

How to Get Pregnant



"Delivering The First Touch To Happiness"
ISO 9001 : 2015

Welcome to Nisha IVF



Dr. Nisarg Patel

- *Dr Nisarg Patel is a gynecologist, obstetrician and laparoscopic surgeon and has an experience of 10 years. He is well-versed with all the advanced and medical techniques.*

Nisha IVF has provided IVF treatment to couples in Ahmedabad for more than 10 years. Our aim is to help beat infertility in Ahmedabad. We strive to bring the joy of a family to those who need help with their fertility and to help people in a confidential, professional and caring manner.

Meeting the infertility challenge is all about teamwork. We want to work with you to make your dream of having a baby a reality. We want you to be confident that you receive the best care and treatment - emotionally, medically and economically.

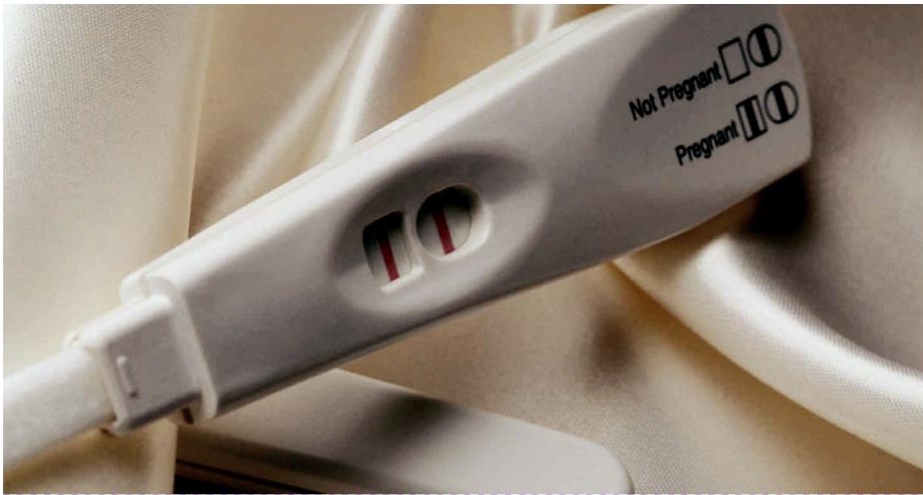
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*Our commitment is to care for you,
so that you can realise your dream
of having a baby.*

: 2015

Part 1. Understanding Infertility



Infertility Explained

Getting pregnant is not always straightforward. One in six couples experience difficulties conceiving a child. About 85% of couples do conceive a child naturally, within the first year of trying, and 95% conceive within two years - if they have sex regularly. However, the chances of getting pregnant are reduced significantly for women over the age of 40.

What is infertility? Infertility is when a couple cannot get pregnant, although they have regular, unprotected sex.

What causes infertility? There are a number of factors that can inhibit conception. It is important to clearly understand those possible factors, so that you take appropriate action.

Do not be discouraged, even if you have tried a number of avenues already. Many of those who engage in assisted reproduction do have healthy babies.

This section of **How to Get Pregnant** contains the answers to some of the questions that our patients ask about infertility.

How often do you need to have sex to conceive?

It may seem obvious, but one of the most important contributors to pregnancy is a happy, natural and active sex life. Many couples, trying for a baby, time their sex life to fit with a woman's ovulation cycle. The best advice is to have sex every 2 to 3 days during the month. Aim for less stress and more fun. Timing sex and ovulation can lead to increased stress and this stress may lead to a decreased interest in sex.

Is infertility likely to be a male or a female problem?

Statistics show that female factors account for approximately 40% of all infertility cases and male factors account for a further 40%. In the remaining 20% of cases, infertility is unexplained.

What are the common causes of infertility?

There are a number of causes of infertility, although some infertility cases are unexplained. Common causes of infertility in women include lack of regular ovulation (monthly release of an egg), endometriosis, ovarian cysts, problems in the reproductive immune system and blockage of the fallopian tubes.

In men, the most common problem is poor semen quality (the fluid containing sperm, released during ejaculation).

How can we prevent infertility?

This guide will give you a number of insights into preventing infertility. In brief, stress, diet and lifestyle choices are key factors affecting fertility. You can prevent infertility by making dietary changes, taking steps to reduce stress and by avoiding toxic substances such as drugs, alcohol and tobacco.

Safe sex is also an important consideration, as some sexually transmitted diseases can lead to infertility if not properly treated.

When should we go for treatment?

Under normal circumstances, a couple has a 20% chance of conceiving a child each month, if they have unprotected intercourse during the fertile part of the menstrual cycle. About 85% of couples do conceive a child within a year.

When considering infertility treatment, time is never on your side and age is an important factor. Every six months makes a significant difference in terms of your fertility, so don't wait to seek treatment. Broadly, the guidelines are that if you are under 35 and have not conceived within one year, then talk to your doctor and get expert advice. If you are over 35, then time is critical and you should seek medical advice much more quickly - after six months at the most.

Is starting a family later in life an issue?

There is no doubt that starting a family later in life can lead to fertility problems. Financial circumstances, second relationships, and a woman's career are the primary reasons why people choose to delay having a child. Research clearly shows that:

- Women are most fertile between the ages of 20 and 24
- At 35 you're half as fertile as when you were at 25
- At 40 you're half as fertile as when you were 35

Miscarriage Risk

The risk of miscarriage also increases with age. Risk of miscarriage at age 25-29 is 10% while the risk at age 40-44 is about 34%. Furthermore, advanced maternal age is also associated with an increased risk of congenital abnormality in babies.

Why does fertility decline with increasing age?

A woman's ovaries age in the same way that normal aging affects all of her organs and tissues. Most women have about 300,000 eggs in their ovaries at puberty. For each egg that matures and is released or ovulated during the menstrual cycle, at least 500 eggs do not mature and are absorbed by the body. As a woman ages, the remaining eggs in her ovaries also age, making them less capable of fertilisation and their embryos less capable of implanting.

One third of couples have infertility problems where the woman is over 35. This rises to two thirds, when the woman is over 40. Men's fertility gradually decreases from the age of 40 but most men can father a child right into their 50's and beyond.



For example, assessing whether the eggs have actually been released at the time of supposed ovulation, whether the eggs are deposited into the fallopian tubes; whether the sperm are capable of reaching the site of fertilisation within 24-48 hours of their production; or whether the eggs can be fertilised by the sperm.

In cases with unexplained infertility, assisted conception in the form of IVF is both diagnostic and therapeutic. For example, if the eggs are not released by performing egg collection or if the tubes are not picking up the eggs, they can be by-passed when IVF is performed. Finally, fertilisation itself can be diagnosed by the performance of IVF.

What can I do about recurrent miscarriage?

Some patients are particularly prone to miscarriage. There is a new test called Flow Cytometry, now provided by Sims IVF which looks at immune dysfunction in relation to the many various factors involved in immune regulation.

These are T and B lymphocytes and Natural Killer cells. We also examine the pro and anti-inflammatory cytokines produced by these cells. An imbalance in these cytokines may cause implantation failure and/or pregnancy loss.

Treatment for certain types of autoimmune dysfunction can be provided by the limited use of particular drugs that suppress the immune system, so that implantation can proceed without interference from the immune system.

Our investment in this technology gives us a wide profile of immune function/dysfunction. Where a woman has lost pregnancies or does not achieve pregnancy, and if the Flow Cytometry test is completely normal, then this allows us to exclude an immunological reason for the failure and enables us to focus on other factors – genetic or otherwise.

Fertilisation is also associated with a higher risk of genetic abnormalities such as chromosomal abnormalities. The risk of a chromosomal abnormality in a woman age 20 years is one in 500 while the risk in a woman age 45 is one in 20.

Gynaecological problems such as pelvic infection, tubal damage, endometriosis and fibroids also tend to increase with age. Sexual function may also decrease with age due to reduced libido and less frequent intercourse.

Aging does not just affect women; it also affects men, although to a lesser degree. Aging affects sperm and frequency of intercourse. However, there is no age limit at which men are not capable of conceiving a child.

What is unexplained Infertility?

This affects 20-25% of infertile couples. In the majority of cases, the failure to reach a diagnosis is not due to inadequate investigations, but is perhaps due to other factors which are impossible to assess using conventional methods.

How Fertilisation Works

Fertilisation occurs when a woman's egg and a man's sperm fuse to form a single cell. This usually occurs in one of the fallopian tubes. For this to happen, the egg and the sperm have to perform certain functions beforehand and once fused, the merged cells must find their way to the uterus and embed into the lining of the womb, in order for the fertilisation to become a pregnancy.

Here is a brief overview of the roles played by the female egg and the male sperm:

The Female Egg

The exact time of the month for ovulation depends on your menstrual cycle. Taking an average menstrual cycle of 28 days, ovulation occurs on days 12-15. Day one is the first day of your period.

At ovulation, an egg is released from the ovaries. It is picked up by and travels down one of the fallopian tubes towards the uterus where, if intercourse has taken place within the last four days, it may meet sperm.

Eggs live and can be fertilised for 12-24 hours after being released. Sperm can live and stay active in your body for up to 48 hours.

Hormones prompt an increase in blood supply to the womb, in preparation for implantation. It takes up to five days for the fertilised egg to reach the womb and embed itself in the lining.

If the egg is not fertilised, or if the fertilised egg cannot attach to the womb lining, then a period begins.

The Male Sperm

At the point of ejaculation during intercourse, a man can release up to 300 million sperm into his partner's vagina. Only a small proportion of those make it through the neck of the womb and on to the fallopian tubes. The sperm must be actively moving, of normal appearance and of sufficient quantities to be considered normal. It must also be capable of moving through the female genital tract to reach the fallopian tube, where the egg is fertilised.

The quality of the cervical mucus in the woman's body at the time of ovulation must be such that it allows free passage of the sperm into the uterus.

Finally, only one sperm will find its way in to fertilise an egg.

The fusion of the Female Egg and the Male Sperm

Once the sperm penetrates the egg, the chromosomes carried by the sperm and the egg come together and the egg is fertilised. Within hours, the microscopic zygote divides over and over to produce multiple cells. Over the period of about 5 days, the fertilised egg or embryo now made up of about 150 cells, makes its way to the uterus or womb.

At this point, if conditions are favourable, the embryo embeds itself in the lining of the womb and the female becomes pregnant.



10 Ways to Boost your Chances of Conception

Stop smoking

Tobacco smoking is long established as a general health hazard and has been shown to affect reproductive health in both men and women. Smoking has been linked to infertility and early menopause in women and sperm problems in men, as well as being a factor in premature or low birth-weight babies. Studies show that non-smoking couples were almost twice as likely to achieve a pregnancy as those where the male partner smoked more than 5 cigarettes per day.

Manage your weight

Women who are overweight or underweight tend to ovulate or release eggs less regularly, therefore maintaining an optimum body weight is important. The body mass index (BMI) is a measure of your weight in relation to your height. Women who maintain a BMI of 19-25 have the best chance of getting pregnant. If your BMI is over 25, you are classed as overweight, and if it is above 30, you are classed as obese.

In both these cases, you may find it harder to conceive.

Conversely, being significantly underweight (BMI under 18.5) can also disturb your menstrual cycle.

Eat a healthy diet

A balanced diet will help ensure a woman's body is healthy enough to conceive and nourish a developing baby. A healthy diet can also help to keep sperm production at optimum levels. Make sure that you eat five portions of fruit and vegetables per day. Eat carbohydrates – wholemeal bread and pasta. Lean meat, fish, eggs and pulses are good for protein. Green leafy vegetables are high in folic acid which can help to prevent birth defects. Avoid high sugar, high fat and highly processed foods.

Minimise stress

Take time out from your busy schedule to simply relax. Stress can have a negative impact on your relationship, your libido and your ability to conceive.

High levels of stress have also been shown to reduce the quality of sperm. To alleviate normal, work or family related stress, take weekend breaks, have a relaxing health spa treatment, or just arrange a time when you can chill out. Sometimes just talking about a problem can help to resolve it and reduce the associated stress.

Concern about fertility problems can also lead to increased stress. Be open in your relationship about your fears and concerns. Talk to your medical GP or visit a reputable IVF clinic and talk to the doctors there. Ignoring the problem will not make it go away. The sooner you begin to address it, the sooner you can take practical action to overcome it.

Exercise regularly

Walk, cycle, swim or run - 30 minutes of moderate exercise helps you to improve your fitness and to manage your weight. Exercise is also proven to decrease stress, as well as helping to improve your mood and your libido. Sperm count has been shown to be reduced in general, because people are much more sedentary than our forefathers.

Take supplements

It is recommended that all women trying for a baby should take 400mcg of folic acid a day to help protect against conditions such as Spina Bifida in the baby.

Zinc deficiency has been linked to a reduced sperm count and it is recommended that men take 30 milligrams of Zinc supplement twice daily. Selenium, Vitamin E and Folic Acid are also important supplements for the improvement of male sperm.

Drink sensibly

Heavy drinking can affect your fertility as well as posing a significant threat of miscarriage. Drinking alcohol can also affect the quality of a man's sperm.

Research shows that significantly reducing alcohol intake for both the man and woman can improve your chances of conceiving a healthy baby. If you are trying to conceive, you and your partner should reduce your alcohol consumption considerably. It is recommended that women limit their alcohol to 1-2 units once or twice a week. Men who consume more than 3 units of alcohol per day may damage their sperm.

Be drugs aware

Some prescription drugs can lessen your chances of conceiving, so if you are taking regular medication and want to try for a baby, talk to your GP about alternatives. So called 'recreational drugs', such as marijuana, cocaine or heroin, can cause miscarriage or damage to an unborn child as well as having a negative impact on your own health. All of these types of drugs should be avoided.

Be cool

Spermatogenesis (sperm production) takes place at a temperature slightly lower than body temperature. It has been shown that exposure to heat affects sperm quality. Therefore, regular hot baths, saunas and steam rooms should be avoided. So it may also help men to wear loose fitting underwear and trousers to avoid problems with overheating. Also, avoid placing your mobile phone in your trousers pocket.

Avoid toxins

Some occupations involve exposure to toxins, particularly organic solvents. These solvents may be present in paint, lacquers, adhesives, degreasers, printing inks and laboratory solvents. There is evidence to show that men who are regularly exposed to these solvents are likely to have reduced sperm count and quality. Take all appropriate safety precautions when handling solvents.

Nisha IVF Mind / Body programme

The yearning to have children is one of our most basic instincts and fundamental desires. Unanticipated difficulties conceiving can have a negative impact on everything from your outlook on life to your closest relationships.

At Nisha IVF, we want to do our best to ensure that our patients are as prepared as possible for the experience of fertility treatment, so that they find it significantly less stressful than they would otherwise.

A recent study showed that women who were the most anxious and depressed prior to their IVF treatment cycle were 93% less likely to conceive than the least distressed women. Other research has shown that women who participated in a stress management programme prior to or during IVF treatment had a 52% greater pregnancy rate than women who did not participate in the programme.

The Nisha IVF Mind/Body benefits those who wish to reduce stress and increase well-being, before or during their treatment. Couples and individuals can attend a one day Saturday programme which includes:

- CBT Therapy to replace unhelpful thinking patterns with more self-supportive ones
- Relaxation and mindfulness training
- Stress reduction techniques for alleviating symptoms of stress
- Dietary and nutrition advice

Our Mind / Body programme aims to improve your well-being by encouraging a positive focus on your overall health, relationship and emotional experience.

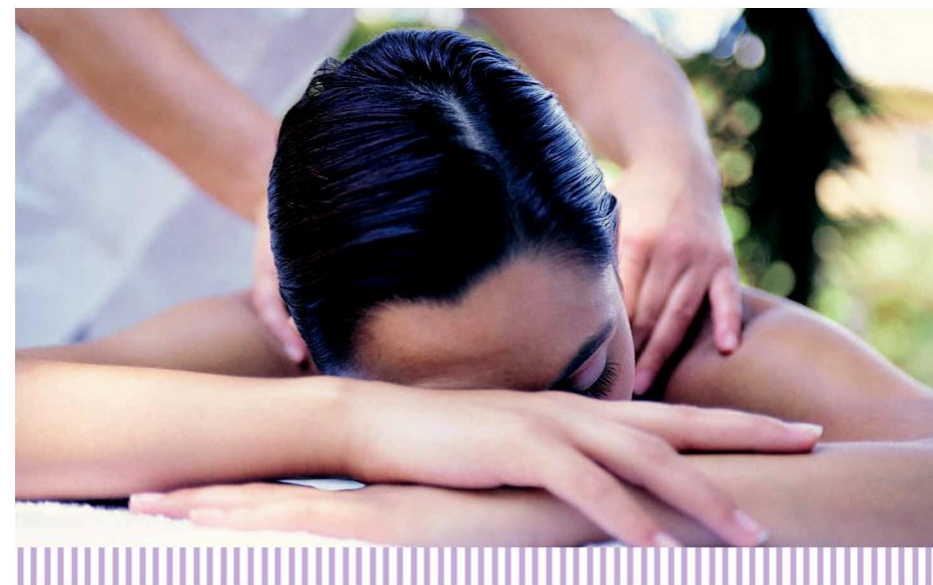
Counselling Support

We have a full-time resident counselling psychotherapist available to provide emotional and psychological support, particularly during any challenging times that may occur in your treatment process. Our fully and experienced therapist provides Cognitive Behavioural Therapy and Integrative Counselling sessions to individuals and couples who feel they may benefit from additional assistance before, during or after their treatment.

Cognitive Behavioural Therapy (CBT) is a form of time-based therapy that focuses on the relationship between our thinking, how this contributes to how we feel and our corresponding behaviour. CBT Sessions aim to establish more supportive ways of thinking, thereby improving feelings and creating a more self-enhancing approach to our difficulties. CBT is research based and guidance has been published by the National Institute of Health and Clinical Excellence on the effectiveness of CBT in treating a range of emotional problems.

Short-term counselling sessions are provided on a confidential basis and are appropriate to individual or couple requirements. CBT and Integrative therapy provide support to enhance interaction between couples, to change negative thinking or self-beliefs and to overcome or manage symptoms of stress or low-mood.

Please contact our counsellor directly if you wish to arrange an appointment



Nutrition to Boost your Fertility

While being over or underweight will have a physical impact on your chances of conception, research also suggests that eating the right foods has an impact on both male and female fertility.

Crucial nutrients such as zinc, iron and essential fatty acids, often lacking in today's diets are vital in the pre-conception period to optimise both egg and sperm quality and improve overall health.

You have a better chance of getting pregnant, if you eat a healthy, balanced diet and if you can combine that with a good exercise regime. Being under or overweight can cause problems with ovulation and may also cause complications in pregnancy.

We mentioned the importance of BMI at the beginning of this section. Why does being over or under weight have such a negative impact on fertility for men and women?

The two most common weight-related issues are excess oestrogen and polycystic ovaries (PCOS). There is also a greater chance of luteal phase defect (LPD).

Oestrogen. Fat cells are metabolically active, producing oestrogen and other hormones and affecting female hormone balance, sperm health and responses to certain fertility treatments. If you get too much oestrogen, your body reacts in a similar way to being on a contraceptive. Ovulation may be inhibited.

PCOS. Polycystic ovarian syndrome is an endocrine problem and it has a number of symptoms including irregular cycles, cysts in the ovaries, and heavy, painful periods. It is also characterised by a high LH-FSH ratio (>3:1). Excess weight can make PCOS symptoms worse.



Nutrition for Women

A healthy, balanced diet can help improve your fertility. The right sort of foods and nutrient supplements will overcome nutritional deficiencies, optimise egg quality and establish the optimum conditions for conception and implantation.

Remember that nutrients are important for a baby's development also. Your approach to nutrition will impact the long-term health and cognitive development of any child that you conceive.

Good nutrients for women planning to conceive include:

- Folic Acid - essential for the development of a healthy foetus and for reducing levels of homocysteine, which can contribute to the risk of miscarriage. Folic Acid is found in green leafy vegetables, lentils, cauliflower, broccoli, beans and peas.
- Vitamin C – an important antioxidant which helps protect DNA and can help support ovulation.

Good sources include brightly coloured fruit and vegetables, especially peppers, strawberries, kiwi fruit, tomatoes, watercress, and citrus fruits (orange, lemon, lime)

- Vitamin E – another important antioxidant which helps reduce oxidative damage and can help older women where the number of eggs produced is low. Food sources include eggs, whole grains, green leafy vegetables, avocados, oily fish, nuts
- Zinc – essential for foetal development. Zinc-rich foods include eggs, nuts, oily fish, seafood, lamb, apricots, whole grains
- Omega 3 Fatty Acids – sufficient levels help prevent blood clotting, especially important where this occurs in recurrent miscarriages. Omega 3 oils are also essential for the production of sex hormones and for foetal development. Good sources include oily fish, seeds, nuts and unrefined cold pressed oils.

Nutrition for Men

General health, weight and nutritional status can have a significant influence on sperm quality and quantity. With appropriate nutrients it is often possible to improve sperm count, morphology and motility in as little as 3 months.

Antioxidant nutrients can also play an important role in lowering elevated levels of sperm DNA fragmentation, thereby increasing chances of fertilisation, healthy blastocyst development and successful implantation and pregnancy.

Some nutrients for male fertility include:

- Zinc – plays a vital role in cell division. A zinc deficiency can cause a decrease in sperm count, seminal volume and testosterone levels. Good food sources of zinc include eggs, nuts, oily fish, seafood, lamb, apricots, whole grains
- Vitamin C – an important antioxidant which helps protect against free radical damage. Some research shows that appropriate levels of vitamin C can increase sperm count by up to a third
- Selenium – another important antioxidant known to help improve all sperm parameters. Good sources include herring, tuna, garlic, eggs, whole wheat, broccoli, carrots
- L-arginine and L-carnitine – amino acids which play an important role in sperm maturity and motility. These amino acids are found in protein foods especially meat, fish, eggs.

Nutrition to Boost your Fertility

- Drink 1 – 1.5 litres of water daily to remove toxins and help transport nutrients around your body.
- Eat a diet rich in vegetables and fruit – a minimum of 5 portions daily. Vegetables and fruit are rich in vitamins, minerals and antioxidants to help protect cells from free radical damage and improve fertility.
- Eat plenty of whole grains and pulses. Whole grains include oats, whole grain bread, brown rice and whole grain pasta. Pulses include chickpeas, kidney and other beans and lentils. These are rich in B Vitamins and other fertility-enhancing nutrients such as zinc and magnesium.
- Increase the amount of Omega 3 Fats in your diet, found in oily fish, nuts, seeds and eggs. These help prevent clotting, regulate hormones and are important for sperm production.

"...general health, weight and nutritional status can have a significant influence"

Part 2. Talking to the Experts

Making an Appointment

If you are concerned that you may have a problem conceiving a child, contact your GP or a reputable IVF clinic to have a chat about it. It is vital that you take action quickly so that you can identify any issues that need to be addressed.

To ensure that we have all the details that we need, to address your particular needs at the first consultation, you are asked to complete a comprehensive and confidential set of questions. This significantly improves your consultant's ability to get to deeply understand your concerns about infertility, at the first consultation. If you are unsure of the answers to some questions, don't worry. These questions can be covered more fully at consultation stage.

If you would like to talk to a Consultant at Nisha IVF, you can make an appointment online at www.nishaivf.com or call us on +91 99041 18989. Once you register online, you will receive a confidential call from us by telephone shortly after.

A First Nisha IVF Consultation

No obligations, just a listening ear

The normal procedure for a new patient attending Nisha IVF is to have an initial consultation with one of our doctors. Their role is to listen to your concerns and gain an understanding of the problems that you are experiencing. There is no obligation on you to go any further.

During a first consultation, the doctor will discuss your medical history with you and ask you a number of questions. It is useful to bring copies of any prior test results that you have had with you, including records of investigations and treatment summaries.

The doctor can then recommend the best options in terms of investigations, tests and potential treatments.

We encourage both partners to attend this first consultation as infertility is a shared condition and you will both want to be involved in all aspects of the decision making process. Consultation generally lasts an hour, which gives you the opportunity to ask questions and discuss your concerns with us.

Nisha IVF takes a proactive approach to fertility treatment

If you decide to go ahead with testing, you will meet with a fertility nurse who will explain each step of the testing or treatment that has been prescribed by the doctor. The nurse will also discuss and plan any blood tests or investigations that the doctor ordered. Many people referred to Nisha IVF have already undergone extensive infertility testing and treatment elsewhere. We will only repeat tests if it is essential.

We run your testing and your treatment plan in tandem, so that we waste no time in treating you for infertility issues. This is because we know that time is never on your side when it comes to fertility treatment. We can adapt the treatment plan if your tests suggest that we need to – but overall, you can be assured that we take a proactive approach to your treatment from the moment you become a patient at Sims IVF.

Your initial tests

Some of these initial tests may be carried out in-house by Nisha IVF. The following are relatively straightforward:

Anti-Müllerian Hormone or AMH testing has replaced traditional blood tests to ascertain key hormone levels. Individual testing for FSH (Follicle Stimulating Hormone) and LH (Luteinising Hormone) are no longer required.

We also conduct the following tests:

- Adhering to the EU Screening guidelines, we screen for infectious diseases and will test you and your partner for major illnesses such as HIV and Hepatitis B & C.

It is important to get a regular Cervical Smear test and this will be done, if a recent test is not available.

We use SIS (Saline Infusion Sonography) to identify the presence of hydrosalpinx (fluid in fallopian tube) or polyps, fibroids or adhesions which may impede implantation and should ideally be removed prior to treatment. We can arrange for patients to have a hysteroscopy, which is a very simple procedure to investigate further, if required.

Submucous fibroids in the uterine cavity may also affect implantation and it is usually recommended that these are removed surgically prior to treatment. Your doctor may refer you for further assessment if there are fibroids that need to be removed.

Consultants review

Following the initial tests or investigations, an appointment is made for you to speak with your consultant after one month. The doctor will present the results of the tests to you and will recommend a course of treatment for you including a medication regime.

Other investigations will need to identify physiological issues - such as the following in women:

- A woman may not be ovulating or releasing eggs at the right time. In other cases, the fallopian tubes can be blocked or damaged, and so eggs cannot be picked up and carried along the fallopian tubes to be fertilised.
- There can also be problems with the womb lining, which means that a fertilised egg is prevented from implanting successfully, perhaps due to an immune problem.

Advanced Infertility Testing

When you come to Nisha IVF, you can be tested for a number of conditions. Below is a synopsis of the fertility problems encountered by women and men that may be identified through testing.

Female fertility problems and testing

- Ovulatory Problems
- Reproductive immunology issues
- Polycystic Ovarian Syndrome (PCOS)
- Endometriosis
- Tubal Disease
- Anti-Müllerian Hormone (AMH)
- Genetic problems

"...Nisha IVF takes a proactive approach to fertility treatment"

Here are the more common female fertility problems in more detail:

Ovulatory Problems

Ovulatory problems are the most common cause of female infertility and occur due to hormonal imbalance. This imbalance may arise either within the hypothalamus, the pituitary gland or in the ovaries. Common causes of these problems include stress, excess weight loss or weight gain, excessive production of prolactin (the hormone that stimulates milk production in the breasts) and polycystic ovarian disease.

Reproductive Immunology Issues

In some cases, a positive response to IVF can be hampered by the immune system which doesn't recognise the newly-implanted embryo and attacks it. Auto-immune testing and treatment can significantly improve the chances of implantation, where reproductive immunology problems exist.

Sims IVF carries out two tests to identify auto-immune problems. One is a basic test to find out whether you have antibodies in your system that might hamper the conception and pregnancy process. The second checks for natural killers in the body that might have been over-stimulated at some point.

Polycystic Ovarian Syndrome

About 20% of women have polycystic ovaries (PCO). Many women with PCO have normal menstrual cycles and actually do not have a problem conceiving. However, some women have small follicles on their ovaries which get stuck at a certain stage of development before they can get to the stage of producing an egg. This condition is known as polycystic ovarian syndrome (PCOS). PCOS is due to a hormonal imbalance, especially a raised LH, with irregular or absent periods. PCOS can very often be caused by a high glycaemic diet as many PCOS patients are also insulin resistant. It can also cause increased hair growth on the face and body and inevitably - difficulty conceiving.



Symptoms of PCOS in women include irregular or no periods, often heavy and prolonged when they do arrive. The patient may be prone to being overweight and often craves mid-meal snacks, is often tired and may also complain of pelvic pain.

Treatment usually involves a practical diet and if required, the use of drugs to correct the hormonal imbalance and to stimulate ovulation. If a woman is overweight then losing excess weight, exercising and changing to a low glycaemic diet may help to improve the hormone imbalance. Medication is used to increase sensitivity to insulin and the most widely used is Metformin.

Alternatively, a laparoscopic polycystic ovarian drill, which involves putting a telescope into the tummy and inserting a needle into the ovary to disrupt it and trigger ovulation, may be performed.

Patients with PCOS are often successfully treated, though there can be the complication of either over or under stimulation of the ovaries, which has to be carefully managed by an experienced and reputable consultant.

Endometriosis

Endometriosis is a condition that commonly affects women during their reproductive years. It occurs when endometrial cells, which are normally found only inside the womb, are found outside the uterine cavity. Some women with Endometriosis are without symptoms, but others suffer painful periods and pain during intercourse.

Endometriosis can appear as spots or patches called implants or as cysts on the ovaries and in severe cases can affect surrounding tissue causing adhesions or scar tissue. Unlike the lining of the uterus, endometrial tissue located outside the womb is trapped and does not have a way to leave the body. This can cause inflammation near the implants and if nerve tissue is affected, pelvic pain may result.

The diagnosis of Endometriosis cannot be made from symptoms alone as some women have no symptoms as there may be other reasons for pelvic pain.

Surgery or Laparoscopy is the only definitive way to diagnose endometriosis. Laparoscopy allows direct visualisation and ideally biopsy of areas suspected of being endometriosis. It is carried out by inserting a small telescope through an incision close to the naval.

Endometriosis can be managed quite simply and IVF is an appropriate treatment for associated infertility where other methods have failed.

During a laparoscopy, the surgeon can also clarify if the tubes are open. This is where liquid is flushed through the neck of the womb. This flushing with liquid is similar to Saline Infusion Hysterosonography which is carried out on all female patients pre-IVF at Nisha IVF.

Many women who have Endometriosis can conceive without any difficulty however some women do have difficulty getting pregnant. IVF is an appropriate treatment for infertility associated with Endometriosis where other methods have failed.

Tubal Disease

Tubal factor infertility accounts for up to one quarter of all infertility cases. This includes cases where both the fallopian tubes are blocked, or one is blocked, or one or both are scarred. It is usually caused by pelvic infection as a result of pelvic inflammatory disease (PID) or appendicitis, by pelvic Endometriosis, or by scar tissue that forms after pelvic surgery.

In cases of relatively minor tubal damage it can be difficult to be certain if it is solely responsible for the infertility or one of a number of contributing causes. From a practical point of view, the presumptive diagnosis is due to tubal factors unless the degree of scarring is very minimal. In this event, and if no other cause of infertility is found, then a diagnosis of unexplained infertility may be warranted.

The diagnosis can be made in a number of ways. Your doctor may suggest a laparoscopy and hydrotubation. A camera is placed through your belly button to inspect the pelvis. This is especially useful if other features are present including pain which might suggest Endometriosis. Dye is passed through the tubes and the blockage or swelling can then be confirmed. The most common cause of blocked tubes is infection.

A less invasive test still carried out in some hospitals is called a hysterosalpingogram. It is a useful test but is being superseded in many parts of the world by HyCoSy or saline sonography. These do not require X-Ray technology but rather vaginal ultrasound similar to being monitored for fertility treatment. HyCoSy uses a special contrast dye while the saline test uses sterile salty water (saline).

Anti-Müllerian Hormone (AMH)

Knowledge of how you will respond to hormone injections during an IVF treatment cycle is a very important part of fertility treatment. Depending on your own individual characteristics, you may fall into the extremes of response - an excessive response or an inadequate response. A recently developed test allows us to modify our approach, resulting in a reduced incidence of both of these extremes.

It has now been established that the hormone AMH, which is made by the ovarian follicle containing the egg, can accurately predict how your ovaries will respond to fertility drugs. This is sometimes called the ovarian reserve. Armed with this information, your consultant can make better decisions from the outset as to how to best proceed with your assisted reproduction cycle.

AMH involves a single blood test which can be performed at any stage in the menstrual cycle. At the Sims IVF, we can analyse your AMH levels in our own dedicated laboratory. Other relevant hormones may be measured in parallel with AMH, these are thyroid stimulation hormone (TSH) and Prolactin. Together these are known as the AMH profile.

Male Fertility Problems

Male infertility occurs when a man does not produce enough sperm, known as a low sperm count, or the sperm are not of a sufficiently high quality to fertilise the egg.

It is also possible that there are problems with the tubes that carry sperm resulting in no sperm in the ejaculate (azoospermia). A man may also find it difficult to get an erection, or have trouble ejaculating, therefore, sperm may not reach his partner's vagina.

Semen Analysis

Abnormalities in semen production can cause male fertility problems. The initial screening for men is a semen analysis. A normal assessment should show a sperm count of more than 20 million sperm per ml with at least 50% of the sperm actively motile and more than 35% of the sperm with a normal shape.

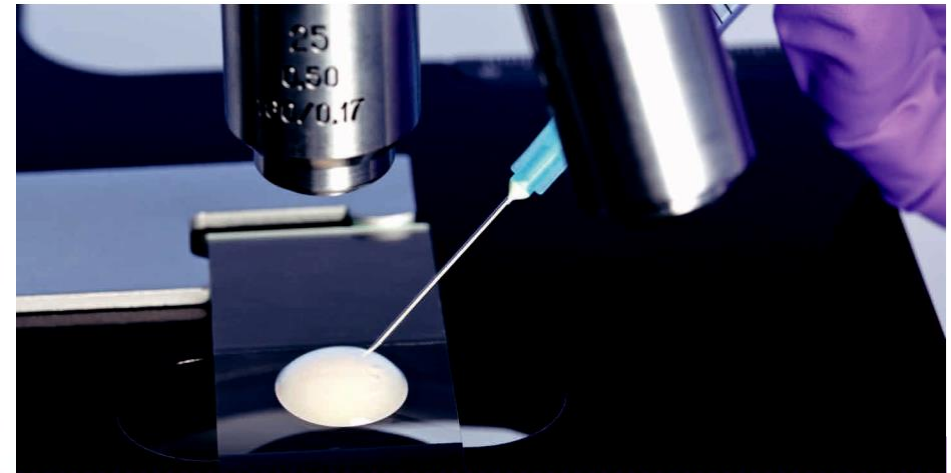
The sperm should be able to survive in the female genital tract for a period of 24-48 hours so that they are able to reach the site of fertilisation in the fallopian tubes.

Abnormalities in the semen are primarily due to a defect in sperm production by the testicles. The cause of this is usually unknown but may be associated with previous infections or surgery including undescended testis or hernia. Abnormalities may also be caused by excessive drinking.

Certain drugs, radiation and radiotherapy may have a detrimental effect on the production of the sperm. The presence of a varicocele, a condition where there is an increase in the blood flow around the testicles due to dilated veins, may lead to a rise in the temperature around the testicles, which may adversely affect sperm production and motility.

Physiological Issues

Absence of sperm in the ejaculate (azoospermia) may be due to an obstruction at the level of the vas deferens, epididymis, or even at the level of the testes. It may also be due to bilateral congenital absence of the vas. Some men may have testicular failure which is failure of production of the spermatozoa. This may be the result of a chromosomal disorder or previous infections such as mumps. It may also be associated with the history of failure of descent of the testes into the scrotum. On rare occasions there may be anti-sperm antibodies in the semen which impair their motility. This may occur following a reversal of a vasectomy or other surgery on the male genitals and may also be related to previous infections or injury. Your semen sample will be tested for sperm antibodies during the analysis.



ICSI

Until recently, there has been no effective treatment for male infertility. Drugs have rarely improved sperm counts. However, since the introduction of micro manipulative techniques, in particular Intracytoplasmic Sperm Injection (ICSI), the success rates for couples with male problems have markedly improved.

ICSI bypasses the natural process involved in a sperm penetrating an egg and is therefore used when there are problems that make it difficult to achieve fertilisation naturally or with conventional IVF.

Sperm DNA fragmentation testing

Sperm DNA is packaged by nature in a different way compared to that of other cells in the body. In sperm cells, DNA is arranged in very tight organised loops so that it can be carried safely to its final destination - the egg.

Semen protects sperm from several hazards along the journey. DNA fragmentation occurs when particular reactive oxygen species damage the sperm DNA.

If damaged sperm is accepted into an egg for fertilisation, poor quality embryos or miscarriage can result.

There is a test that can assess this problem. The sperm chromatin structure assay (SCSA) can measure a DNA fragmentation index (DFI). This test may reveal high susceptibility toward DNA damage or actual DNA fragmentation already present in the sperm. Sims IVF can conduct this test as a matter of routine.

Treatment includes maintaining appropriate temperature for the scrotum, giving up smoking, reducing your weight and ensuring that any medication that you are on does not cause DNA fragmentation.

Genetic testing

In cases of severe deficit in semen quality or non-obstructive azoospermia, genetic testing should be considered and is available at Sims IVF.

Part 3. Infertility Treatments and Supports

Not every clinic provides the same infertility treatment. It is important to choose a clinic that employs the latest technology, testing and treatments. Do your research and become familiar with the types of treatments that are available.

The Treatments that you Need

Here are the types of treatments that you should expect from a top IVF clinic in Ireland.

- Reproductive Immunology
- Ovulation induction and cycle monitoring
- Intra-uterine Insemination (IUI) – using partner's sperm or donor sperm
- In Vitro Fertilisation (IVF)
- Intracytoplasmic Sperm injection (ICSI)
- Intracytoplasmic Morphologically-Selected Sperm Injection (IMSI)
- Surgical sperm retrieval (TESE)
- Assisted Hatching
- Blastocyst Culture and Transfer
- Egg Freezing
- Semen freezing
- Embryo Freezing and replacement
- Egg Donation
- Donor sperm

IMPORTANT

Ovarian Hyperstimulation Syndrome (OHSS)

While receiving fertility injections, some women experience abdominal bloating, breast tenderness, increase in vaginal secretions and some abdominal discomfort may be noted. The majority of women do not experience any effects, but if they do they are usually short lived and will cease when the treatment is finished. In a few cases some patients will over-respond to the fertility injections and produce too many follicles.

If this happens and treatment is continued there is a risk of developing Ovarian Hyperstimulation Syndrome (OHSS). This is a complication of ovarian stimulation arising in approximately 5% of women undergoing fertility treatment. OHSS causes fluid in the abdomen. It is due to over sensitivity of certain women's ovaries to the fertility drugs and is more frequently associated with women who suffer from polycystic ovarian disease and / or women who are thin and young.

However, anyone can experience OHSS and it can be extremely serious if left untreated. You will be asked by your consultant to watch out for certain signs and to report immediately, if you do encounter any symptoms of OHSS.

This is a review of each of the treatments in more detail:

Reproductive Immunology

Treatment for reproductive immunology is very much in its infancy. It has been clearly shown that a woman who has persistent miscarriage with antiphospholipid antibodies (aPLs) can dramatically improve their live-birth rate if they are given blood thinners with aspirin and heparin injections.

If natural killer cells are identified which significantly reduce the chances of conception, then there are three interventions that can be used to help the body to accept the sperm and the implantation in the womb – these include steroid, intralipid infusions and IVIg.

Treatment for reproductive immunology is far from an exact science. However, it does help to eliminate possibilities and its success rates for those with recurrent miscarriages have proven to be worthwhile.

Ovulation Induction and Cycle Monitoring

Ovulation induction involves the use of medications to stimulate the development of one or more mature follicles in a woman's ovaries. Women that have irregular cycles or anovulation (do not ovulate) may be treated by this means as they do not regularly develop mature follicles themselves.

Pelvic ultrasound scans are used to access the endometrium (lining of the womb) and to determine how the follicles are developing. Blood tests may also be carried out to measure hormone levels and help to determine when a woman is most likely to ovulate, at a woman's most fertile time. Ovulation induction cycles are followed by a HCG injection to induce ovulation. Timed sexual intercourse can then take place or Intrauterine Insemination at a given period of time.

The side effects involved in ovulation induction include bloatedness, lower abdominal discomfort, headaches and fatigue. Careful monitoring removes the risk of multiple births by advising the patient to abstain from sexual intercourse where indicated.

Intra-uterine Insemination (IUI) – using partner's sperm or donor sperm

IUI involves the injection of a sample of prepared sperm from the husband or partner (IUI-H) into the woman's uterine cavity around the time of ovulation.

Who is IUI suitable for?

IUI is recommended only if the woman has healthy fallopian tubes, preferably confirmed laparoscopically, and if the man's semen analysis is normal. It may be useful for women who have cervical mucus hostility and in some cases of unexplained infertility.

What does IUI involve?

The chance of success with IUI is enhanced if insemination is combined with ovulation induction using small doses of fertility drugs. These are taken by the woman, and the development of the follicles on the ovary is monitored with ultrasound. The insemination is timed to take place 36-40 hours after administration of another hormone injection which triggers ovulation.

On the day of the planned insemination, the partner provides a semen sample. A concentrated preparation of motile sperm is extracted from the semen sample in the laboratory. The sperm preparation is placed into the uterine cavity by the doctor / IVF nurse by means of a fine catheter inserted through the cervix. In general IUI is a painless procedure, which takes only a few minutes.

IUI using donor sperm?

IUI is also sometimes carried out using the sperm of an anonymous donor (IUI-D) in couples where there is a significant male factor involved.

Is IUI successful?

Yes, for some couples, IUI is a very effective form of treatment provided that the man's sperm and the woman's tubes are healthy. Please refer to our website www.sims.ie for more information on results.

In Vitro Fertilisation (IVF)

The term In Vitro Fertilisation (IVF) literally means fertilisation 'in glass' and it refers to the process where a woman's eggs are fertilised outside of her body in the laboratory. The resulting embryos are then transferred back into the uterus a few days later.

Who benefits from IVF?

IVF is specifically recommended for women with absent, blocked or damaged fallopian tubes. It is also often used in cases of unexplained infertility and can be used in combination with ICSI (intracytoplasmic sperm injection) in cases of severe male factor infertility. ICSI is a variant of IVF and is where single live sperms are injected directly into oocytes (ripe eggs).

There are four steps involved in the IVF cycle:

- Stimulation of the ovaries to encourage development and maturation of the eggs
- Retrieval of the eggs
- Fertilisation of the eggs and culture of the embryos
- Transfer of the embryos back into the uterus

These steps are described more fully here:

Stimulation of the ovaries to encourage development and maturation of the eggs

Under the care of a consultant gynaecologist, the woman is given fertility medications to stimulate her ovaries to produce many follicles. Follicles are the small fluid filled structures which develop on the ovaries, each of which will hopefully contain an egg. The number and size of the developing follicles is measured by trans-vaginal ultrasound scans. The exact number of follicles which develop varies between patients, but the average is about 10. The final preparation for egg retrieval involves a hormone injection which mimics the natural trigger for ovulation. Egg retrieval will take place 36-38 hours after this injection

Retrieval of the eggs

Egg retrieval is a minor theatre procedure which is carried out on an outpatient basis under local anaesthesia. The trans-vaginal ultrasound probe is used to visualise the ovaries and a needle attached to the probe is passed through the vaginal wall into the follicles. The fluid within each follicle is aspirated and then examined in the IVF laboratory for the presence of an egg. After identification, the eggs are washed and transferred into special culture medium in Petri dishes in an incubator.

Fertilisation of the eggs and culture of the embryos

While the egg retrieval is proceeding, the sperm is also prepared. A semen sample is provided by the male partner and, in the laboratory, a concentrated preparation of the best motile sperm is extracted from the semen sample. This sperm preparation (containing approximately 150,000 sperm) is added to the dishes containing the eggs, and they are incubated together overnight.



In some couples an alternative form of insemination is required called ICSI, which involves injecting a single sperm into each egg using a very fine needle, rather than mixing the eggs and sperm in a dish.

Irrespective of the method of insemination used, on the morning after egg retrieval, the eggs are examined to see which have fertilised.

Fertilised eggs (zygotes) are then routinely cultured in the IVF laboratory until day 3, at which time the best 1-3 embryos are selected and transferred back into the woman's uterus. For some patients, a blastocyst cycle may be recommended, in which case embryo culture is extended to day 5.

Any additional embryos that are not transferred on either day 3 or day 5 will be frozen for future use.

Embryo Transfer

Embryo transfer is a simple theatre procedure that does not routinely require anaesthesia.

The embryos are placed into the uterine cavity by the doctor / IVF nurse by means of a fine catheter inserted through the cervix. The correct positioning of the embryos is confirmed by abdominal ultrasound, so the woman is required to have a full bladder for the procedure.

How successful is IVF?

Please refer to our website www.sims.ie for information on results.

Early Embryo Viability Assessment Test (Eeva™)

Eeva was designed to non-invasively and safely identify viable embryos at an early stage.

Eeva is an innovative imaging diagnostic system used by IVF laboratories to analyse early embryo development. At the heart of Eeva is intelligent software that reliably and consistently assesses critical and subtle differences in early embryo cell divisions to determine an embryo's viability and the potential for further development.

The Eeva test was developed based on landmark research conducted at Stanford University, in the United States, which discovered that early cell division timings are an accurate predictor of viability and underlying health of the embryo.

Eeva's real-time insights produce objective information with the goal of helping you to achieve a successful pregnancy.

Eeva is exclusively available from Sims IVF in Ireland.

Intracytoplasmic Sperm Injection (ICSI)

ICSI is very similar to conventional IVF in that gametes (eggs and sperm) are collected from each partner. The difference between the two procedures is the method of achieving fertilisation.

In conventional IVF, the eggs and sperm are mixed together in a dish and the sperm fertilises the egg 'naturally'. However to have a chance that this will occur, large numbers of actively swimming normal sperm are required. For many couples, the number of suitable sperm available may be very limited or there may be other factors preventing fertilisation, so conventional IVF is not an option. ICSI has provided a hope for these couples.

ICSI refers to the laboratory procedure where a single sperm is picked up with a fine glass needle and is injected directly into each egg. This is carried out in the laboratory by experienced embryologists using specialist equipment. Very few sperm are required and the ability of the sperm to penetrate the egg is no longer important as this has been assisted by the ICSI technique. ICSI does not guarantee that fertilisation will occur as the normal cellular events of fertilisation still need to occur once the sperm has been placed in the egg.

Who is ICSI suitable for?

From a patient perspective, undergoing an ICSI treatment cycle is exactly the same as a conventional IVF cycle, and the same steps are involved.

Circumstances in which ICSI may be appropriate include:

- When the sperm count is very low
- When the sperm cannot move properly or are in other ways abnormal
- When sperm has been retrieved surgically from the epididymis or the testes (TESE), from urine or following electro-ejaculation
- When there are high levels of antibodies in the semen
- When there has been a previous fertilisation failure using conventional IVF

What does ICSI involve?

From a patient perspective, undergoing an ICSI treatment cycle is exactly the same as a conventional IVF cycle. Patients should however be aware of the risks associated with ICSI.

- Stimulation of the ovaries to encourage development and maturation of the eggs
- Retrieval of the eggs
- Fertilisation of the eggs and culture of the embryos
- Transfer of the embryos back into the uterus

These steps are described more fully under IVF on page 20.

How successful is ICSI?

Please refer to our website www.sims.ie for more information on results.

Intracytoplasmic Morphologically-Selected Sperm Injection (IMSI)

IMSI is a new technique that allows a better selection of the sperm that is going to be micro-injected. It uses ultra-high magnification to allow greater visualisation of the structure of the sperm. IMSI is suitable for patients with recurrent miscarriage or those where sperm morphology is particularly poor

TESE Sperm retrieval

What is TESE?

TESE is a surgical sperm retrieval procedure used in fertility treatment for men who have no sperm in their ejaculate.

Who is TESE suitable for?

TESE is used for men with both obstructive and non-obstructive azoospermia. These men have no sperm in their ejaculate because either there is a blockage in the route between the site of sperm production (the testes) and ejaculation or because there is a partial or complete failure in sperm production in the testes.

What does TESE involve?

Under the care of a consultant urologist, TESE is a minor theatre procedure carried out on an outpatient basis under local anaesthesia. Sperm are retrieved from the testes and can be used to achieve fertilisation of eggs in the laboratory. However, because the numbers of sperm retrieved are often very low, it is necessary to combine TESE with ICSI.

When is TESE carried out?

In consultation with the urologist, the doctor may advise that TESE is carried out

in advance of any fertility treatment to confirm that sperm production is occurring. If suitable numbers of sperm are identified on this occasion, it is sometimes possible to freeze the testicular extract and to thaw and use this sample for subsequent treatment. More commonly however, once it has been confirmed that sperm production is occurring, the TESE procedure is repeated on the day of the egg retrieval and the fresh sample used for ICSI. Again, providing that there are suitable numbers of sperm present, the sample can sometimes be frozen for use in future treatment cycles.

Assisted Hatching

For the first 5 to 7 days of development, the embryo is surrounded and protected by an outer shell called the zona pellucida. In normal circumstances, when the embryo reaches the uterus, this zona partially dissolves and the embryo 'hatches' out, allowing it to implant in the uterus.

In some patients it is thought that infertility may be caused by a hardening of the zona, which makes it difficult for the embryo to hatch and implant.

Assisted hatching is a laboratory micromanipulation technique carried out before the embryos are replaced in the uterus that helps the embryo to hatch from the zona.

What does assisted hatching involve?

Assisted hatching is carried out in the laboratory by experienced embryologists. Using a very high powered microscope, a small slit is made in the zona using a very fine needle or laser. Assisted hatching is carried out before the embryo transfer on those embryos that have been chosen for transfer.

Once it is returned to the uterus, the embryo can hatch through this opening and implant naturally.

Who is assisted hatching suitable for?

- Assisted hatching is generally recommended in the following circumstances:
- The woman is aged 35 years or older
- The woman has high FSH levels
- Couples who have failed to get pregnant following previous IVF cycles
- Couples where a distinct thickening of the zona is noted by the embryologist
- Frozen embryo replacements

Embryo Grading

After insemination by IVF or ICSI, fertilised eggs are then routinely cultured in the laboratory for 3 days before being transferred back into the woman's uterus.

Before embryo transfer, the embryos are graded by a specially trained embryologist in order to select the embryos with the best chance of implanting in the uterus and forming a healthy baby.

The main criteria used to grade embryos on day 3 are:

The number of cells which the embryo has.

Embryos showing good development will generally have 6 to 8 cells after 3 days of growth. Embryos with fewer cells may still be good, but they are less likely to continue normal development.

The amount of 'fragmentation' that the embryos show.

Fragmentation describes the way that cells of an embryo split off into fragments. A small amount of fragmentation is normal, but excessive fragmentation suggests that the embryo will have a lower chance of continuing normal development.

Blastocyst Culture and Transfer

What is a blastocyst?

The term 'blastocyst' refers to the human embryo 5 - 6 days after fertilisation.

It is the stage of development that the embryo must reach before it can implant in the uterus.

The structure of the blastocyst is more complex than earlier embryo stages because as well as increasing in cell number, the cells have become organised into 2 types, the trophectoderm, whose main role is in the implantation into the uterine lining and the inner cell mass which will give rise to the foetus itself.

The diagram on the opposite page shows blastocyst formation in the female body.

The egg is fertilised following ovulation from the ovary and the embryo goes on to divide (cleave) as it travels along the fallopian tube. Blastocyst formation occurs as the embryo reaches the uterus.

What's so special about blastocyst culture in an IVF setting?

Standard practice in IVF involves the replacement of embryos into the uterus after 3 days when the embryos are at the cleavage

stage of development.

Blastocyst transfer however involves extending the period that the embryos are cultured in the laboratory to 5 or 6 days.

Why extend the time that the embryos are cultured in the laboratory?

It is known that a lot of embryos are destined to arrest at early stages so extended culture allows the embryologist to identify which (if any) of a group of embryos have the best potential for implantation by identifying those which form a normal blastocyst in culture.

Transferring embryos at the blastocyst stage also provides a better co-ordination between the embryo and the uterus by putting the embryo back in the right place (the uterus) at the right time (blastocyst stage).

What are the benefits of blastocyst culture?

Overall, if you have a normal blastocyst for transfer on day 5, the chances of pregnancy are higher (in our hands) than if you have embryos transferred on day 3.

However, the chances of having no embryos for transfer at all are also higher.

Who is blastocyst culture appropriate for?

IVF has not worked for me before. Should I try blastocyst culture?

The short answer is yes. If your IVF did not work despite the fact that you had embryos for replacement on day 2 or 3, blastocyst culture should help us determine whether in fact your embryos develop beyond day 3 at all (even very good quality day 3 embryos may not form blastocysts) and if so, which of those embryos would be the best ones to transfer.

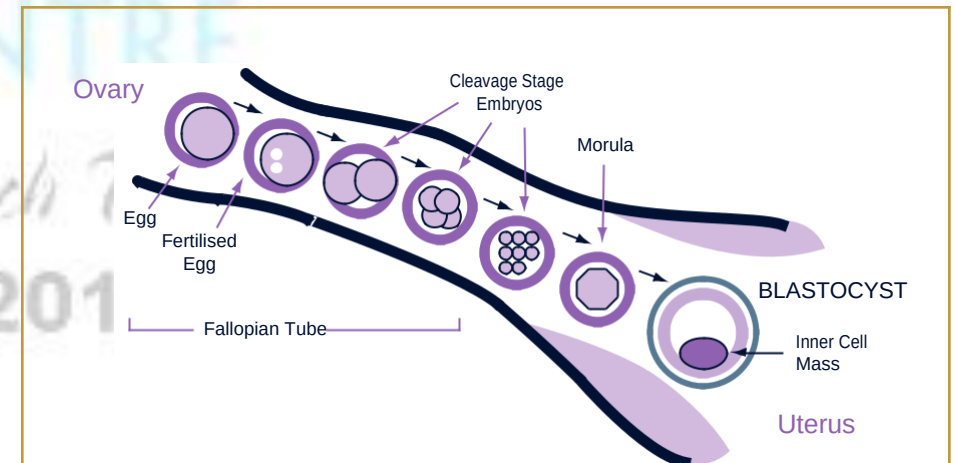
Are there any benefits in younger patients in whom IVF is likely to work anyway?

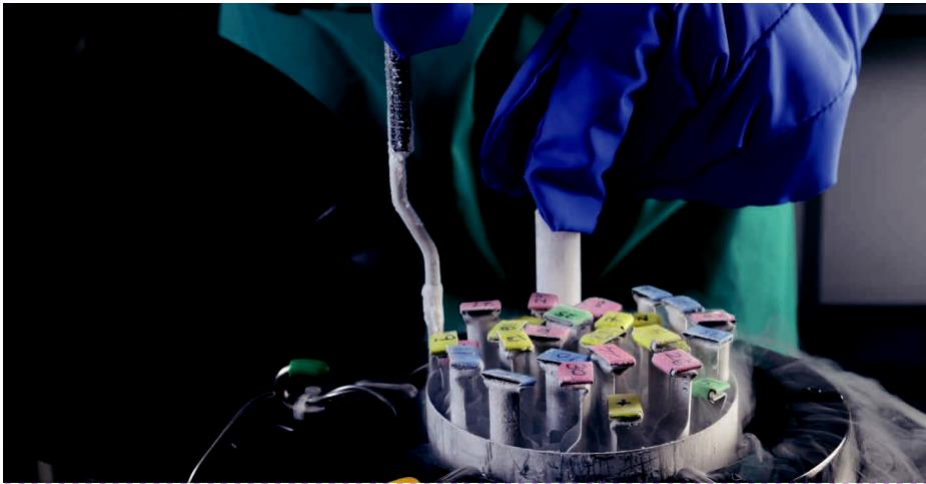
As blastocyst culture can help to determine which embryos have the best chance of being able to implant, we can potentially reduce the number of embryos that we replace into the uterus and thereby reduce the risk of a multiple pregnancy. In women under 35, without female factor infertility, we can therefore offer single embryo transfer and significantly reduce the risk of both twins and higher order multiple pregnancies - triplets and quads.

Is there any benefit for patients over 37?

Yes. We can avoid the need to transfer 3 embryos on day 3, by transferring 2 blastocysts on day 5. The small risk of triplets can be minimised without affecting the pregnancy rate.

- 78% of those couples had blastocysts for transfer.
- 42% of those patients achieved an ongoing pregnancy.





Blastocyst culture has become a very valuable tool in our treatment armoury. The information that can be gained by attempting to develop a blastocyst gives us tremendous insight into your fertility issues.

However:

- The extra culture time required adds to both the financial and emotional cost of treatment – many couples find the wait over this period very difficult.
- It is possible that you may not have an embryo transfer at all – about 20% of the patients we have treated to date with blastocyst culture have not reached embryo transfer.
- It is less likely that there will be 'spare' embryos available for freezing.
- There is a slightly increased risk of identical twins reported in the literature associated with blastocyst culture.

Semen freezing

Semen freezing is useful for the man who finds it difficult to ejaculate on demand and where it may result in an inability to produce a sample on the day of egg collection. However, the quality of the semen is reduced after freezing, so if possible fresh samples are preferred on the day required.

Embryo Freezing and replacement

In a typical IVF or ICSI treatment cycle, the woman's ovaries are stimulated to produce many eggs. Following fertilisation and embryo culture, the best embryos are selected for embryo transfer. For about 50% of couples, there will also be good embryos which are surplus to those required for embryo transfer. These embryos can be frozen at this point for future use.

Embryo freezing (cryopreservation) is a method of preserving the viability of embryos by carefully cooling them to very low temperatures (-196°C). This is carried out in the laboratory using specialised freezing equipment and the embryos can then be safely stored in liquid nitrogen for extended periods.

What are the benefits of embryo freezing?

The main benefit of embryo freezing is the option to have frozen embryos thawed and transferred to the woman's uterus in the future without having to undergo stimulation of the ovaries or egg retrieval. It is also possible that there may be enough frozen embryos for more than one subsequent cycle.

What does a frozen embryo transfer cycle actually involve?

Frozen embryo transfer cycles are relatively simple. In some cases, the woman's natural cycle will be monitored by ultrasound to assess the development of the lining of the uterus and to determine the timing of ovulation and hence embryo transfer. In other cases, depending on the woman's history a more hormonally controlled cycle may be warranted. The decision regarding the most appropriate treatment will be made in consultation with the clinician.

Are there any disadvantages to embryo freezing?

Approximately 70% of the embryos that are frozen will survive the thawing process. This does however vary between patients and it is possible that none of a couple's embryos will survive the freezing and thawing process.

How successful are cycles involving the transfer of frozen / thawed embryos?

Overall, frozen embryos have a slightly lower chance of implanting than fresh embryos. This is mainly because in general the best embryos in a group will already have been transferred on the fresh embryo transfer.

Egg Donation Programme

Simply Egg Donation offers less information and choice when it comes to the egg donor. The egg donor is selected for the patient and a basic profile of the donor is made available to the patient for approval.

The Egg Donation Select programme offers more choice. All donors have proven fertility and already have children. The couple get to select a donor from a panel of donors and they get extended profiles including childhood photos of the donor, if required, as well as detailed profile information.

When is Egg Donation an Option?

Our Egg Donation Programmes are an option for women who have:

- Primary ovarian failure
- Premature menopause (before the age of 40)
- Ovarian damage following surgery, radiation or chemotherapy
- An inheritable genetic disorder like haemophilia
- Repeated failure to respond to ovarian stimulation in an IVF programme
- History of recurrent miscarriage.

Women who do not produce eggs or those with poor quality eggs may be advised to seek treatment with donated eggs. Our standard policy is to offer donation to women less than 50 years of age.

Egg donation has become an increasingly popular option because it has higher success rates than IVF cycles using the woman's own eggs. Egg donation also allows for strong biological and developmental relationships within the family because donor eggs are fertilised with the male partner's own sperm through ICSI, matured to the embryonic stage and then placed in the partner's uterus, providing her with the same experience of pregnancy as natural conception.

About the Donors

Potential egg donors come forward voluntarily because of a desire to help others. There is no incentive other than compensation for expense, time, inconvenience and risks involved in the procedure.

Egg donors must be fit and healthy and between the ages of 18 and 35 years, unless there are exceptional circumstances such as known donation. They must have proven fertility.

The donors are screened for problems relating to family health history and for transmissible infectious diseases and have consented to their eggs being donated. Each donor goes through a triple testing regime.

How Donor Eggs are Collected and Transferred

Eggs are collected by the means of vaginal ultrasound guided aspiration of ovarian follicles. This involves the introduction of a specially designed needle through the vaginal wall under local anaesthesia and intravenous sedation.

All of the eggs are inseminated with the sperm from the Partner. If fertilisation takes place, all of the fertilised eggs or zygotes are cryopreserved.

The zygotes are then brought to Nisha IVF to be thawed and grown for between 4 and 5 days after which the embryo(s) are either placed into the uterus of the female recipient or they are cryopreserved for her future use, or both.



Choosing your Egg Donor

As a recipient, you can choose your donor from a pool of donors. All donors profiled have their own children and so have proven fertility. The eggs that are donated for your particular cycle are exclusively reserved for you as the recipient.

All treatment is confidential. When you, as an individual or part of a couple, receive the eggs, you will not have access to the identity of person who donated those eggs. It is, however, a statutory requirement that the names of all donors and recipients are recorded and held by Nisha IVF. The names are not available to either party.

"Delivering the First Touch To Happiness"
ISO 9001 : 2015

Nisha Mind / Body programme integrates both Mind and Body therapy to help you to achieve the optimal experience and success from your fertility treatment with us.

Our Mind / Body programme aims to improve your well-being by encouraging a positive focus on your overall health, relationship and emotional experience.

The Nisha IVF Mind / Body programme includes:

- CBT Therapy to replace unhelpful thinking patterns with more self-supportive ones
- Relaxation and mindfulness training
- Stress reduction techniques for alleviating symptoms of stress
- Dietary and nutritional advice.

The Programme also includes a range of Complementary Health supports including:

- Acupuncture specific to infertility care
- Yoga to enhance well-being.

Counselling Support

We have a full-time resident counselling psychotherapist available to provide emotional and psychological support, particularly during any challenging times that may occur in your treatment process. Our fully accredited (IACP and BACP) and experienced therapist provides Cognitive Behavioural Therapy and Integrative

Counselling sessions to individuals and couples who feel they may benefit from additional assistance before, during or after their treatment.

We also have a number of clinics each month to help those who need them to focus on and address issues such as nutrition and diet, psycho-sexual problems, and stress.

Medications and Specialist Pharmacies

Once you have agreed to initiate treatment, you will be given a prescription for medications. We recommend that you procure your medication from specialist pharmacies with specific training and expertise in IVF and fertility medication. Nisha IVF can provide you with a list of these.

Research carried out recently clearly shows that dealing with a pharmacy that is experienced in the area of prescribed fertility medication can assist in the success of the treatment. The reasons for this are simple: a pharmacy that is well briefed on the types and stock levels of medication required, the issues involved and the back-up service needed for patients will deliver a better service to our patients.

This means that you as a patient experience far less stress than if you are dealing with a pharmacy that doesn't have all the medication you require, in stock, on time. Or if they cannot provide the necessary guidance to ensure that you are clear on when and how to take your various medications.



This is important for patient safety and also to make sure that your medication is available to you when you need it. Of course, patients may use a pharmacy of choice unless the consultant specifically recommends otherwise for professional reasons.

We can also give you names of pharmacies that provide a 24/7 service to support your needs.

Working with your Medical Specialists

Where patients have health issues or specific medical conditions, Nisha IVF is experienced in working closely with endocrinologists and other specialist doctors.

Drugs Payment Scheme

If you are an Irish resident, fertility medications may be covered under the DPS (Drug Payment Scheme).

To qualify for the scheme and to get the latest updates on your entitlements, you can apply to the HSE. Forms are available from any pharmacy.

Private Health Insurance

Some of the major healthcare providers cover aspects of fertility treatment. It is possible that they may cover consultations and / or some investigations or tests. For more information, contact your health insurance company directly.

Part 4. Results



New Beginnings Happen Every Day at Nisha IVF

Infertility treatment has delivered thousands of new babies to couples all over the world. It is important that you choose a clinic that has proven results, excellent reputation and the most up to date fertility testing and treatment.

Recent research conducted by the European Society for Human Reproduction and Embryology states that 30.1% of those who go for IVF in Ireland achieve a clinical pregnancy.* Sims IVF achieves over 40% clinical pregnancies for patients.

*Based on IVF data reported from the European Society of Human Reproduction and Embryology, published in 'Human Reproduction' 2009; 24:1267-87, Oxford University Press.

IVF programmes do not always use the same criteria to report results. It is important to understand exactly what the numbers mean when looking at percentages.

Biochemical Pregnancy: Positive home pregnancy (urine hCG) on day 16.

Clinical Pregnancy: An ultrasound confirmed pregnancy with a fetal heart beat detected.

The clinic that you choose should give due consideration to both emotional and physical aspects of infertility. If a woman participates in a stress management programme, research shows that she has a 52% greater pregnancy success rate through IVF.

Nisha IVF introduced the Mind/Body programme which is proven to increase couples chances of pregnancy and to improve their overall sense of well-being.

It is important to consider the range of testing and treatment available, when you are evaluating various clinics. You will find that clinics vary considerably in terms of sophistication and capability.

Factors Affecting the Outcome of Treatment

Age

As with natural conception the chances of success following any fertility treatment decline with the age of the woman. There is much documentation to show a significant drop in the pregnancy rate for women over the age of 40. Unfortunately the risk of miscarriage in this group is higher; therefore the percentage of women having a live birth decreases.

Number of Eggs Collected and Embryo Quality

The number of healthy eggs collected and the number of normally fertilised eggs also affect the outcome. The number of embryos available affects the chances of success for transfer and the number transferred. If only one embryo is available for transfer the chance of success are lower.

The possible disadvantage of transferring more than one embryo is a multiple pregnancy. Approximately 20% of pregnancies following assisted conception are twins.

Ovarian Reserve

In a woman with normal menstrual periods, apart from her age the second most important element that affects IVF outcome is the ovarian reserve - the number of potential eggs available in the ovary - which is usually measured by checking the AMH.

AMH operates on a scale from low to high. Women with reduced ovarian reserve have a lower, but reasonable chance, of achieving live birth.

Multiple Pregnancy

One of the complications of assisted reproduction is the increased incidence of multiple pregnancy.

Concerns about multiple pregnancy arise because it is associated with a greater incidence of complications.

Problems are more commonly seen in triplet or higher order multiple pregnancies but may also occur with twin pregnancies. Because of the greater chance of pre-term labour and delivery, there is an increased risk of the babies being born before they are mature enough to survive and a greater risk of complications associated with prematurity if they do.

The maximum number of embryos transferred is generally three and therefore high order multiple pregnancies are not common. Women aged 37 years or under are usually advised to have two embryos transferred. When 3 embryos are transferred in this younger group of patients, the overall chances of success are not significantly increased but the chances of multiple pregnancy are greater.

In women over 37 the implantation rate is lower which accounts for the reduced pregnancy rate. In an attempt to improve the overall chances of a pregnancy most women over 37 are usually advised to have 3 embryos transferred, if they are available on day 3. We would not generally recommend this to women of all ages if the embryos are grown to blastocyst stage.

If a woman conceives with multiple pregnancy, careful antenatal management is advised.

Miscarriage

The incidence of miscarriage in women who conceive naturally is approximately 25%.

With assisted reproduction treatment this statistic is not significantly different, although in women over 40 there is an increased risk. Pregnancies should be monitored to ensure that the pregnancy is proceeding normally.

Ectopic pregnancy

An ectopic pregnancy is a pregnancy that occurs somewhere other than in the uterus, most commonly in the fallopian tubes. The incidence of ectopic pregnancy with assisted conception treatment is approximately 2.5%.

It is potentially a serious condition but will often be detected very early in the pregnancy by ultrasound scan. It is recommended that a detailed vaginal ultrasound scan be carried out 3 weeks after confirmation of pregnancy.

Managing the 2 Week - Post-Transfer Wait

It is worth focusing on the two week time-span following your fertilized egg transfer. This two week time period, between transfer and test date has been described by some of our patients as a difficult and stressful time. Up to then everything you do has a sense of purpose from medication to down regulation, from stimulation to collection and then finally the transfer.

The two week wait has the potential to be amazing or miserable and that choice may be up to you.

Our advice, no matter what the outcome, which may be influenced by so many factors, is to take a positive - this is going to work - approach. Your primary goal is to avoid stress, negative thoughts, stressful situations and excessive worry. This two week window is a time for calm, positivity and encouragement. Stress is proven to have an adverse effect on early pregnancy. As the system becomes stressed' the hypothalamus activates two of our internal systems: the sympathetic nervous system and the adrenal-cortical system. The sympathetic nervous system uses nerve pathways to initiate reactions in the body, and the adrenal-cortical system uses the bloodstream. The combined effects of these two systems create what we call the fight-or-flight response.

In parallel, we have changes in the autonomic nervous system. Its main job is to regulate many of our organs, controlling heart rate, breathing, sweating, digestion and most importantly our reproductive system.

If we think negatively, our HPOA Axis secretes cortisol and adrenalin into the blood stream. The hypothalamus communicates with the pituitary, the sympathetic nervous system is active, heart rate increases. The body is in fight or flight mode, decreasing blood supply to the reproductive system. Anxiety and fear is increased and we now have a situation where the body is in stress.

If we take a positive approach, we experience a flow of endorphins and serotonin. The parasympathetic nervous system is active. Heart rate slows, dilating blood vessels and allowing for a healthy flow of blood into the reproductive system. Hope develops and the belief of a positive outcome grows day by day.

Despite the sometimes gruelling experience of trying for a baby and not succeeding; it is vital to embrace a positive mindset and to believe that IVF will work and that you will get pregnant. Perhaps you are afraid to tempt fate. Focusing on the negative makes failure less painful or does it? This mindset is understandable but when you consider the benefits of happy endorphins flowing around your body, then the argument for positivity is compelling. What if that 1% of hope reduces the stress hormones, allows you to eat a little more, and to sleep a little better during the 2 week wait.

While science can't absolutely prove that thinking positively will ensure a baby arrives. Overcoming your negative thoughts and promoting a positive mindset is certainly a step in the right direction.

Part 5. Choosing the Right Fertility Clinic



Advanced Fertility Care

The emotional and psychological impact of infertility can be extremely difficult. While one in six couples encounter fertility problems, each person is unique in terms of the support, care and treatments they require.

Choosing the right fertility clinic can be confusing. Valuable time and money can be wasted on treatment centres that don't have the know-how or expertise to explore all of your options fully.

We are experienced in caring for people whose treatment has failed elsewhere. We take pride in being able to offer hope to patients, from Ireland and abroad, with more complex fertility diagnoses.

We are at the cutting edge, providing some of the most advanced and successful testing, technology and

IVF treatments to our patients. This clinic was designed based on the feedback and aspirations of patients and staff.

Let us listen to your concerns and offer our expertise.

The Nisha IVF Five Core Principles

We have dealt with thousands of patients since we opened and it is their needs that govern the care we give, the treatments we offer and the type of environment we provide.

It is not possible for all of our patients to achieve the dream of a child. If you are unsuccessful, we have the resources in place to support you and your partner and to help you come to terms with your disappointment. The making of a good clinic is how you support the patients that don't achieve their dreams.

We encounter many types of disappointment as we work with patients in our clinic – no eggs to retrieve and fertilise, no embryos to implant, no resolution to an unexplained infertility or a negative pregnancy test.

We believe in the importance of mind and body in our treatment of infertility and we have established our Mind / Body programme and a full time resident counsellor to guide our patients through IVF treatment. We also have a bereavement room, so that you can spend time with your partner, coming to terms with results in privacy.

We adhere to Five Core Principles to ensure that you as a patient get the best possible care in order to maximise your chances of becoming pregnant and having a healthy baby.

- 1 Beating Infertility in a Safe and Caring Way
- 2 Advanced Infertility Testing
- 3 State of the Art Facilities
- 4 Leaders in Reproductive Medicine in Ireland
- 5 Excellent Results

1. Beating Infertility in a Safe and Caring Way

"We need someone to listen to our needs, and provide us with insights and advice in a confidential environment."

Meeting the infertility challenge is all about teamwork. We want to work with you to make your dream of having a baby a reality. Our first step is to listen to you and gain an understanding of the nature of your problem. You are welcomed into a confidential and supportive environment.

Our Mind / Body programme is available to you in conjunction with our medical care and the programme aims to alleviate some of the stress involved with IVF treatment. The Mind / Body programme has been shown to improve the chances of conceiving, particularly on a second or third IVF opportunity.

Nisha IVF does not just treat couples; we also treat single women.

We have a number of clinics each month to help those who need to focus on and address issues such as nutrition and diet, psycho-sexual problems, and stress.

We have a full-time resident counsellor to provide guidance and support when you need it. You can invite an acupuncturist that you have chosen to help you through the critical times during your treatment process. We genuinely believe that the support and care that we give to each of our patients, is absolutely critical. Some people succeed in having a baby, and some do not. Our aim is to help you to achieve peace of mind, no matter what the outcome. We help you in every way we can to maintain a positive focus on your relationship, your general health and your psychological well-being.

We value your time, as much as you do and our waiting rooms are as fast and efficient as possible. We have a large car park, internet access and refreshment areas.

We continuously seek feedback from patients to help us to improve our service.

2. Advanced Infertility Testing

"Time is not on our side, so we want to know that we can go to one clinic that has the capability and expertise to identify the root cause of our infertility problem and act fast."

At Nisha IVF we are at the forefront in providing advanced infertility testing.

We have a number of tests that other clinics in Ireland simply do not perform – critical tests that could mean the difference between having a baby or not succeeding.

We provide testing for Female Fertility problems:

- Ovulatory
- Polycystic ovaries
- Endometriosis
- Tubal blockage
- Ovarian reserve

We also provide testing for Male fertility problems:

- Abnormalities in semen production

Advanced testing provided by Nisha IVF

We also implement advanced testing techniques, some of which were introduced to Ireland first by Sims including:

Reproductive Immunology, Sperm DNA Fragmentation Testing and Anti-Müllerian Hormone (AMH).

Tests and treatments are covered in more detail in this booklet in Part 3 - Infertility Treatments and Supports and on our website www.sims.ie

3. State of the Art Facilities

"We want to know that we will get the best resources and facilities for our treatment – technology, testing and no long waiting list."

We have invested significantly in state of the art facilities for our new clinic. For those who go on to testing and treatment, our facilities are excellent. We have 3 operating theatres and a 5 bed ultra-sound suite to minimise waiting times. We also provide men's private treatment facilities and 10 private recovery rooms for women, which are the best in the country. Our staff are warmly encouraging, every step of the way.

At our new clinic, we have installed 3D ultrasound facilities – colour Dopplers that provides 3D evaluation of uterine and vaginal anomalies.

Fertility Laboratory Ireland, our onsite testing partner provides the most up to date testing expertise and facilities for our patients.

Our website contains unrivalled guidance for patients whether that is explanations about treatments or step by step videoed instructions to help with medication.

4. Leaders in Reproductive Medicine in Ireland

"Having already tried a number of treatments and failed, we now need to be sure that we are getting the best treatment available in Ireland."

We are leaders in reproductive medicine in Ireland and are responsible for the first Donor Gamete (using egg or sperm donors) programme, in the country. We were first to introduce Eeva time-lapse technology into Ireland. We are also the first practitioners of Blastocyst Culture and Transfer. We are the first clinic in Ireland to provide IMSI (Intracytoplasmic Morphologically-Selected Sperm Injection).

Nisha IVF provides the following infertility treatments:

- Reproductive Immunology
- Ovulation induction and cycle monitoring
- Intra-uterine Insemination (IUI)
– using partner's sperm or donor sperm
- In Vitro Fertilisation (IVF)
- Treatment of male infertility
- Intracytoplasmic Sperm Injection (ICSI)
- Intracytoplasmic Morphologically-Selected Sperm Injection (IMSI)
- Surgical sperm retrieval (TESE)
- Assisted Hatching
- Blastocyst Culture and Transfer
- Semen freezing
- Embryo Freezing and replacement
- Egg Donation Programme

There is more information about the types of treatments available in Part 3 – Infertility Treatments and Supports.

5. Excellent Results

"The clinic we go to should have a good reputation in terms of results, service excellence and expertise."

We are Ireland's number one clinic for IVF and our results are world-class. Many of our patients come to us, because they failed to become pregnant elsewhere and then discover that Sims IVF offers a superior, and more advanced solution than other clinics.

Our success rates reflect our high standards and our expertise.



Our doctors remain at the forefront of IVF technology. We enjoy a close association with Boston IVF / Harvard Medical School. Learning from our experience and that of our international associates, we strive for excellence in the provision of reproductive medical care to those who need it.

We also provide training for medical students from the Royal College of Surgeons Ireland.

Thousands of babies have been born to Sims IVF patients since our inception in DCU in 1997.

Let us listen to your concerns and offer our expertise.

Call Nisha IVF team for a confidential consultation on

99041 18989

Making an Appointment with Nisha IVF

It is the policy of the clinic to see a couple or an individual for an initial consultation with the doctor before they have treatment. This consultation is important as it is the first tool the doctor uses in assessing patients. It is of benefit to the patients that copies of any test results, record of investigations or treatment summaries are brought with them to the consultation. As some tests only have a certain validity period it may be the case that various tests may have to be repeated, although we do not do so as a matter of routine.

It is preferable that both the female and male partner (if applicable) are present, as infertility is a shared condition and both parties should be involved in all aspects of the decision making process. It is also more beneficial to a couple as they may well be hearing new information which is better to hear together first hand. Bloods or other preliminary investigations may be carried out on either the male and/or female at this first visit.

You should allow approximately an hour for your appointment. Normally you will see the doctor and then a specialist fertility nurse who will co-ordinate your investigations and / or treatment. The duration and structure of the appointment varies depending on the couple's condition and their medical requirements as no two couples are the same. You will be advised after the consultation to book for a phone consultation with your doctor for a months' time. This will enable the doctor to discuss the results of any investigations or tests recommended for you and discuss any adjustments that may need to be made to your treatment plan.

We endeavour to see each couple at the agreed appointment time. However, in the medical environment, patient's medical needs change and delays may occur. It is recommended you arrive at least twenty minutes before your appointment to register.

If you would like to make an appointment, click on the make an appointment icon on our homepage.

It is likely that you may wait several weeks for your initial consultation; this is because we limit our intake of new patients allowing more time to manage those patients attending for treatment. A rapid diagnosis and subsequent treatment is particularly crucial for the likely causes of patient infertility, within a short time frame.

If you are already an existing patient of Sims IVF, appointments for semen analysis, consultation, testing and ultrasound scans can be made by phone or by email.

For more detailed information and for a glossary of useful terms explained, please see our website:

www.nishaivf.com

"...our success rates reflect our high standards and our expertise."



IVF CENTRE

"Delivering The First Touch To Happiness"

ISO 9001 : 2015