversized babies and other complications.Type 1 diabetes, an autoimmune disease in which the body destroys its own ability to make insulin, accounts for around 10 percent of all people with diabetes. The more common type 2 diabetes is often linked to bad diet and lack of exercise. —Reuters