**The Womb Makes It Easy Being a Girl: How The Placenta Protects Girls More Than Boys**

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 **In May of 2014, Medical Daily’s Dana Dovey, asked the question; “Why is it harder for baby boys to grow in the womb than baby girls?” The answer came down to simply this, the placenta. In a study published by the *Molecular Human Reproduction* published in the Oxford Journal, stated that “There is strong evidence that human males and females differ in terms of growth and development *in utero* and that these divergent growth strategies appear to place males at increased risk when in sub-optimal conditions.” Since the placenta is the interface of maternal–fetal exchange throughout pregnancy, these developmental differences are most likely orchestrated by differential placental function. Many scientists have theorized that stressful times may cause the mother to abort weaker fetuses to make room for a more viable one later in the mother’s life. Such events like famine, war and even the 9/11 attacks, all showed a decline in male births.**

**Introduction**

Soon after conception, as embryos in their mother's wombs, males adopt a risky, fast-growth strategy. And that appears to set a trajectory that makes them more vulnerable than females during fetal development and for the rest of their lives. Scientist have known for years that the survival edge begins in the womb. In 2010 a sex survey was taken on the ratio to male verses female birth rate. For every 120 male babies conceived, there were about 100 female babies. Researcher’s believe that this, in part, may have something to do with the fact that Y sex linked sperm may swim faster than X linked, and be more likely to win the race at fertilizing the egg. However, with miscarriages being much higher with boys the ratio is more evened out with 105 boys to every 100 girls.

Researchers from the University of Adelaide in Australia, showed that boy babies grow faster in the womb, having a greater body length and weight at birth, then that of girls. (a large baby, or macrosomia, a baby that weighs more than 4-4.5 kg or 8 pounds 13 ounces at birth) Some have even argued that the placentas connected to boys may even function better as a whole. But there is a drawback to being bigger and growing faster. Male babies appear to be left with less reserve placental capacity to draw upon than girls. Because of this, male babies are more likely to be undernourished, which more often than nun, has led to a rising number of baby boys being born underweight, which, in the long run, can have drastic ramifications as they enter adult hood; putting them at a greater risk for cardiovascular issues as they get older.

Environmental factors also play a role in the viability of the male baby. Stresses on the mother during fetal development are also thought to be a determining factor in the health of the baby. Because girls are smaller in size and weight, the demand on the mother is much less, and in times of crises, have a better outcome than that of their male counter partners. Males need more energy to support their rapid growth, and if the mother suffers a food shortage, injury or sickness, this can put the male baby at a higher risk for complications. Previous researchers have shown that the number of male births drops compared to female births during times of severe deprivation, for example, in the famines in Holland during World War II. It has also been noted that war and even the September 11 attacks showed a decline in male babies being born. It is theorized that in times of stress and hardship, the womb will spontaneously abort a weaker fetus to make room for a more viable one later in the mother’s life.

Another factor that is leading science to believe that girls have a higher advantage then boys is the genes that code for LH and hCG, these hormones are linked to placental growth. Researchers have shown that female fetuses invest more in "extra-embryonic tissue development" than males. This finding supports previous research, suggesting that boy babies invest resources in embryonic tissues (body growth and development) and so invest less in the extra-embryonic tissues that baby girls are able to call upon in the event of pregnancy complications or disease. Estrogen, the female sex hormone, keeps the immune system running strong, while testosterone, the male sex hormone, can suppress immunity. Estrogen helps balance cholesterol and may protect arteries from hardening and clogging. Female cells, at least in some animal studies, also pump out more antioxidant enzymes than male cells to better disarm DNA-damaging chemicals.

So all in all, it looks like girls really do have an advantage over boys when it comes to fetal development. Senior author of the paper Prof. Claire Roberts, leader of the fetal growth research priority for the Robinson Research Institute at the University of Adelaide, says their study has found "undeniable genetic and physiological differences" between boys and girls that go beyond just the development of their sexual characteristics. She explains: “We’ve known for some time that girls are clearly winning in the battle for survival, with markedly better outcomes for female babies for preterm birth, stillbirth, neonatal death, and other complications after birth, such as macrosomia”

**Recent Progress**

There has been some theorize breakthroughs as to why male babies take more risk in the womb, as opposed to their female counter partners. Studies have shown that male babies keep growing even if there is a problem in pregnancy. Females adjust to the response and try to fix the problem, they survive while most males don’t do so well. Vicki Clifton, a professor at the University of Adelaide in Australia, says it may have evolved long ago in human evolution as a way for males to produce more offspring. She goes on to explain her theory: "It's important to be big if you are a male because in most animal populations you fertilize more females and therefore you spread your genes further and ensure your gene pool survives" This idea can might be supported do to the evolutionary differences in the species. Female reproduction is limited by how often she can give pregnant, give birth and how much time and energy put into raising offspring; while males can ensure their genetics by mating with as many females as possible.

**Discussion**

Over all, science is still unsure as to what the reasons are behind why male babies seem to undertake such risk. The researchers believe that their findings are important in extending knowledge around differences in health outcomes for boy and girl infants. These findings may be important to help guide future sex-specific therapeutics for pregnant women and for babies in the neonatal nursery. With any pregnancy, there are ways to increase one’s odds of having a healthy baby. See your OBGYN or Midwife as soon as you discover you are pregnant; the sooner you start your care, the healthier you and baby will be. Eat healthy; make sure you get your daily amounts of vegetables, fruit and proteins. Take supplements; many OTC prenatal vitamins offer a balance of folic acid and minerals that are important for the fetus in early development. Exercise regularly; many specialists agree that there is no reason to change ones work out routine due to pregnancy, just be mindful and make sure your healthcare professional agrees with your level of intensity. Cut out alcohol and cut back on caffeine; drinks like tea, coffee and energy drinks are mild stimuli, and there has been concern that too much caffeine may cause an increase in miscarriage and low birth weight. Stop smoking; smoking during pregnancy can cause huge problems for baby. Smoking has been linked to miscarriage, low birth weight, premature birth and SIDS. The last is to get plenty of rest; if one is finding it difficult to sleep, take naps during the day, do stretching like yoga and do deep breathing to relax yourself.

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