# Multiple Births
# The Possible Risks

**Part 2 - Risks to the Children**

A multiple pregnancy increases the possibility that certain problems may occur for both the mother and her babies. *Multiple Births: The Possible Risks* is a fact sheet series on the topic of risks associated with Multiple Births. The goal of this information series is to inform both future parents and expectant parents of multiples about these risks and to provide them with information about ways to reduce the risks related to multiple pregnancies and birth. If you haven't already done so please also read *Part 1 - Risks for the Mother* and *Part 3 – Reducing the Risks* for more information on this topic.

***The content of this document is for information purposes only and does not reflect each person's individual situation. If you have any concerns, please contact your health care providers immediately.***

**Introduction**

A multiple pregnancy is a pregnancy in which a woman is expecting more than one baby. A multiple birth refers to the birth of twins, triplets or more. Of the 12,000 multiple-birth babies born across Canada each year, a high percentage are born healthy. While babies are a special gift to a family, parents expecting multiples face very specific challenges during pregnancy, when giving birth and when parenting two, three or more children of the same age. Expectant mothers of twins, triplets or more have a very different prenatal (before birth) experience from women expecting a single baby.

Because of the complexities of a multiple pregnancy, twins, triplets and more have a greater likelihood of health problems or even death during the prenatal period and in the months following birth. Multiple-birth infants tend to be born earlier and smaller than a single born baby, thus making multiples more vulnerable to health and developmental difficulties.

It is most important for women who may become pregnant with more than one baby and for expectant parents of multiples to receive timely information and support to help them feel prepared and at ease with the challenges they may face. Being prepared means knowing the uniqueness of a multiple pregnancy, birthing and parenting and what can be done to improve the possibility of a healthier birth outcome and a positive parenting experience. In addition, well informed parents make good partners with their health care providers in reducing the risks related to a multiple pregnancy and birth.

**What are some of the risks of a multiple pregnancy and birth to the children?**

**Restricted Growth and Early Delivery**

- Compared to single born babies, most multiple-birth babies are born early (before 40 weeks). About half of twins, and nearly all triplets (or more), are born before 37 weeks. The average length of a multiple pregnancy is:
  - 35-36 weeks for twins
  - 32-33 weeks for triplets
  - 29-30 weeks for quadruplets
- Multiples tend to have lower birth weights than single born babies of the same gestational age, because they have had to share the same amount of space and nutrition from their mother thus making it less likely for them to grow at the normal rate inside the uterus.

# Multiple Births
# The Possible Risks

- Babies that are born preterm (before 37 weeks) are most often smaller (less than 2,500 grams [5.5 pounds]) and under-developed. The average weight for each multiple-birth baby is about:
  - Twins - 2,350 grams (5 ½ pounds)
  - Triplets - 1,700 grams (4 pounds)
  - Quadruplets - 1,300 grams (3 pounds)
- Infants may have weight discrepancies because the available maternal nutrition that is provided via the placenta(s) is not necessarily shared equally.
- Gestational age (period of time between conception and birth) and birthweight of multiples are influenced by several factors. Reaching greater gestational age and birthweight tends to happen when: women are tall, women have previously delivered one or more term infants, and each multiple has its own placenta and set of membranes—amnion and chorion. (For additional information refer to the *Biology of Multiples* Fact Sheet.)
- Multiples born prematurely face a range of health problems and care requirements. The problems may resolve quickly and with little medical or nursing intervention or the babies may require intensive and prolonged care in the hospital and after discharge to home.

**What are some common difficulties encountered by infant multiples born significantly preterm?**

- Cared for by a specialized health care team in a Neonatal Intensive Care Unit (NICU) or Special Care Nursery (SCN).
- Respiratory and breathing problems such as apnea (stop breathing) and respiratory distress syndrome (RDS).
- Gastro esophageal reflux disorder whereby the stomach contents come back up the esophagus and the baby spits up his feedings.
- Breastfeeding challenges due to immature sucking/swallowing reflexes and tiring quickly.
- Infection due to an underdeveloped immune system.
- Hearing and vision problems, especially in babies born before 29 weeks.
- Neurological problems, especially in babies born at 29 weeks or earlier:
  - Infants from multiple pregnancies, especially those infants who are born moderately or very preterm are at increased risk for learning disabilities, slow language development, developmental delays and behavioural difficulties.
  - Cerebral palsy and other types of permanent neurological damage are 4 times more likely to occur in twins and 17 times more likely to affect triplets, as compared to single born children.
- Fetal or infant death during pregnancy, birth or within the first year is approximately ten times more likely to occur with multiples than with singletons. The difficulty of grieving for the lost baby and emotionally attaching to the survivor(s) cannot be underestimated.

**Complications Unique to Monozygotic Multiples**

*Dizygotic multiples*, also known as DZ and "fraternal", develop from two fertilized eggs. These multiples have fewer complications because each fetus has his or her own placenta, chorion and amnion for nourishment and support. (It may be helpful to refer to the *Fact Sheet: Biology of Multiples* if you need to clarify the terminology.)

*Monozygotic multiples*, also referred to as MZ or "identical", develop from a single fertilized egg that splits into two or more. Compared to Dizygotic multiples, MZ multiples are at higher risk for complications during pregnancy and birth.



www.multiplebirths.ca 1-866-228-8824
@multiple_births MultipleBirthsCanada @multiplebirthscanada

**SUPPORT EDUCATION RESEARCH ADVOCACY**

# Multiple Births
# The Possible Risks

There are different types of monozygotic multiples, as you can see in the diagram below.

1. Monozygotic multiples that each have their own placenta, chorion and amnion are known as dichorionic multiples or DI-DA.
2. Monozygotic multiples that share one placenta and the chorion are referred to as monochorionic multiples.
   a) If the monochorionic multiples are enclosed in their individual amnions, they are known as monochorionic-diamniotic multiples
   b) If the monochorionic multiples are enclosed in one amnion, they are known as monochorionic-monoamniotic (MC-MA or MoMo) multiples.

With MZ multiples (developed from a single fertilized egg that splits), if two or more of the fetuses share a single placenta (called *monochorionic* multiples) they are at higher risk for complications such as:

- Unequal growth rates or restricted growth of the fetuses
- Unequal sharing of the blood supply and nourishment via the placenta
- Birth defects (e.g. congenital heart problems)
- Chromosomal problems (e.g. Down Syndrome)

**Twin to Twin Transfusion Syndrome (TTTS)**

Twin to Twin Transfusion Syndrome or TTTS is a complication of about 15% of monochorionic-diamniotic pregnancies. (For some unknown reason, TTTS occurs less frequently in monochorionic-monoamniotic pregnancies.) TTTS is a condition in which blood from one fetus transfuses through the placental blood vessels into the other fetus. TTTS can be life-threatening to one or all babies, cause lasting health problems or threaten the existence of the pregnancy.

Specialized treatment has improved the outcomes for some of the babies. (For further information on this topic refer to the *Monochorionic Multiple Pregnancy and Twin to Twin Transfusion Syndrome* fact sheet.)

**Monochorionic-Monoamniotic Multiples and Umbilical Cord Entanglement**

About 1 to 2 percent of monochorionic multiples are monochorionic-monoamniotic multiples. These babies are at risk for umbilical cord entanglement which requires frequent monitoring during pregnancy however, other complications in these pregnancies may be of more concern such as restricted fetal growth, TTTS, birth defects and delivery before 32 weeks.

**Conjoined Multiples**

Although very rare (1 in 50,000 multiple pregnancies), monochorionic-monoamniotic multiples are at risk of being conjoined. Conjoined twins occur when the embryo fails to completely separate after about 12 days of gestation.

**Complications for Multiples Conceived through AHR**

Some research shows that multiples conceived through assisted human reproduction (AHR) techniques may be more likely than spontaneously conceived multiples to require neonatal intensive care and to be hospitalized during the first few years of life. The cause for this is unknown.



www.multiplebirths.ca 1-866-228-8824
@multiple_births MultipleBirthsCanada @multiplebirthscanada

**SUPPORT EDUCATION RESEARCH ADVOCACY**

# Multiple Births
# The Possible Risks

**Recommended Sources of Information:**

The Multiple Births Foundation
www.multiplebirths.org.uk/
Telephone: 0208 383 3519 Fax: 0208 383 3041
E-mail: info@multiplebirths.org.uk

One At A Time - www.oneatatime.org.uk

Twin to Twin Transfusion Syndrome Foundation
www.tttsfoundation.org

International Society for Twin Studies
www.ists.qimr.edu.au

Multiple Births: Prenatal Education & Bereavement Support- www.multiplebirthsfamilies.com

**Documents and Articles:**

- International Council of Multiple Birth Organizations (2010). Declaration of Rights and Statement of Needs of Twins and Higher Order Multiples
- Twins, Triplets or More: Resource Guide for Multiple Pregnancy and Parenthood (Updated every six months) by Linda G. Leonard, RN MSN www.nursing.ubc.ca/pdfs/twinstripletsandmore.pdf
- Information for Parents: When Twins Share One Placenta (2010) Multiple Births Foundation.
- **Multiple Births Canada Fact Sheets on various topics related to multiple pregnancy, births and parenting**
- **References:**


  - ACOG Practice Bulletin. Clinical Management Guidelines for Obstetrician–Gynecologists. Number 56, October 2004 *(*Replaces Educational Bulletin Number 253, November 1998*)*
  - Assisted Human Reproduction Canada. Outcomes of assisted human reproduction technologies: Health of pregnancies and children. www.ahrc-pac.gc.ca/v2/aaa-app/wwa-qsn/board-conseil/sap-pas/snapshots-instantanes/outcomes-resultats-eng.php
  - *Belogolovkin, V. & Stone, J (2007).* Managing risk—to mother and fetuses—in a twin gestation. *OBG Management, 19* (7). 66-67; 71-72; 75-79.
  - Black, M. & Bhattacharya, S. (2010). Epidemiology of multiple pregnancy and the effect of assisted conception. Seminars in Fetal & Neonatal Medicine 306-12.
  - Blickstein, I. (2006) Epidemiology of cerebral palsy in multiple pregnancies in: Multiple Pregnancy. Kilby, M. et al (eds), *RCOG*.
  - Hansen, M.et al. (2009). Twins born following assisted reproductive technology: perinatal outcomes and admissions to hospital. *Human Reproduction* 24:9, pp. 2321-2331
  - Bryan, E. (2003). The impact of multiple preterm births on the family. *BJOG* 110: 24–28.
  - Colpin, H. et al (1999). Parenting stress and psychosocial well-being among parents with twins conceived naturally or by reproductive technology. *Human Reproduction* 14: 3133–3137.

- Cook, R. et al (1998). A preliminary study of parental stress and child behaviour in families with twins conceived by in-vitro fertilization. *Human Reproduction*13: 3244–3246.
- Costeloe, K. et al (2000). The EPICure study: outcomes to discharge from hospital for infants born at the threshold of viability. *Pediatrics* 106: 659–671.
- D'Alton, M. (2004). Infertility and the desire for multiple births, *Fertility and Sterility* 81(3) 523–525.
- Ellison, M. et al (2005). Psychosocial risks associated with multiple births resulting from assisted reproduction. *Fertility and Sterility* 83: 1422–1428.
- Glazebrook, C. et al (2004). Parenting stress in first-time mothers of twins and triplets conceived after in vitro fertilization. *Fertility and Sterility* 81: 505–511.
- Gunby, J. et al (2011). Assisted reproductive technologies (ART) in Canada: 2007 results from the Canadian ART Register. *Fertility and Sterility* 95:542–7.
- Klock, S.C. (2004). Psychosocial adjustment to twins after infertility Best Practice and Research. *Clinical Obstetrics and Gynaecology* 18: 645–656.
- Leonard, L.G., Denton, J. (2006). Preparation for parenting multiple-birth children. Early Human Development 82, 371—378
- Marlow, N., (Kilby, M. et al eds). (2006) Does neonatal and infant neurodevelopment of twins and singletons differ? in: *Multiple Pregnancy*. *RCOG*
- Martin, J.A. et al (2003). Births: final data for 2002. Natl Vital Stat Rep 2(10):1–102.
- Olivennes, F. et al (2005). Behavioural and cognitive development as well as family functioning of twins conceived by assisted reproduction: findings from a large population study. *Fertility and Sterility* 84:725–733.
- One Child at a Time, Report of the Expert Group on Multiple Births after IVF, October 2006, p8.
- Ostfeld, B.M. et al (2000). Maternal behaviour toward premature twins: implications for development. *Twin Research* 2000; 3: 234–241.
- Pinborg, A. et al (2003). Morbidity in a Danish National cohort of 472 IVF/ICSI twins, 1132 non-IVF/ICSI twins and 634 IVF/ICSI singletons: health-related and social implications for the children and their families. *Human Reproduction* 18(6): 1234–124.
- Pinborg, A. (2005). IVF/ICSI twin pregnancies: risks and prevention. *Human Reproduction* Update 11: 575–593. http://humupd.oxfordjournals.org/content/11/6/575.full
- Public Health Agency of Canada (2008). Canadian Perinatal Health Report, 2008 Edition. Ottawa.
- Statistics Canada (2011). Births 2008. Ottawa: Minister of Industry.
- The Practice Committee of the American Society for Reproductive Medicine (2004). Multiple pregnancy associated with infertility therapy. *Fertility and Sterility* 82, Suppl 1, S153–157.
- Topp et al Acta Obstetrics and Gynaecology Scandinavia 2004; 83: 548–553.
- Yokoyama Y, Shimizu T and Hayakawa K (1995). Incidence of handicaps in multiple births and associated factors. *Acta Genet Med Gemellol* (*Roma*) 44, 81–91.

- **Multiple Births Canada**
- Donna Launslager, May 2011
- **Expert Reviewers**
- Jane Denton, CBE, FRCN, RGN, RM,
- Linda Leonard, RN, MSN
- Jon Barrett, M.B.Bch., FRCOG, MD, FRCSC
- The Healthy Singleton Birth Committee, Assisted Human Reproduction Canada