The Uterus

Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions, some of the conditions that may reduce implantation potential are:

- Fibroids
- Polyps
- Adenomyosis endometriosis
- Intruterine adhesions
- Abnormal uterine shape (septum)
- Difficult cervix affecting embryo transfer
- Early rise in progesterone prior to egg collection in an IVF cycle
- Natural killer cells / immune system

Natural Killer cells

Natural killer cells are immune cells that are particularly prominent in the uterus around implantation. High activated natural killer cell levels in either the blood or the uterus may be a marker of an over active immune system.

Various immune treatments have been trialled to help improve implantation rates of embryos and reduce miscarriage rate. While there is growing evidence for the efficacy of such treatments randomised studies are required to prove the benefits. The risks of such treatments appear small.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking] a healthy diet to improve sperm health and frequent ejaculation.

The factors of maternal health affecting recurrent implantation failure include:

- Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietician is needed
- Smoking – needs to cease
- Systemic diseases such as diabetes need to be managed adequately by the treating physician
- Blood clotting disorders and autoimmune disorders anti-phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

The impact of stress on implantation is difficult to measure individuals are encouraged to do whatever will help put them in the best physical and emotional frame of mind. We understand stress is a natural part of fertility treatment.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking] a healthy diet to improve sperm health and frequent ejaculation.
Recurrent implantation failure [RIF] is defined as recurrent implantation failure. The quality of embryos have been transferred is several cycles of IVF where three good embryos are meant to implant. Up to 70% of embryos created, either via natural conception or IVF, are lost before birth usually within the first three months of pregnancy and most of these even before implantation. However, in our experience with persistence, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:
- The egg
- The sperm
- The embryos created
- The woman's uterus
- Maternal and paternal health, or a combination of these factors.

The Egg

The quality of a woman's eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. At a maternal age of 35 years of age 40% of embryos tested are chromosomally abnormal; at 40, 80% and 42, 93%. This explains why many women don't implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Investigations to improve the health of eggs may include:
- The increase in stimulating drugs to obtain more eggs;
- Addition of androgens and growth hormone in patients who are defined as poor responders;
- Use of sophisticated pre implantation genetic screening of embryos for selection of the healthiest embryo;
- embryo donation may be an option to consider.

The Sperm

The main function of sperm is to move and transmit healthy DNA in to the ovocyte to make a healthy embryo. In some men for various reasons sperm function may be poor and the DNA may be damaged. Factors affecting sperm quality may include:
- Lifestyle (excessive alcohol, obesity, smoking, steroid use, recreational drugs)
- Advancing age
- Aneuploidy

The Embryo

One of the most common reasons why IVF is unsuccessful, or why implantation failure or miscarriages occur, is because of chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while implantation failure is defined medically as a normal part of life it is emotionally devastating.

If the cells of an embryo contain the wrong number of chromosomes, either too many or too few, this is called aneuploidy – which can cause an embryo to not develop normally.

Causes of abnormal embryos include:
- Abnormal chromosome complement
- Abnormal embryo development/growth
- Advancing maternal age reduces embryo health
- Thickened egg shell [zona]

Investigations of embryo health include:
- IVF
- Ivf with blastocyst culture
- Embryo testing with PGD

Why test embryos?

A human cell contains genetic material arranged in dense strands called chromosomes. A normal human cell will contain 23 pairs of chromosomes. fertilisation combines 22 chromosomes and an X chromosome from the mother's egg with 22 chromosomes and either an X or Y chromosome from the father's sperm. An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy an X and Y chromosome.

Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 40, 60% and 42, 93%. This explains why many women don't implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Treatments include:
- Single embryo transfer;
- Blastocyst culture;
- Embryo testing;
- Possibly laser assisted hatching.

The Egg

The quality of a woman's eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. At a maternal age of 35 years of age 40% of embryos tested are chromosomally abnormal; at 40, 80% and 42, 93%. This explains why many women don't implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Investigations to improve the health of eggs may include:
- The increase in stimulating drugs to obtain more eggs;
- Addition of androgens and growth hormone in patients who are defined as poor responders;
- Use of sophisticated pre implantation genetic screening of embryos for selection of the healthiest embryo;
- embryo donation may be an option to consider.

The Sperm

The main function of sperm is to move and transmit healthy DNA in to the ovocyte to make a healthy embryo. In some men for various reasons sperm function may be poor and the DNA may be damaged. Factors affecting sperm quality may include:
- Lifestyle (excessive alcohol, obesity, smoking, steroid use, recreational drugs)
- Advancing age
- Aneuploidy

The Embryo

One of the most common reasons why IVF is unsuccessful, or why implantation failure or miscarriages occur, is because of chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while implantation failure is defined medically as a normal part of life it is emotionally devastating.

If the cells of an embryo contain the wrong number of chromosomes, either too many or too few, this is called aneuploidy – which can cause an embryo to not develop normally.

Causes of abnormal embryos include:
- Abnormal chromosome complement
- Abnormal embryo development/growth
- Advancing maternal age reduces embryo health
- Thickened egg shell [zona]

Investigations of embryo health include:
- IVF
- Ivf with blastocyst culture
- Embryo testing with PGD

Why test embryos?

A human cell contains genetic material arranged in dense strands called chromosomes. A normal human cell will contain 23 pairs of chromosomes. fertilisation combines 22 chromosomes and an X chromosome from the mother's egg with 22 chromosomes and either an X or Y chromosome from the father's sperm. An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy an X and Y chromosome.

Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 40, 60% and 42, 93%. This explains why many women don't implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Treatments include:
- Single embryo transfer;
- Blastocyst culture;
- Embryo testing;
- Possibly laser assisted hatching.
The Egg

The quality of a woman’s eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. As maternal age advances, the percentage of chromosomally abnormal eggs increases, reducing the chance of creating a healthy embryo naturally. The proportion of embryos that are chromosomally normal ranges from 50% for those created from an under 30 year old woman’s eggs, to as low as 5% for eggs from a woman over 44 years of age.

There is also growing evidence that low ovarian reserve is associated with poor oocyte quality (egg health) and a past history of endometriosis and ovarian surgery may also reduce egg health and quantity.

The investigations for egg health include an Anti-müllerian hormone (AMH) blood test which is a measure of ovarian reserve. In the setting of IVF, low AMH may be related to poorer pregnancy outcomes.

Egg quality may also be assessed during the IVF process by observing the capacity of an embryo to grow to the Blastocyst stage. At IVFAustralia we use a special technique called Oosight Technology (PolScope) which allows us to assess the egg in more detail before fertilisation. By using polarised light we can look at the structure of the egg including its spindle which is a critical component of eggs involved in organising the chromosome pairs so that a proper division of the pairs can occur as the egg is developing. An abnormal spindle can predispose the development of chromosomally abnormal embryos.

Treatments to improve the health of eggs may include:

- The increase in stimulating drugs to obtain more eggs;
- Addition of androgens and growth hormone in patients who are defined as poor responders;
- Use of Oosight Technology (PolScope) in selection of the best egg prior to IVF treatment;
- Use of sophisticated pre-implantation genetic screening of embryos for selection of the healthiest embryo;
- Oocyte donation may be an option to consider.

NOTE: The benefits of the use of herbal treatments or acupuncture are unproved as yet.

The Sperm

The main function of sperm is to move and transmit healthy DNA in to the oocyte to make a healthy embryo. In some men for various reasons sperm function may be poor and the DNA may be damaged. Factors affecting sperm quality may include:

- Lifestyle (excessive alcohol, obesity, smoking, stoaid use, recreational drugs);
- Advancing age;
- Fragmentation test can be performed to look at the DNA quality of sperm and if indicated we can perform a real chromosome test on the male.

Sperm have a life cycle of 72 days, so if you are ill or stressed it can temporarily affect your sperm production quality.

Sperm have a life cycle of 72 days, so if you are ill or stressed it can temporarily affect your sperm production quality.

A male is assessed by a semen analysis which will accurately measure the number of sperm, their motility (ability to move), their morphology (size and shape), and the volume and consistency of the ejaculated sample. If sperm abnormalities are found, the test is repeated to assess the type and degree of the problem. A sperm DNA fragmentation test can be performed to look at the DNA quality of sperm and if indicated we can perform a real chromosome test on the male.

Treatments to improve sperm quality or overcome sperm issues include:

- Use of antioxidants such as zinc can improve sperm quality;
- Lifestyle changes are encouraged to improve sperm quality;
- Frequent ejaculation;
- Intracytoplasmic sperm injection (ICSI) is a well proven way of selecting and fertilising an egg with better quality sperm.

At IVFAustralia we use a special technique under high magnification to select the best quality sperm (Digital High Mag).

Fertile biopsies may yield less DNA damaged sperm but the technique is very invasive and expensive for this indication.

Donor sperm may be an alternative option.

The Embryo

One of the main reasons common with IVF failure, or why implantation failure or miscarriages occur, is because of chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while implantation failure is defined medically as a normal part of life it is emotionally devastating.

The Egg is produced with a full complement of 46 chromosomes which combines 22 chromosomes and an X chromosome from the mother’s egg with 22 chromosomes and either an X or Y chromosome from the father’s sperm.

An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy, an X and a Y chromosome.

Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 40, 60% and 42, 93%. This explains why many embryos don’t implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Treatments include:

- Preimplantation culture;
- Embryo testing;
- Possibly laser assisted hatching.

Why test embryos?

A human cell contains genetic material arranged in dense strands called chromosomes. A normal human cell will contain 23 pairs of chromosomes. Embryos inherit 22 chromosomes and an X chromosome from the mother’s egg with 22 chromosomes and either an X or Y chromosome from the father’s sperm.

An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy, an X and a Y chromosome.

Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 40, 60% and 42, 93%. This explains why many embryos don’t implant and many pregnancies miscarry, providing a strong rationale for embryo testing.

Treatments include:

- Preimplantation culture;
- Embryo testing;
- Possibly laser assisted hatching.

Causes of recurrent implantation failure

Recurrent implantation failure (RIF) is an expected, however unfortunate, reality of human reproduction. Not all embryos are meant to implant. Up to 70% of embryos created, either via natural conception or IVF, are lost before birth usually within the first three months of pregnancy and most of these even before implantation.

However, in our experience with persistence, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:

- The egg;
- The sperm;
- The embryos created;
- The woman’s uterus;
- Maternal and paternal health, or;
- A combination of these factors.

Having to endure not one but two or more unsuccessful cycles of IVF is painfully frustrating.

Failure to achieve a pregnancy following several cycles of IVF where three good quality embryos have been transferred is defined as recurrent implantation failure.

Recurrent implantation failure (RIF) is an expected, however unfortunate, reality of human reproduction. Not all embryos are meant to implant. Up to 70% of embryos created, either via natural conception or IVF, are lost before birth usually within the first three months of pregnancy and most of these even before implantation.

Causes of recurrent implantation failure may be varied and involve:

- The egg;
- The sperm;
- The embryos created;
- The woman’s uterus;
- Maternal and paternal health, or;
- A combination of these factors.
Recurrent implantation failure (RIF) is defined medically as a normal part of life it of the uterus to reject some embryos that are abnormal so while chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while chromosome. X chromosomes and in the case of a boy an X and a Y chromosome. An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy an X and a Y chromosome. Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 45, 60% and 42, 92%. This explains why many embryos don't implant and many pregnancies miscarriage, providing a strong rationale for embryo testing. Untreated infertility is not an indication for IVF. However, in our experience with persistent, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:
- The egg
- The sperm
- The embryos created
- The woman’s uterus
- Maternal and paternal health, or
- A combination of these factors.

Having to endure not one but two or more unsuccessful cycles of IVF is painful frustrating.

Failure to achieve a pregnancy following several cycles of IVF where three good quality embryos have been transferred is defined as recurrent implantation failure.

Recurrent implantation failure [RIF] is an expected, however unfortunate, reality of human reproduction. Not all embryos are meant to implant. Up to 70% of embryos created, either via natural conception or IVF, are lost before birth usually within the first three months of pregnancy and most of these even before implantation.

However, in our experience with persistence, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:
- The egg
- The sperm
- The embryos created
- The woman’s uterus
- Maternal and paternal health, or
- A combination of these factors.

The Egg

The quality of a woman’s eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. As maternal age advances, the percentage of chromosomally abnormal eggs increases, reducing the chance of creating a healthy embryo naturally. The proportion of embryos that are chromosomally normal ranges from 50% for those created from an under 30 year old woman’s eggs, to as low as 5% for eggs from a woman over 44 years of age.

There is also growing evidence that low ovarian reserve is associated with poor oocyte quality (egg health) and a past history of endometriosis and ovarian surgery may also reduce egg health and quantity.

The investigations for egg health include an Anti-müllerian hormone [AMH] blood test which is a measure of ovarian reserve. In the setting of IVF low AMH may be related to poorer pregnancy outcomes.

Egg quality may also be assessed during the IVF process by observing the capacity of an egg to grow to the Blastocyst stage. At IVFAustralia we use a special technique called Oosight Technology [PoliScope] which allows us to assess the egg in more detail before fertilisation. By using polarised light we can look at the structure of the egg including its spindle which is a critical component of eggs involved in organising the chromosome pairs so that a proper division of the pairs can occur as the egg is developing. An abnormal spindle can predispose the development of chromosomally abnormal eggs.

Treatments to improve the health of eggs may include:
- Increasing in stimulating drugs to obtain more eggs;
- Addition of antioxidants and growth hormone in patients who are defined as poor responders;
- Use of Oosight Technology [PoliScope] in selection of the best egg prior to IF treatment;
- Use of sophisticated pre implantation genetic screening of embryos for selection of the healthiest embryo.

Oocyte donation may be an option to consider.

NOTE: The benefits of the use of herbal treatments or acupuncture are unproved as yet.

The Sperm

The main function of sperm is to move and transmit healthy DNA in to the oocyte to make a healthy embryo. In some men for various reasons sperm function may be poor and the DNA may be damaged. Factors affecting sperm quality may include:
- Lifestyle [excessive alcohol, obesity, smoking, steroid use, recreational drugs]
- Advancing age
- Genetic factors
- Excessive caffeine use, or
- Treatment for abnormal sperm.

The primary investigation for a male is a semen analysis which will accurately measure the number of sperm, their motility [ability to move], their morphology [size and shape], and the volume and consistency of the ejaculated sample. If sperm abnormalities are found, the test is repeated to assess the type and degree of the problem. A sperm DNA fragmentation test can be performed to look at the DNA quality of sperm and if indicated we can perform a blood chromosome test on the male.

Sperm have a life cycle of 72 days, so if you are ill or stressed it can temporarily affect your sperm quality.

Treatments to improve sperm quality or overcome sperm issues include:
- The use of antioxidants such as zinc can improve sperm quality.
- Traditional Chinese Medicine may improve sperm quality.
- The use of herbal treatments or acupuncture are unproved as yet.

Why test embryos?

A human cell contains genetic material arranged in dense strands called chromosomes. A normal human cell will contain 23 pairs of chromosomes. Embryos combines 22 chromosomes and an X chromosome from the mother’s egg with 22 chromosomes and either an X or Y chromosome from the father’s sperm. An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy an X and a Y chromosome.

Estimation of 35 years of age 40% of embryos tested are chromosomally abnormal at 45, 60% and 42, 92%. This explains why many embryos don't implant and many pregnancies miscarriage, providing a strong rationale for embryo testing. Untreated infertility is not an indication for IVF. However, in our experience with persistence, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:
- The egg
- The sperm
- The embryos created
- The woman’s uterus
- Maternal and paternal health, or
- A combination of these factors.

The Embryo

One of the most common reasons why IVF is unsuccessful, or why implantation failure or miscarriages occur, is because of chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while implantation failure is defined medically as a normal part of life it is emotionally devastating.

If the cells of an embryo contain the wrong number of chromosomes, either too many or too few, this is called aneuploidy – which can cause an embryo to not develop normally.

Causes of abnormal embryos include:
- Abnormal chromosome complement.
- Abnormal embryo development [growth].
- Advancing maternal age reduces embryo health.
- Thinnecked egg shell [zona].

Investigations of embryo health include:
- IVF.
- IVF with blastocyst culture.
- Embryo testing with PGT.

The Egg

The quality of a woman’s eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. As maternal age advances, the percentage of chromosomally abnormal eggs increases, reducing the chance of creating a healthy embryo naturally. The proportion of embryos that are chromosomally normal ranges from 50% for those created from an under 30 year old woman’s eggs, to as low as 5% for eggs from a woman over 44 years of age.

There is also growing evidence that low ovarian reserve is associated with poor oocyte quality (egg health) and a past history of endometriosis and ovarian surgery may also reduce egg health and quantity.

The investigations for egg health include an Anti-müllerian hormone [AMH] blood test which is a measure of ovarian reserve. In the setting of IVF low AMH may be related to poorer pregnancy outcomes.

Egg quality may also be assessed during the IVF process by observing the capacity of an egg to grow to the Blastocyst stage. At IVFAustralia we use a special technique called Oosight Technology [PoliScope] which allows us to assess the egg in more detail before fertilisation. By using polarised light we can look at the structure of the egg including its spindle which is a critical component of eggs involved in organising the chromosome pairs so that a proper division of the pairs can occur as the egg is developing. An abnormal spindle can predispose the development of chromosomally abnormal eggs.

Treatments to improve the health of eggs may include:
- Increasing in stimulating drugs to obtain more eggs;
- Addition of antioxidants and growth hormone in patients who are defined as poor responders;
- Use of Oosight Technology [PoliScope] in selection of the best egg prior to IF treatment;
- Use of sophisticated pre implantation genetic screening of embryos for selection of the healthiest embryo.

Oocyte donation may be an option to consider.

NOTE: The benefits of the use of herbal treatments or acupuncture are unproved as yet.
Recurrent implantation failure (RIF) is defined as recurrent implantation failure. The quality of embryos that have been transferred is often related to the outcome of IVF where three good quality embryos have been transferred is several cycles of IVF where three good quality embryos have been transferred. However, in our experience with IVF, more unsuccessful cycles of IVF is frustrating. Having to endure not one but two or three unsuccessful cycles of IVF is painfully frustrating. Most patients will eventually achieve a pregnancy. However, in our experience with persistence, thorough investigation and often simply taking a different approach, most patients will eventually achieve a pregnancy.

Causes of recurrent implantation failure may be varied and involve:
- The egg
- The sperm
- The embryos created
- The woman’s uterus
- Maternal and paternal health, or
- A combination of these factors.

The Egg
The quality of a woman’s eggs is important in creating a healthy embryo. The reason for this is that the egg does most of the work in accepting the DNA from sperm and facilitating the mix of genes resulting in the creation of an embryo. As maternal age advances, the percentage of chromosomally abnormal eggs increases, reducing the chance of creating a healthy embryo naturally. The proportion of embryos that are chromosomally normal ranges from 50% for those created from an under 30 year old woman’s eggs, to as low as 5% for eggs from a woman over 44 years of age. There is also growing evidence that low ovarian reserve is associated with poor oocyte quality (egg health) and a past history of endometriosis and ovarian surgery may also reduce egg health and quantity.

The investigations for egg health include an Anti-Müllerian hormone (AMH) blood test which is a measure of ovarian reserve. In the setting of IVF, low AMH may be related to poorer pregnancy outcomes. Egg quality may also be assessed during the IVF process by observing the capacity of an embryo to grow to the Blastocyst stage. At IVFAustralia we use a special technique called Oosight Technology (PolScope) which allows us to assess the egg in more detail before fertilisation. By using polarised light we can look at the structure of the egg including its spindle which is a critical component of eggs involved in organising the chromosome pairs so that a proper division of the cells can occur as the egg is developing. An abnormal spindle can predispose the development of chromosomally abnormal eggs.

Treatments to improve the health of eggs may include:
- The increase in stimulating drugs to obtain more eggs;
- Addition of antioxidants and growth hormone in patients who are defined as poor responders;
- Use of Oosight Technology (PolScope) in selection of the best egg prior to IVF treatment;
- Use of sophisticated pre implantation genetic screening of embryos for selection of the healthiest embryo.

Oocyte donation may be an option to consider.

NOTE: The benefits of the use of herbal treatments or acupuncture are unproved as yet.

The Sperm
The main function of sperm is to move and transmit healthy DNA in to the oocyte to make a healthy embryo. In some men for various reasons sperm function may be poor and the DNA may be damaged. Factors affecting sperm quality may include:
- Lifestyle (excessive alcohol, obesity, smoking, steroid use, recreational drugs)
- Advancing age
- Early onset of puberty
- Previous injury to testicles
- Frequent ejaculation
- Use of herbal treatments or acupuncture
- Intracytoplasmic sperm injection (ICSI) is a well proven way of selecting and then fertilising an egg with better quality sperm.

The Embryo
One of the most common reasons why IVF is unsuccessful, or why implantation failure or miscarriages occur, is because of chromosomal abnormalities in the embryo. It is also the function of the uterus to reject some embryos that are abnormal so while implantation failure is defined medically as a normal part of life it is emotionally devastating. If the cells of an embryo contain the wrong number of chromosomes, either too many or too few, this is called aneuploidy – which can cause an embryo to not develop normally. Causes of abnormal embryos include:
- Abnormal chromosome complement
- Abnormal embryo development/growth
- Advancing maternal age reduces embryo health
- Thickened egg shell (zona)

Investigations of embryo health include:
- IVF
- ICSI with blastocyte culture
- Embryo testing with PGS

Why test embryos?
A human cell contains genetic material arranged in dense strands called chromosomes. A normal human cell will contain 23 pairs of chromosomes. Embryology combines 22 chromosomes and an X chromosome from the mother’s egg with 22 chromosomes and either an X or Y chromosome from the father’s sperm. An embryo is produced with a full complement of 46 chromosomes and in the case of a girl, includes two X chromosomes and in the case of a boy, an X and a Y chromosome.

Estimated at 35 years of age 40% of embryos tested are chromosomally abnormal at 45, 46% and 42, 93%. This explains why many embryos don’t implant and many pregnancies miscarry, providing a strong rationale for testing embryos.

Treatments include:
- Preimplantation genetic screening
- Sperm DNA fragmentation
- Intracytoplasmic sperm injection (ICSI)
- Embryo biopsy
- Possibly laser assisted hatching

Digitally enhanced sperm enables selection of best sperm
Left: x300 - before digital enhancement
Right: x7340 - after digital enhancement + with size overlay (+/- SD)
Natural Killer cells

Natural Killer cells are immune cells that are particularly prominent in the uterus around implantation. High activated natural killer cell levels in either the blood or the uterus may be a marker of an open autoimmune system.

Various immune treatments have been tried to help improve implantation rates of embryos and reducing miscarriage rate. While there is growing evidence for the efficacy of such treatments large randomised studies are required to prove the benefits. The risks of such treatments appear small.

The Uterus

Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions some of the conditions that may reduce implantation potential are:

• Fibroids
• Polyps
• Adenomyosis endometriosis
• Intruterine adhesions
• Abnormal uterine shape (septum)
• Difficult cervix affecting embryo transfer
• Early rise in progesterone prior to egg collection in an IVF cycle
• Natural killer cells / immune system

Treatments for uterine issues include

• Fibroids – surgery can be considered
• Polyps - surgery can be considered
• Adenomyosis no treatment required
• Endometriosis could be surgery in form of laparoscopy or ultra sound IVF protocol
• Intruterine adhesions - surgery
• Abnormal uterine shape (septum) possible surgery
• Difficult cervix affecting embryo transfer – ultrasound guided transfer and hysteroscopy and dilatation of the cervix
• Early rise in progesterone prior to egg collection in an IVF cycle – treating of embryos prior to transfer to use later in a frozen cycle

General maternal and paternal health

The factors of maternal health affecting recurrent implantation failure include:

• Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietician is needed
• Smoking – needs to cease
• Systemic diseases such as diabetes need to be managed adequately by the treating physician
• Blood clotting disorders and autoimmune disorders anti phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.

Physiological dysfunction should be actively treated

Impaired Glucose tolerance should be treated with metformin and lifestyle modification

The impact of stress on implantation is difficult to measure individuals are encouraged to do whatever will help put them in the best physical and emotional frame of mind. We understand stress is a natural part of fertility treatment.

Natural Killer cells

Natural Killer cells are immune cells that are particularly prominent in the uterus around implantation. High activated natural killer cell levels in either the blood or the uterus may be a marker of an open autoimmune system.

Various immune treatments have been tried to help improve implantation rates of embryos and reducing miscarriage rate. While there is growing evidence for the efficacy of such treatments large randomised studies are required to prove the benefits. The risks of such treatments appear small.

The Uterus

Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions some of the conditions that may reduce implantation potential are:

• Fibroids
• Polyps
• Adenomyosis endometriosis
• Intruterine adhesions
• Abnormal uterine shape (septum)
• Difficult cervix affecting embryo transfer
• Early rise in progesterone prior to egg collection in an IVF cycle
• Natural killer cells / immune system

Treatments for uterine issues include

• Fibroids – surgery can be considered
• Polyps - surgery can be considered
• Adenomyosis no treatment required
• Endometriosis could be surgery in form of laparoscopy or ultrasound IVF protocol
• Intruterine adhesions - surgery
• Abnormal uterine shape (septum) possible surgery
• Difficult cervix affecting embryo transfer – ultrasound guided transfer and hysteroscopy and dilatation of the cervix
• Early rise in progesterone prior to egg collection in an IVF cycle – treating of embryos prior to transfer to use later in a frozen cycle

General maternal and paternal health

The factors of maternal health affecting recurrent implantation failure include:

• Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietician is needed
• Smoking – needs to cease
• Systemic diseases such as diabetes need to be managed adequately by the treating physician
• Blood clotting disorders and autoimmune disorders anti phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.

Natural Killer cells

Natural Killer cells are immune cells that are particularly prominent in the uterus around implantation. High activated natural killer cell levels in either the blood or the uterus may be a marker of an open autoimmune system.

Various immune treatments have been tried to help improve implantation rates of embryos and reducing miscarriage rate. While there is growing evidence for the efficacy of such treatments large randomised studies are required to prove the benefits. The risks of such treatments appear small.

The Uterus

Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions some of the conditions that may reduce implantation potential are:

• Fibroids
• Polyps
• Adenomyosis endometriosis
• Intruterine adhesions
• Abnormal uterine shape (septum)
• Difficult cervix affecting embryo transfer
• Early rise in progesterone prior to egg collection in an IVF cycle
• Natural killer cells / immune system

Treatments for uterine issues include

• Fibroids – surgery can be considered
• Polyps - surgery can be considered
• Adenomyosis no treatment required
• Endometriosis could be surgery in form of laparoscopy or ultrasound IVF protocol
• Intruterine adhesions - surgery
• Abnormal uterine shape (septum) possible surgery
• Difficult cervix affecting embryo transfer – ultrasound guided transfer and hysteroscopy and dilatation of the cervix
• Early rise in progesterone prior to egg collection in an IVF cycle – treating of embryos prior to transfer to use later in a frozen cycle

General maternal and paternal health

The factors of maternal health affecting recurrent implantation failure include:

• Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietician is needed
• Smoking – needs to cease
• Systemic diseases such as diabetes need to be managed adequately by the treating physician
• Blood clotting disorders and autoimmune disorders anti phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.
The Uterus
Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions some of the conditions that may reduce implantation potential are:

- Fibroids
- Polyps
- Adenomyosis endometriosis
- Intruterine adhesions
- Abnormal uterine shape (septum)
- Difficult cervix affecting embryo transfer
- Early rise in progesterone prior to egg collection in an IVF cycle

Natural Killer cells
Natural Killer cells are immune cells that are particularly prominent in the uterus around implantation - High activated natural killer cell levels in either the blood or the uterus may be a marker of an over active immune system.

Various immune treatments have been tried to help improve implantation rates of embryos and reducing miscarriage rate. While there is growing evidence for the efficacy of such treatments large randomised studies are required to prove the benefits. The risks of such treatments appear small.

Treatments for uterine issues include
- Fibroids - surgery can be considered
- Polyps - surgery can be considered
- Adenomyosis no treatment required
- Endometriosis could be surgery in form of laparoscopy or ultra long IVF protocol
- Intruterine adhesions - surgery
- Abnormal uterine shape (septum) possible surgery
- Difficult cervix affecting embryo transfer – ultrasound guided transfer and hysteroscopy and dilatation of the cervix
- Early rise in progesterone prior to egg collection in an IVF cycle – treating of embryo prior to transfer to use later in a frozen cycle

General maternal and paternal health
The factors of maternal health affecting recurrent implantation failure include:
- Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietitian is needed
- Smoking – needs to cease
- Systemic diseases such as diabetes need to be managed adequately by the treating physician
- Blood clotting disorders and autoimmune disorders anti phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

Physiological dysfunction should be actively treated
- Impaired Glucose tolerance should be treated with metformin and lifestyle modification

The impact of stress on implantation is difficult to measure individuals are encouraged to do whatever will help put them in the best physical and emotional frame of mind. We understand stress is a natural part of fertility treatment.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.

Recurrent Implantation Failure Explained IVFaustralia’s Network of Care

- Clinic: Consultation & Monitoring
- Consulting Rooms

- Bondi Jn
  16th Floor Westfield Tower 2, 500 Oxford St 8305 9600
- Burwood
  Suite 18 Level 7, 7-17 Burwood 8346 6840
- Castle Hill
  Suite 4, 19-17 Tannery St 9864 4419
- Dee Why
  Level 3, 634 Pacific Road 9955 0000
- Gosford
  Level 2 Suite 24, 207 North Albany St 4349 2000
- Greenwicht
  Level 2, 178 Pacific Highway 9425 1600
- Hunter Market
  Level 5 Sussex Centre 401 Sussex St 9281 3822
- Kogarah
  Level 3 St George Private Hospital South St 8567 4955
- Liverpool
  Ground Floor 1a-1b Bigge St 8864 1575
- Miranda
  Level 4, 9875 Suita 1950 9450
- Miranda
  Suite 4, 20-24 Gibbs St 8567 6980
- Newcastle The Heights Private Medical Centre 4957 8515
- Newcastle
  2 Lookout Rd New Lambton Heights
- St Leonards
  16 Marshall Ave 9439 3158
- Sydney CBD
  Level 1, 33 York St 8346 6800
- Wahroonga
  Suite 103 Tulloch Building Sydney Adventist Hospital 185 Fox Valley Road Wahroonga
- Wollongong
  Level 2, 20-22 Wollongong Rd 4271 9500

Recurrent Implantation Failure Explained

Natural Killer cells

- Thyroid dysfunction should be actively treated
- Impaired Glucose tolerance should be treated with metformin and lifestyle modification
- The impact of stress on implantation is difficult to measure individuals are encouraged to do whatever will help put them in the best physical and emotional frame of mind. We understand stress is a natural part of fertility treatment.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.
The Uterus

Embryo implantation depends on both embryo quality and the endometrial environment. The uterus may be affected by either structural, hormonal or immunological conditions; some of the conditions that may reduce implantation potential are:

- Fibroids
- Polyps
- Adenomyosis endometriosis
- Intracavitary adhesions
- Abnormal uterine shape (septum)
- Difficult cervix affecting embryo transfer
- Early rise in progesterone prior to egg collection in an IVF cycle
- Natural killer cells / immune system

Treatments for uterine issues include:

- Fibroids – surgery can be considered
- Polyps – surgery can be considered
- Adenomyosis no treatment required
- Endometriosis could be surgery in form of laparoscopy or ultra sound IVF protocol
- Intracavitary adhesions – surgery
- Abnormal uterine shape (septum) possible surgery
- Difficult cervix affecting embryo transfer – ultrasound guided transfer and hysteroscopy and dilatation of the cervix
- Early rise in progesterone prior to egg collection in an IVF-cycle – treating of embryo prior to transfer to use later in a fresh cycle

General maternal and paternal health

The factors of maternal health affecting recurrent implantation failure include:

- Body weight – overweight and obese patients lifestyle regime of diet and regular exercise is recommended. For the underweight patient review by dietician is needed
- Smoking – needs to cease
- Systemic diseases such as diabetes need to be managed adequately by the treating physician
- Blood clotting disorders and autoimmune disorders anti phospholipid syndrome may affect miscarriage rates simple immune therapy such as heparin injections may be indicated.

Natural Killer cells

Natural Killer cells are immune cells that are particularly prominent in the uterus around implantation. High activated natural killer cell levels in either the blood or the uterus may be a marker of an over active immune system.

Various immune treatments have been trialled to help improve implantation rates of embryos and reducing miscarriage rate. While there is growing evidence for the efficacy of such treatments large randomised studies are required to prove the benefits. The risks of such treatments appear small.

The factors of paternal health affecting recurrent implantation failure are similar with the recommendation to cease smoking, only moderate alcohol intake [no binge drinking], a healthy diet to improve sperm health and frequent ejaculation.