

CREANDO



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EMBRYO TRANSFER
on Day 3 or on Day 5
of culture

**PREGNANCY
AFTER CANCER**
How long should I wait?

**WHAT IF I WANT TO BE
A MOTHER LATER ON,
AND I CAN'T?**



Reproduction
International
Group



Editorial



**Dr. José Jesús
López Gálvez**
CEO of the UR Group

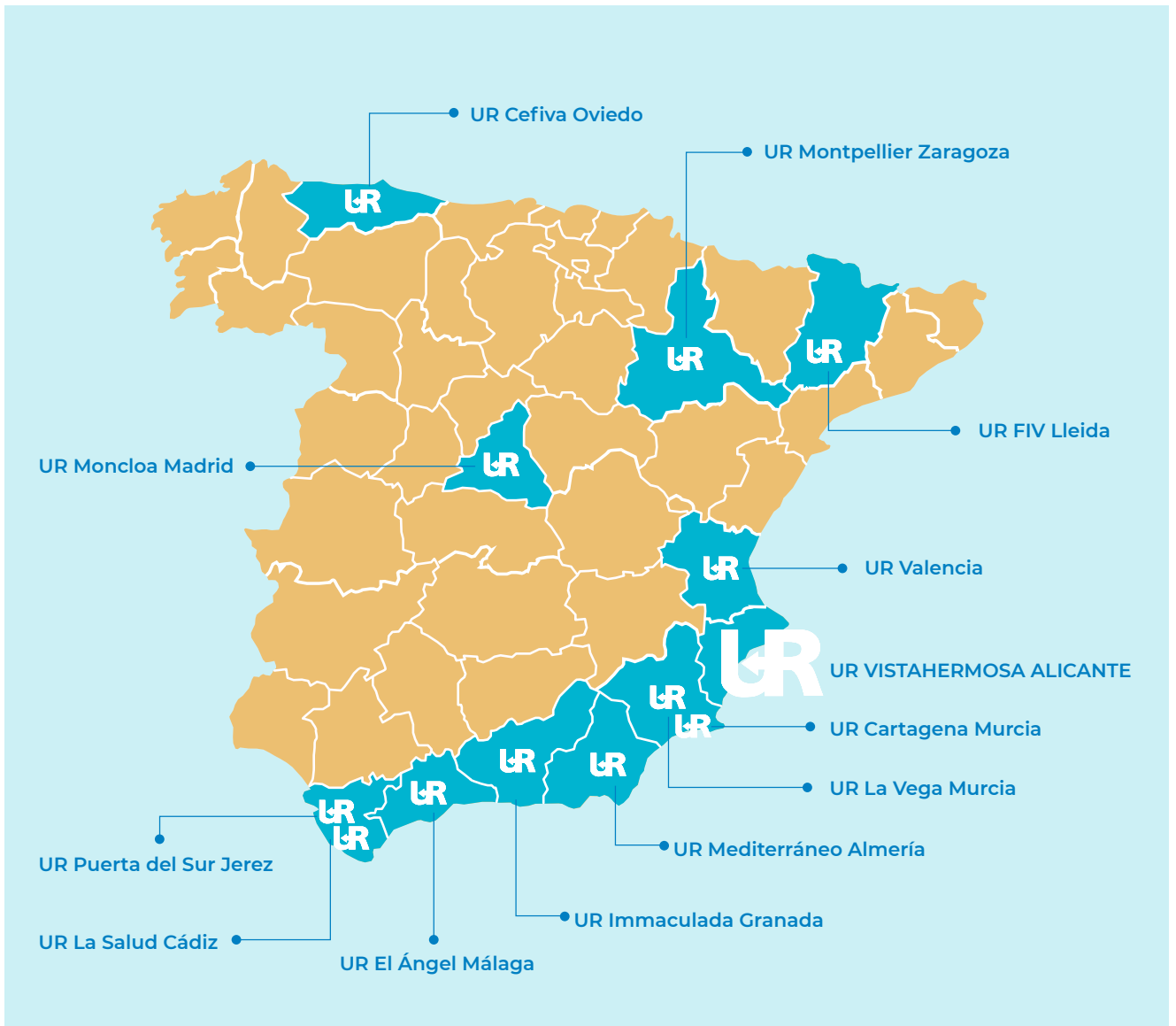
We wanted to reach out to all of you again, this time for the first time in 2021, while looking back and knowing that we've all lived through (and are still living through) one of the most difficult years of our lives. However, with this said, we want to look to the future with optimism. With this project – born just 12 months ago – our message is one of encouragement, strength, resilience and a positive vision for this new life that we must carry on with enthusiasm until we reach the normality we all want, and that is closer.

We know how difficult it is, but perhaps this optimism is needed more than ever before. 2020 ended scarred by a global pandemic. However, despite COVID, the entire team and the people who are part of International UR Group have never stopped working at our facilities, even at the most difficult of times, thereby conveying reassurance and confidence to all our patients.

In the same spirit, we've reinvented ourselves to make things easier for our patients to not be over-

whelmed by the other big problem associated with the epidemic: the serious economic situation. We've done everything possible to ensure that our facilities continue to serve our patients in the best way possible and with personal attention to every case. All this has even made it possible to establish our project and grow with **new facilities opening in Cádiz, Cartagena and Lleida**. This entire process of change and improvement has been led at the national level from our headquarters in Alicante so that we can adapt to the circumstances and needs of the situation. Thanks to this, the spirit that has always been part of Grupo UR remains with us stronger than ever, and with the enthusiasm shared with all our patients for bringing back the normality we enjoyed just over a year ago. It's this optimistic vision of looking to the future that we want to share from us to you, our patients, our collaborators, ourselves and everyone else, and that's why we're so proud to launch issue no. 4 of our magazine, the first issue of 2021.

And we cannot say goodbye from this platform that allows us to reach all of you without also sending an enormous hug to our Latin American colleagues, because they've also suffered – and continue to suffer – from this terrible situation.



HLA Grupo Hospitalario

Reproduction International Group



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Index

- 1.** The embryologist, a key player in assisted reproduction
Victor Masedo
p.6

- 2.** Embryo transfer on Day 3 or on Day 5 of culture
Ainoa Sola Verdú
p.8

- 3.** Oncofertility: preserving fertility when diagnosed with cancer
Germán Fernández
p.10

- 4.** Pregnancy after cancer: How long should I wait?
Ruth Sánchez
p.12

- 5.** Sport and pregnancy after assisted reproduction treatments
Bernardo Fernández Martos
p.15

- 6.** Healthy habits while trying to get pregnant
Judith Aymerich Díaz
p.16

- 7.** Does the human papillomavirus threaten my fertility?
María Gallego
p.18

- 8.** What if I want to be a mother later on, and I can't?
Verónica Martínez
p.20

The embryologist

Víctor Masedo

Embryologist

UR HLA La Vega

The laboratory team plays an essential role at assisted reproduction centres. In particular, clinical embryologists are key players, since they work continuously with gametes and embryos. Embryologists are professionals who specialise in assisted reproduction and have the training necessary to this kind of work. Their professional training begins with a university degree in fields related to the biological sciences, and then continues with specific theoretical and practical training that complements their professional training. Their clinical training continues with the further expansion of their expertise and participation in different scientific studies and conferences.

Different kinds of work are done routinely in the laboratories of our reproduction centres:

- **Semen analysis** (complete seminogram and sperm washing), semen freezing, DNA fragmentation index, MACS, FISH, etc.
- **Intrauterine insemination** is a relatively simple technique in which the embryologist washes the couple's or the donor's sperm sample, thereby obtaining the best quality sperm for the gynaecologist to transfer to the woman's uterus.
- In **in vitro fertilisation (IVF)**, the embryologist looks for and retrieves the oocytes in the follicular fluid obtained from the ovarian puncture and places them in specific culture media until they are used for insemination.
- The **insemination of the oocytes** may be done by suspending them in a particular concentration of previously washed sperm – as in classic IVF – or by **intracytoplasmic sperm micro-injection (ICSI)**, which implants a single sperm inside each mature oocyte by means of a micropipette. This requires an inverted microscope and a very small-calibre glass pipettes.
- Once the fertilisation is effected, over the following days each of the **development processes of the embryos is closely observed**, including assessment of the fertilisation, development of early embryos and development of late embryos until the embryo is transferred on the day that the team considers most suitable.



*A key player
in assisted
reproduction*

Embryo selection

Different factors will be taken into account when assessing the embryos, including the identification of morphological characteristics during different days of culture, and anomalous events, rhythms and characteristics of the cell division, **morphokinetics using time-lapse technology**. This way, the best embryos are studied and selected for transfer or vitrification, depending on the case or the patients.

When transfer is carried out, **the embryologist loads the embryo into a catheter and transports it** to the gynaecologist so that they can access the woman's uterus and, guided by ultrasound, implant it in the upper third of the uterine cavity.

While all these processes are being carried out, the embryologist is responsible for checking daily that the conditions inside the laboratory and the incubators remain constant, so that the embryos can carry out their processes in a stable and suitable environment. This ensures optimal culture conditions.



They also take care of the checking, maintaining and managing the calibration of the equipment used for these tasks. The ambient conditions of temperature, humidity and air quality are constantly monitored in the laboratory, and both the materials used in the different processes as well as the availability of the culture are inspected.

The tasks performed by embryologists in assisted reproduction units are varied. They are involved every day of the year, not only in laboratory work, but also in caring for, providing information and advice to patients about their gametes and embryos.

Embryo transfer

On Day 3 or on Day 5 of culture

Ainoa Sola Verdú

Embryologist

UR HLA Montpellier

Since the very beginning of reproductive medicine, our laboratory has focused its efforts on obtaining the most viable embryo with the aim of achieving the pregnancy and birth of a healthy newborn.

Embryo transfer is the final stage of every in vitro fertilisation (IVF), and one of the most important moments in the process. It consists of the **implantation** – guided by ultrasound – **of the embryo or embryos inside the mother's uterus.**

A correct assessment of embryo quality is decisive in achieving success in an IVF programme. One of the most common doubts is whether to prolong the culture of the embryo or not until it reaches the blastocyst stage (Day 5 of the embryo culture). Knowing what happens in the laboratory is helpful in trying to find the answer to this question.

Embryo development in the laboratory

The starting point (Day 0) is the ovarian puncture, which consists of retrieving the oocytes using follicu-

lar aspiration. Subsequently, these oocytes will be fertilised using the relevant technique, either conventional in vitro fertilisation (IVF) or intracytoplasmic sperm micro-injection (ICSI). After about 16-18 hours, it's time to see whether fertilisation has taken place (Day 1) and whether we are therefore in stage one of the embryo: **the zygote.**

On Day 2 of the embryo culture (at 43-45 hours) the embryo should have four cells and, on Day 3 (at 67-69 hours), eight. Besides the number of cells, we also assess morphological and kinetic aspects of the embryo: symmetry, fragmentation, vacuoles and cell division time. In addition, from Day 3 of culture, the embryo activates its genome and begins to express it. Next, the embryo will accelerate its division and form a mass called "morula" (Day 4), which is the pre-blastocyst stage.

If the embryo successfully reaches Day 5 of development, it will have some 200 cells and form a structure called "blastocyst". Blastocysts are composed mainly of two parts: the **trophoblast** (which are the cells that will form the future placenta) and the **inner cell mass**, which comprises the group of cells that will create the baby.

This embryo development is meticulously studied by our team of embryologists. This makes it possible to assess the quality of the embryos and to select the embryo with the greatest likelihood of implantation and evolutionary potential.

Who decides on the transfer day?

The time when transfer is to be done is one of the most important decisions in the process, so **it's always made as a team**. The strategy is coordinated by the medical staff together with the embryologists, who evaluate the patient's history thoroughly.

The specialists assess each case based on some parameters, such as:

- Number of embryos retrieved in the cycle
- Embryo quality, subject to the quality of the oocyte and the sperm
- Complementary techniques, such as the donation of oocytes or preimplantation genetic testing (PGT-A)
- Patient age
- Previous IVF cycles
- Associated pathologies
- Condition of the endometrium

This decision involves many factors and enormous responsibility. Consequently, every cycle is completely individualised and is backed by the experience and knowledge of our team of professionals.

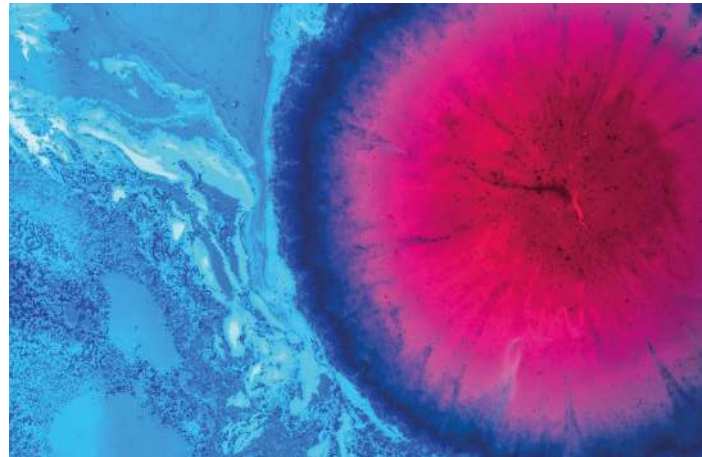
The transfer: Day 3 or Day 5 of embryo culture?

In general, embryo transfer usually takes place on Day 3 or Day 5 of development. However, it is true that in some cases – with justified cause – a decision is made to transfer on other, less frequent days, such as Day 4, Day 6 and even Day 7 of culture.

When the number of embryos retrieved is lower (≤ 3), it's advisable to transfer on Day 3, because there is no need to select from a large number of embryos,

and the uterus will always be the best “incubator” there is. In these cases, there is a good chance for favourable evolution. If the culture continues, there is a risk of cancellation, because it is difficult for all the embryos to develop properly and reach the blastocyst stage. Even so, the more time the embryos are left in culture, the more morphological parameters have to be analysed, more information will be collected and, therefore, it will be easier to select the embryo with the greatest implantation potential.

This is why – **when there is a larger number of embryos – it would be advisable to do the transfer on Day 5 of culture**. At this stage, embryologists have more information for assessing their quality. Therefore, transfer on Day 5 makes it possible to select an embryo with the greatest implantation potential, as well as better synchronisation between the endometrium and the embryo.



Assess each case

Each case is different, just as are the results of each in vitro fertilisation cycle. Therefore, it's essential to consider each patient's particular circumstances and, together with the team of professionals at our fertility centres, decide which day is best to do the embryo transfer. This way, the decision will always be backed by the medical staff, assessing each clinical history, and monitoring the results of the observation of the embryos, the assessment of the number retrieved and their development with embryologists.

Oncofertility

Germán Fernández

Medical Director

UR Managua

Cancer in women remains a matter of concern worldwide. In Spain, the most common cancers are lung cancer, breast cancer and colorectal cancer, altogether totalling **32%**. Thanks to early diagnosis, the survival rate – which is of vital importance – **has gone from 56% to 63%**.

Thus, along with this advance, we must consider the survivors' quality of life. International societies have considered this to be of such importance that, in the last 10 years, reproduction centres have worked closely with oncologists, radiation oncologists and surgical oncologists in an effort to ensure, to the extent possible, fertility in women who have not yet had children.

When cancer is diagnosis, there is an urgent need to begin cancer treatments, reduce the risk of metastases or residual cancer. However, preventing the reproductive effects of these treatments

will improve the possibility of having children in the future.

Multiple studies have determined that the effect on fertility is dose-dependent. In other words, with each chemotherapy or radiation therapy treatment, the number of eggs available decreases. Therefore, it is imperative either to protect the ovaries from the medication's harmful effects, or to protect the eggs. Once chemotherapy treatments begin, a cascade of accelerated depletion of the follicular pool takes place. This leads to premature ovarian failure, in which patients may experience effects from very irregular menstrual cycles or absence of menstruation to symptoms related to menopause.

The reasons for the harmful effect of these treatments lie in:

- The decrease in the number of primordial follicles
- The imbalance of the hypothalamus-hypophysis-ovarian axis

- Hypofunction of the fallopian tubes, ovaries and cervix
- Ovarian cortical fibrosis and blood-vessel damage.

The team will recommend the best treatment available based on the patient's age, whether she is single or has a partner, the type of cancer and the prognosis, the prior fertility status, the time available before cancer treatment begins, the patient's desires and the medical and legal implications of the process. It is important to recognise patients' right to their prognosis, desires, beliefs and values, which will help in choosing the best fertility-preserving treatment.

At our centres, the multidisciplinary team will provide orientation on the current recommendations for preserving fertility in these patients, including:

- Use of medication to protect the ovaries
- Freezing the eggs before beginning cancer treatments or radical surgery



Preserving fertility when diagnosed with cancer

- Freezing embryos, if the patient has a partner
- Freezing and transplantation of ovarian tissue
- Conservative cancer surgery
- Transposition of ovaries in the event of a pelvic tumour

The most common reasons for not preserving fertility in patients who will receive cancer treatments is the lack of knowledge of the alternatives for reproduction, the carcinophobia of patients wanting to get treated quickly without considering the quality of life after the their cancer is cured, the fear of delaying treatments for a couple of weeks while the ovaries are stimulated to remove and then freeze the eggs and last – but not least – the fear of stimulating ovaries in some cancers due to the “theoretical risk” of metastat-

ic cell infiltration of the ovaries. Researchers recommend taking special care with certain tumours, such as stage III breast cancer (including infiltrating ductal), Wilms’ tumour, lymphomas, osteosarcoma, Ewing’s sarcoma, leukaemia, euroblastomas, cervical adenocarcinoma and colon cancer.

In general, we recommend waiting two years after the disease-free period before beginning to try to get pregnant, whether by

thawing the eggs and fertilising them with their partner’s semen, or by thawing the embryos stored at the centre, carrying out the transplant from the ovaries or by beginning controlled ovarian stimulation.

There has been no increase shown in the rates of congenital malformations or neonatal diseases associated with the

use of chemotherapy, so pregnancy is safe after the oncology team discharges the patient. If fertility was not preserved before cancer treatment, it must be determined by hormone tests, the follicular pull available and the assessment of the patient in terms of her using her own eggs or turning to egg donation to become pregnant.

In the case of men, the method is much simpler: laboratory tests and a **seminogram** are carried out, consents signed and a preventive freezing of the sperm is done. If semen quality is not very good, it must be frozen for subsequent use in an IVC, whether conventional or with ICSI.

At our centres, we are convinced that the best decisions are made when patients are informed, there is a possibility of having genetic offspring after treatments depending on the timing of the process, the fertility-conservation technique used and the prior reproductive status.

The best decisions are made when patients are informed

Pregnancy after cancer

How long should I wait?

Ruth Sánchez

Gynaecologist

UR HLA Vistahermosa

WHEN SOMEONE IS DIAGNOSED WITH CANCER, IT CAN BE QUITE A BLOW, AND THERE IS A POSSIBILITY THEY WILL NOT OVERCOME THE DISEASE. FORTUNATELY, HOWEVER, LIFE EXPECTANCY AFTER CANCER IS INCREASING IN YOUNG PEOPLE AS A RESULT OF SCIENTIFIC ADVANCES IN CANCER TREATMENTS.

The most common cancers in women of child-bearing age are breast and haematological cancers. The advances made in recent years in addressing and treating breast cancer **have led eight of every 10 women now having overcome the disease five years after diagnosis**. Consequently, the population of cancer survivors continues to increase. This situation – coupled with the fact that cases of breast cancer diagnoses in women under 45 years of age are also increasing as well as delayed motherhood – means that, while many young women may not have fulfilled their desire to be mothers when they receive their diagnosis, they may yet be able to consider the possibility of getting pregnant once they have overcome the illness.



Unfortunately, when they ask the oncologist about this, many patients don't always receive the right information, which is sometimes radically contrary to the data provided by scientific evidence.

What scientific evidence do we have?

There are several retrospective studies that not only conclude that pregnancy after cancer does not worsen its prognosis, but rather – in some cases – improves it. The most generally accepted explanation is known as “healthy mother syndrome”, when means that patients who choose to become pregnant after a cancer diagnosis are the ones who inherently have a better prognosis and are in better health. In conclusion, with the scientific evidence available now in the 21st century, and that, for once, is absolutely unanimous, patients with breast cancer should be told that a subsequent pregnancy will not change their prognosis.

In general, the minimum waiting time recommended for getting pregnant depends on each patient's risk of relapse and tumour type. It ranges **from two to three years** after diagnosis for women with negative hormonal receptors, and extends **up to five years** in women who have had a hormone-sensitive tumour. After treatment is stopped, the recommendation is to **wait at least six months** after the end of chemo/hormone therapy. Since we don't have data on **what waiting time is**



the safest, these periods are considered estimates. The possibility of delaying the time to get pregnant or not is a matter to **be assessed with each patient**.

Effects of cancer treatments on fertility

When women are informed of their cancer diagnosis, it's important to take into account that, if they are considering motherhood, some cancer treatments (especially chemotherapy) can cause

damage to their ovaries that may jeopardise their fertility and getting pregnant after the treatment.

The medications used during chemotherapy treatment **don't affect all women's fertility** the same way: the risk of amenorrhoea and menopause in women with cancer is related to the type of treatment and, especially, **their age**.

Young women's follicles are more resistant to chemotherapy and, in many cases, **ovarian failure**

is reversible some six to 12 months after treatment. As a result, a woman's ovarian failure after starting chemotherapy will be dependent on the number of follicles in the ovary when she begins treatment. If the number of remaining follicles is not high – or the drug's toxicity is very high – it's most likely that the ovarian failure will be **permanent**.

This is why every woman who is going to receive cancer treatments must be informed of their effects on her fertility, and she must be offered the opportunity to preserve it by the vitrification or freezing of the eggs. This way, she will be able to use them later once she is cured, if her ovarian function has been jeopardised. Even with all this information, fewer than 10% of women who survive breast cancer get pregnant. This may be due to the lack of information about this issue, or the fear it generates.

The most recommended fertility preservation techniques are the

cryopreservation of eggs, semen and embryos. Other methods, such as the cryopreservation of ovarian cortex, are considered experimental. The technique that is most advisable and most used for women is the cryopreservation of eggs, since the cryopreservation of embryos requires a woman to have a partner or a donation of semen when she is diagnosed, as it can cause ethical problems about the decision about the future embryo. There are studies that say that **only 25%** of patients who choose cryopreservation of embryos access them within the following five years.

The cryopreservation of embryos and the cryopreservation of oocytes require **prior ovarian stimulation**. In other words, they require the administration of drugs with hormones that stimulate the ovaries to **produce a number of eggs suitable** for use in assisted reproductive techniques. This generates "fear" in patients and in oncologists because many breast


cancers are hormone-dependent. However, nowadays we have medications that stimulate the ovaries while ensuring that blood oestrogen levels don't increase excessively, thereby minimising risk.

Another fear was a delay in the cancer treatment due to carrying out the ovarian stimulation. Nevertheless, it has been scientifically proven that ovarian stimulation does not worsen the cancer's prognosis, since we can do it at any time in the cycle and in just two to three weeks.

There are studies that back the safety of these techniques. Therefore – as we mentioned above – they must be offered to women of childbearing age diagnosed with cancer, and not just to offer them the opportunity to have a child, but also because of the positive psychological effect of your offering them something for the future may have, and that it means that we trust that she is going to be survive cancer.

■ Increase in diagnoses cancer in women under 45 years of age, and the delay of motherhood

■ Some cancer treatments can compromise fertility

 **The most recommended techniques are:**

PRESERVE FERTILITY BY CRYOPRESERVATION OF EGGS, SEMEN OR EMBRYOS

They require prior ovarian stimulation to produce a suitable number of oocytes

We have medications that stimulate the ovaries while ensuring that blood oestrogen levels don't increase excessively, thereby minimising risk

SPORT and PREGNANCY

After assisted reproduction treatments

Bernardo Fernández Martos

Nurse

UR HLA Vistahermosa

When pregnancy is achieved after an assisted reproduction technique is used, it should be considered a normal pregnancy. Nevertheless, in this context, the difficulty in achieving it – as well as the possibility of post-treatment residual discomfort – should always be taken into account.

The pregnancy hormone extends the effect of the ovarian stimulation for some time, maintaining the larger ovarian size, and so the risk of the ovaries becoming twisted can persist. In addition, the pregnancy hormone itself could trigger late-onset ovarian hyperstimulation syndrome. In this context, we must recommend caution when it comes to exercising, and maintain any initial post-transfer or insemination recommendations that the professionals may have given.

In situations where no particular discomfort appears after pregnancy takes place, aerobic physical exercise – as for any pregnant woman – must be recommended, due to the beneficial effects for both mother and child. It's been shown that physical exercise reduces the typical (such as digestive) discomforts of pregnancy, boosts psychological well-being by reducing anxiety, depression and insomnia, and promotes the introduction of healthful living habits. It also prevents blood pressure and protects against gestational diabetes.

The sports most recommended for early pregnancy are swimming, (static) cycling or light-to-moderate-in-

tensity walking, for 20-40 minutes three times a week. Muscle training can be done one or twice a week at 50% of the intensity at which the pregnancy woman previously exercised, with 15-20 repetitions per exercise, and with special care for the pelvic, abdominal, lumbar and pectoral regions. Flexibility must be worked on daily, if possible.

Sports that must be avoided are contact sports, sports done on hard surfaces, and sports that increase abdominal pressure, such as jumping, basketball, volleyball, etc., or that require excessive work from these muscles.

During the first trimester of the pregnancy, women who previously engaged in regular physical exercise tend to be able to continue exercising. Having become pregnant through assisted reproductive techniques should not be an impediment to it, except for some specific contraindications due to a complication. In any event, we recommend spacing the training sessions, reducing their volume and intensity, and avoiding activities that are more likely to lead to injury.

For women who are sedentary or who exercise only very occasionally, it's important to insist that **pregnancy is not the time to start doing sport**, especially if the pregnancy is due to an assisted reproduction treatment. Nevertheless, we do recommend including a specific programme of exercises aimed at maintaining optimal physical condition to prepare for giving birth.

Healthy habits while trying to get pregnant

Judith Aymerich Díaz

Nurse

UR HLA Vistahermosa

It's common for couples who are going to begin assisted reproduction treatment to have concerns about what they may or may not do during when they are about to begin treatment with the aim of increasing, and not decreasing, their chances for success. Of course, acquiring and/or maintaining **healthy habits** while trying to get pregnant is of the utmost importance. The proper development of the embryo depends on it, and it will also influence the health of the future baby.

We can summarise the importance of lifestyle in the following points:



Balanced diet



Regular hours



Avoid toxic substances



Regular physical exercise



Emotional stability

1. Balanced diet

During this pre-pregnancy period, the woman's body must be in harmony. To do this, her diet must provide it with all the nutrients in a way that is balanced and **avoids excesses and deficiencies**. It's been shown that the BMI should be **between 19 and 25**; in other words, a healthy BMI.

Besides causing amenorrhea, with a BMI of under 19, the body is considered unprepared for coping with pregnancy. When it's above 25, we're talking about being overweight. This causes a woman's metabolic and hormonal systems to function incorrectly, which makes getting pregnant difficult.

We must bear in mind that this situation is easily remedied. Fortunately, we have our **Mediterranean diet**, based on the consumption of fruits and vegetables as a source of vitamins, minerals and fibre. Proteins are obtained from fish (preferably oily fish) and from the moderate intake of red and fatty meats. It also includes carbohydrate-rich foods, such as bread and pasta, as well as cereals and extra virgin olive oil.

2. Regular hours

Our bodies are governed by the patterns we get used to. This is why **having stable times** for sleeping, eating, exercising, etc. will significantly improve our health.

3. Avoid toxic substances

We're talking mainly about **tobacco, alcohol and drugs**. Everyone knows that the effects of tobacco are harmful to health, but there is a direct relationship between tobacco and a decrease in fertility, regardless of whether a pregnancy is attempted through natural methods or assisted reproductive techniques (ART).

In the case of women, it affects ovarian reserve and egg quality. In men – besides causing damage to sperm DNA – semen quality is reduced. During pregnancy, the risk of obstetric and foetal complications are clearly increased in connection to the consumption of toxic substances.

4. Regular physical exercise

Clearly, doing physical exercise has beneficial effects on our health, and doing it regularly contributes to cardiovascular benefits. It promotes circulation and prevents cholesterol in the blood and, therefore, it protects the heart; Endocrine: it helps to control weight gain and to maintain blood sugar levels within normal conditions. Neurological: it helps to eliminate daily stress and anxiety.

Exercise should be moderate. Excess exercise and/or certain physical activities may be counterproductive during the treatment process. We're talking about physical activities that entail a significant physical effort, such as jumping, bending or rotating the trunk, and abdominal muscle workouts. Exercise may be done for **60 minutes, three or four times a week**, or daily for **30 minutes**. This will provide increased relaxation, improve quality of life and help to reduce anxiety or insomnia. Above all, it generates well-being, and positive emotional states appear. During assisted reproductive treatments, we recommend taking one-hour daily walks, swimming, yoga,

hiking or moderately intense static bike rides. If the activity is done outdoors, it will be even more beneficial. On the other hand, **exercises that include jumping, hitting, twisting the trunk or involve the possibility of falling must be avoided**. These include athletics, skiing, horseback riding, spinning/bike racing or mountain biking, fast dancing, martial arts, competitive physical exercises and/or group exercises such as volleyball, basketball, football, etc.

5. Emotional stability

Stress is necessary for staying alert and able to react to any change in our environment. Nevertheless, we're talking about **low levels of stress**. Thanks to these, human beings are able to deal with danger, since the brain and muscles respond quickly to a risk. However, a high level of stress is one of the enemies of achieved that much-desired pregnancy, because it reduces reproductive capacity in both men (causing an alteration in the semen, with low sperm quality) as in women, where it causes dysfunction of the ovaries.



Because of all this, we advise **improving, to the extent possible, daily habits and making them as healthy as possible** in both heterosexual and homosexual couples. This will help on the path to conception, pregnancy and the health of the future baby.

The human papillomavirus

María Gallego

Gynaecologist

UR HLA El Ángel

The human papillomavirus (HPV) is one of the world's most widespread sexually transmitted infections. There are more than 200 types of human papillomavirus (VHP). Some **40 types** can infect women's and men's genital areas: vulva, vagina, cervix, rectum, anus, penis and scrotum.

Genital HPV infections are common, but most people with HPV have no symptoms and feel perfectly well. Thus, they don't even know that they're infected and they disappear by themselves. However, some types of HPV may cause **genital warts or certain types of cancer**. In the last two decades, multiple studies have provided solid evidence that identifies the human papillomavirus (HPV) as the causative agent of practically all cases of cervical cancer and their precursor lesions.

Is this condition a threat to pregnancy?

The papillomavirus is not a cause of sterility, provided the patient does their usual checks. A woman affected by the virus may become pregnant, and a woman who is pregnant may get the virus.

In cases where pre-cancerous lesions are found, one treatment alternative is **cervical conisation**. This is the removal of a cone-shaped section from outer part of the cervix. **There is no reason for this procedure to cause problems of infertility**, however, in exceptional circumstances, the cone may completely close the cervix and prevent the passage of sperm.

In pregnant women with a history of cervical conisation in which the cervix may be shortened, second-trimester miscarriages or premature births may increase. Nevertheless, this effect is controversial, since these types of complications are very common in the general population of pregnant women. There is no evidence that determines whether cervical cerclage (stitching) should be recommended based on obstetric clinical history or on ultrasound findings. According to each hospital's protocol, cervical length can be monitored and treated based on the findings.

There are more than **200** types of VHP

40 types de VHP

Can infect women's and men's genital areas

Main cause of cervical cancer



Does the human papillomavirus threaten my fertility?

Is there a risk of transmission to the baby?

The risk of vertical transmission during the perinatal period or persistent infection in the newborn is very low. More often than not, the auto-immune system takes care of eliminating the virus naturally and without further complications. The transmission route may be intrauterine through the birth canal, or even post-natal. The greatest risk of transmission for the newborn is a history of genital warts during pregnancy, and not it passing through the birth canal. This is why a caesarean section is not considered indicated for finishing the pregnancy, unless the birth canal is obstructed by lesions or if vaginal delivery may cause excessive bleeding.

When this happens, it may cause warts in babies' airways (trachea and bronchi) and lungs. This is called juvenile-onset recurrent respiratory papillomatosis. It is the most serious and is usually diagnosed between **two and five years of age**. There are no studies that determine the effect of treating warts in the transmission of the virus to the foetus. However, treatment is preferred over a wait-and-see approach. Treatment objective is to reduce the viral load, perinatal exposure and to prevent the growth and

proliferation of lesions that may interfere in the birth. The main medical options are considered contraindicated. The recommended ones are CO₂, cryotherapy, TCAA, excision and diathermic electrocoagulation.

When do you recommend getting vaccinated?

There are three vaccines for preventing HPV infection: **Gardasil, Gardasil 9 and Cervarix**. All three protect from infection by HPV types 16 and 18, two of the high-risk human papillomavirus that cause nearly **70% of cervical cancers**. Even though these are inactivated vaccines, they must not be administered during pregnancy.

According to WHO, none of the vaccines is recommended during lactation. Although there are not enough studies on vaccination and the time to wait to try to get pregnant, the recommendation is one month after the last dose. If the vaccination schedule has begun but it not yet completed, there is one year to finish it. In addition, no teratogenicity or pregnancy complications have been shown in patients who were vaccinated without them knowing they were pregnant and so it is not a reason for pregnancy termination.

What if I want to be a mother later on, and I can't?

Verónica Martínez

Gynaecologist
UR HLA Moncloa

We live in the information society, which gives us the power to choose based on knowledge and helps us to make decisions. There are certain social factors in Spain that cause people to postpone having children: the difficulty of accessing housing, low emancipation rate, precarious jobs, not finding a stable partner and difficult work-family balance, among others.

Since some of these factors are beyond our control, we need to

find **solutions that will allow us to delay and plan motherhood for the future**. One of them is the **vitrification of eggs** (in other words, the freezing of women's gametes). I'm going to explain this technique through questions and answers, just as we would do if we were at an appointment.

What does the freezing / vitrification of oocytes consist of?

The freezing, or vitrification, of oocytes is a technique for the cryopreservation of women's gametes for reproductive purposes. Prior to the

freezing, the ovaries are stimulated with gonadotropins aimed at multifollicular ovarian development; this will make it possible to obtain several oocytes in a single ovarian cycle.

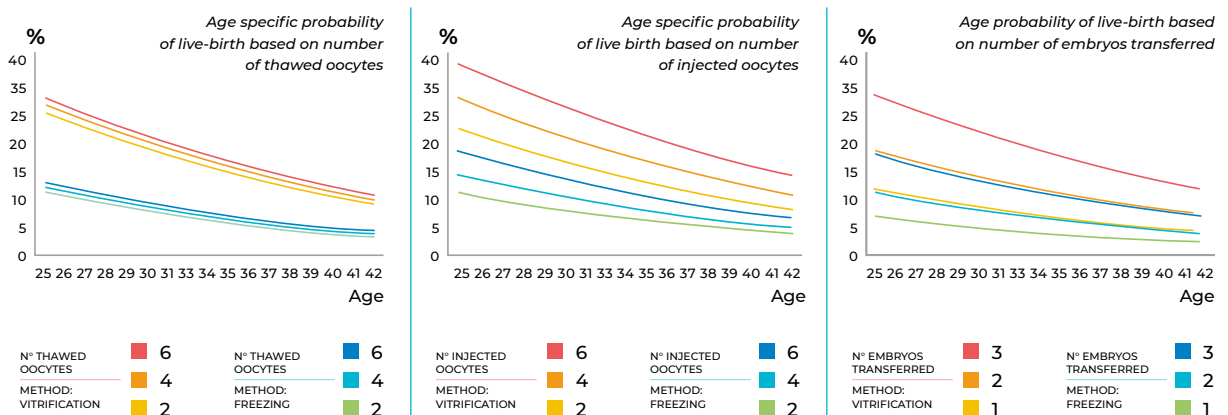
What is the survival rate of the oocytes?

The oocyte survival rate after freezing is about **90-97%**, and the percentage of pregnancy per oocyte being **4.5%-12%**.

When is the best age to vitrify my eggs?

Medically speaking, the ideal age is women under 35. However,

Below is a graph of the results by age based on the number of frozen oocytes.



egg vitrification is also possible later, although the results may be less optimal.

Why is it so important to do it at certain ages?

Pregnancy results and rates are much better due to the deleterious effects of age on the ovarian reserve (see the graph).

How can a woman's ovarian reserve be determined?

There are different tools for measuring the ovarian reserve. We can make an estimate by using ultrasound to count the antral follicles in the ovaries, or by using an anti-mullerian hormone laboratory test.

What does it do?

It assesses the capacity of the ovary to respond to stimulation treatment.

What women can benefit from the freezing of oocytes?

There are various patients who can benefit from vitrification:

- Women who want to postpone motherhood for **work/personal reasons**.
- Cancer patients **undergoing treatments** that may reduce their ovarian reserve.
- Patients who are going to undergo **ovarian surgery** that may compromise the remaining ovarian tissue, such as, for instance, endometriosis.
- Patients with **other health problems** that may compromise their ovarian reserve such as autoimmune diseases, a history of early ovarian failure, etc.

How long can the oocytes be preserved for?

The law allows them to be preserved until the woman's reproductive activity stops, at about 50 years of age.

Is there any prior preparation before the egg extraction procedure, such as medication, hormones, diet, lifestyle, time in the cycle, etc.?

Prior to treatment, a general health assessment is carried out in order to detect whether there are matters that may be improved before ovarian stimulation, either through medical treatment or lifestyle modifications. Once corrected, the treatment is done by stimulation using injected medication.

How long does this type of treatment last?

Between **8 and 10 days**. It's started at the beginning of the ovarian cycle, that is, when menstruation begins.

Can normal activities be continued during the treatment?

Women can continue practically their normal activities during the entire treatment. During the last days, a woman may note a bit more bloating, so we recommend reducing the pace of impact sports, such as jumping.

What are its side effects?

Side effects come from **hormonal production**, and they may be the same as those that occur when menstruation begins, with a feeling of a bloated abdomen, breast tenderness, headaches in

some cases, and so on. But these are symptoms that – because the treatment is so short – appear at the end (and not always) and recede quickly.

Is the extraction procedure difficult?

It's a minor procedure that lasts some **10-15 minutes**, and is done with the patient sedated to prevent any discomfort.

Are there any contraindications?

Health contraindications must be determined individually in each case but, in general, this procedure has no contraindications.

What are the risks of undergoing this procedure?

Like any medical intervention, there may be associated risks. These are determined individually in each case and are explained in informed consent prior to treatment.

How long does it take to recover and return to normal life after the procedure?

Recovery is very quick. Women can practically return to their normal activities one day after the puncture, and completely after one week.

In short,

this is a simple technique that allows us to **preserve oocytes that can be used in the future**. It allows us to have a Plan B, if we ultimately decide to try to get pregnant, and to reduce the effects of ageing that inevitably affect our ovaries.

The expert responds...

Preservation of Fertility.
Could you explain **the process for freezing the eggs?**
What does treatment consist of?



Dr. José López Gálvez
CEO, Grupo UR

First, we would use medication to hyperstimulate the ovary. Second, we'd retrieve the oocytes via the vagina, using light anesthetic sedation to prevent discomfort. Third, the retrieved oocytes would be identified. Fourth, they would be frozen. We must freeze from **10 to 12 oocytes** for this procedure to be successful. Due to a variety of circumstances, women of childbearing age are increasingly delaying motherhood. If this is your situation, I recommend a consultation.



Why is **SECUREFIVE** the treatment that offers the greatest guarantees of your baby being born healthy?



Dr. José Félix García
Medical Director, UR HLA El Ángel

Because when we do a chromosomal diagnosis of the embryos that we are going to transfer, we eliminate the possibility of pregnancies evolving with the foetus having chromosomal alterations that would be discovered late, causing invasive techniques and voluntary interruptions of pregnancy that are, at times, late and traumatic. It also **decreases the rate of spontaneous abortion** in the first trimester, whose main cause is chromosomal.

When is it necessary to switch from IVF to egg donation?



Dr. Manuel Lloret

Medical Director, UR HLA Vistahermosa

Egg donation is a technique that has been proven over the years and is **very safe**. However, it is true that the genetic link is one of the aspects that women find most concerning. Patients must know that this alternative is never suggested by specialists on a whim. They must also be informed

about something fundamental, which is that the materno-foetal link goes beyond genetics. The mother-child link between a mother who has undergone IVF treatment using egg donation and her future child **generates connections that are intense as the genetic connections**.

The materno-foetal link goes beyond genetics

Each case is assessed on a personalised basis

What are the advantages of bringing embryos to the **blastocyst** stage?



Dr. Juan Manuel Moreno

Laboratory Area Manager, UR Group

Allowing the embryos to evolve until Day 5 – known as the blastocyst stage – enables making a better selection, since we have much more information on their development, morphology and kinetics. Regardless of these general circumstances, each case is assessed on a personalised basis in the Vistahermosa Reproduction Unit.

Grupo Internacional UR Laboratory Manager Juan Manuel Moreno also tells us that this process allows us to synchronise the receptivity of the endometrium with

the embryo in a more physiological way, since this stage is when they naturally arrive in the uterus.

Time-lapse incubators keep the embryos in their culture without any changes from when they are fertilised in vitro until the day the transfer is carried out. The fact that the embryo is not handled to monitor its development under the microscope is a guarantee that it will not be affected by extracting it from its environment and natural conditions of development, which makes it possible to increase success rates.

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HLA LA VEGA
Murcia





Keeping up the enthusiasm means
looking to the future with optimism.
The time is now.

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