CONDITION

# Ovarian hyperstimulation syndrome

Ovarian hyperstimulation syndrome is a fertility-treatment complication in which enlarged ovaries and leaky blood vessels cause fluid to collect outside the bloodstream.

**WHAT IT IS**
Treatment-related fluid shift after ovarian stimulation

**BODY SYSTEM**
Reproductive system and whole-body fluid balance

**MAIN SYMPTOMS**
Abdominal swelling, pain, nausea, rapid weight gain

**WHAT CAUSES IT**
Exaggerated response to fertility medicines, especially hCG

**HOW IT IS DIAGNOSED**
Symptoms, examination, ultrasound, and blood tests

**MAIN TREATMENT**
Monitoring, symptom relief, fluids, and hospital care when severe

**CAN IT BE CURED?**
Yes - usually resolves as hormone levels fall

**IS IT AN EMERGENCY?**
Sometimes - breathing trouble, chest pain, fainting, or severe pain

**LONG-TERM OUTLOOK**
Most people recover fully within days to weeks

## Overview

Ovarian hyperstimulation syndrome, or OHSS, is a complication of medicines used to stimulate the ovaries during fertility treatment. It is most closely linked with injectable fertility hormones used for in vitro fertilisation, or IVF, but it can follow other forms of ovarian stimulation.

During treatment, several fluid-filled sacs called follicles may grow in the ovaries. In OHSS, the ovaries become enlarged and substances released by the stimulated ovaries make small blood vessels unusually leaky. Fluid then moves out of the bloodstream, most often collecting in the abdomen.

Most cases are mild and improve with monitoring and supportive care. More serious OHSS can affect blood circulation, breathing, kidney function, and the risk of blood clots. Recognising worsening symptoms matters because the condition can change over several days.

OHSS usually begins after the medicine used to trigger final egg maturation. A trigger containing human chorionic gonadotropin, or hCG, is particularly associated with the condition. If pregnancy occurs, hCG made by the pregnancy can make OHSS last longer or become more severe.

## Symptoms

Symptoms often start within several days after an egg-maturation trigger or egg collection. They can also begin later, especially if pregnancy has occurred.

Mild symptoms may include:

Worsening OHSS may cause:

The ovaries may remain enlarged even as you start to feel better. Sudden, one-sided, or severe pelvic pain is not a symptom to monitor at home because it may suggest twisting of an ovary, known as ovarian torsion, or bleeding from an ovarian cyst.

Contact your fertility clinic if symptoms appear after ovarian stimulation, even if they seem mild. The clinic can explain what to track and whether you need an assessment.

- Abdominal bloating, fullness, or discomfort
- Mild nausea or vomiting
- Enlarged, tender ovaries
- A small increase in weight caused by fluid
- Increasing abdominal swelling or pain
- Repeated vomiting or difficulty keeping fluids down
- Rapid weight gain over a short period
- Passing much less urine than usual
- Shortness of breath
- Dizziness, weakness, or feeling faint

## Causes and risk factors

OHSS is caused by an unusually strong response to ovarian-stimulation treatment. It is not an infection, cancer, or naturally occurring ovarian disease.

hCG can increase a substance called vascular endothelial growth factor. This makes blood

vessels more permeable, meaning fluid can pass through their walls more easily. As fluid leaves the circulation, it may collect in the abdomen or around the lungs. The blood that remains in the circulation can become more concentrated.

Factors linked with a higher chance of OHSS include:

Anti-Müllerian hormone, or AMH, and an ultrasound follicle count can help a fertility team estimate how strongly the ovaries may respond. Neither test can predict OHSS with certainty.

OHSS is not usually described as an inherited condition. However, individual differences in hormone sensitivity may help explain why people respond differently to similar treatment.

- Polycystic ovary syndrome, or PCOS
- A previous episode of OHSS
- A high ovarian reserve, meaning many available follicles
- A large number of growing follicles during treatment
- A strong rise in oestrogen during stimulation
- Retrieval of a high number of eggs
- Use of hCG for the trigger or after egg collection
- Pregnancy during the same treatment cycle

## Diagnosis

There is no single test that confirms every case. Diagnosis is based on your recent fertility treatment, symptoms, examination, and test results.

Your healthcare team may ask when symptoms began, whether an embryo was transferred, how much weight has changed, how often you are passing urine, and whether you have breathing problems. They may examine your abdomen and check your pulse, blood pressure, breathing rate, and oxygen level.

An ultrasound can show enlarged ovaries and fluid in the abdomen. It may also help rule out other causes of pain, such as ovarian torsion or internal bleeding.

Blood tests may check:

A pregnancy test may help explain late or prolonged symptoms. If you have chest symptoms, further imaging may be needed to look for fluid around the lungs or a blood clot.

Symptoms such as abdominal pain and vomiting can have other causes. Assessment is therefore important rather than assuming that every symptom after fertility treatment is

OHSS.

- How concentrated the blood has become
- Kidney and liver function
- Salt and potassium levels
- Blood cell counts

## Treatment and management

Treatment is based on severity, test results, pregnancy status, and whether symptoms are stable or worsening. There is no instant treatment that reverses OHSS. Care supports your circulation and breathing while the hormone effect settles.

Mild cases are often managed at home with contact from the fertility clinic. You may be asked to monitor your weight, abdominal swelling, symptoms, and urine output. Drink according to thirst and follow the fluid advice from your care team; forcing large amounts of water does not correct the underlying fluid shift.

Your team may discuss suitable pain relief and medicine for nausea. Non-steroidal anti-inflammatory medicines, such as ibuprofen, may not be appropriate when kidney blood flow is affected, so check before using them.

Because enlarged ovaries are more likely to twist or be injured, strenuous exercise and sexual intercourse may need to be avoided until the ovaries have settled. Complete bed rest is not usually helpful and may increase blood-clot risk. Gentle movement may be encouraged when it is safe.

Moderate or severe OHSS may require hospital care. Treatment can include:

Draining fluid is called paracentesis. A thin needle or tube is guided into the abdomen, often with ultrasound, to remove collected fluid. This may need to be repeated if fluid returns.

Fertility treatment decisions, including embryo transfer, are handled separately from immediate symptom care. Freezing embryos for later transfer may reduce exposure to pregnancy-related hCG during a high-risk cycle.

- Close checks of fluid balance, blood tests, and oxygen levels
- Fluids given into a vein when circulation is reduced
- Medicines to prevent blood clots when appropriate
- Oxygen or other breathing support

- Drainage of abdominal fluid to ease pain or breathing difficulty
- Treatment of kidney, lung, or blood-clot complications

## Complications

Severe complications are uncommon but can be serious. Fluid loss from the bloodstream may reduce blood flow to the kidneys and other organs. At the same time, fluid may build up in the abdomen or around the lungs.

Possible complications include:

Blood becomes more concentrated in significant OHSS, which adds to the risk of clotting. Pregnancy also raises blood-clot risk. Symptoms of a clot can occur even after the abdominal symptoms have begun to improve, so new chest, breathing, leg, or neurological symptoms need prompt attention.

Most people recover without permanent organ or ovarian damage. Complications are more likely when severe symptoms are not recognised or when fluid and circulation problems progress.

- Dehydration within the bloodstream despite body swelling
- Disturbed salt or potassium levels
- Reduced kidney function
- Fluid around the lungs and difficulty breathing
- Blood clots in the legs, lungs, or less usual locations
- Ovarian torsion
- Rupture of an ovarian cyst or internal bleeding

## Prevention

OHSS cannot always be prevented, but fertility clinics can reduce the chance of moderate or severe illness. Prevention begins before and continues throughout ovarian stimulation.

Your treatment team may assess ovarian reserve, previous treatment responses, PCOS, and other risk factors. Ultrasound scans and sometimes hormone blood tests are used to monitor how the ovaries respond. Medication plans can then be adjusted at a clinical level rather than using the same approach for everyone.

Risk-reduction strategies may include choosing a stimulation protocol associated with a lower OHSS risk, adjusting the amount of stimulation medicine, using an alternative type of trigger in suitable cycles, or prescribing a medicine that reduces blood-vessel leakage.

If the response is very strong, the clinic may collect the eggs but freeze all suitable embryos instead of transferring one immediately. This avoids an immediate pregnancy-related rise in hCG, although it cannot guarantee that early OHSS will not occur.

Stopping or changing a cycle can be disappointing, but it may be advised when the safety risk is judged too high. Do not alter fertility medicines or trigger timing without instructions from the clinic.

## Living with it and what to expect

Mild OHSS often improves over several days and generally settles within one to two weeks if pregnancy has not occurred. If you become pregnant, symptoms may worsen or continue for several weeks because the pregnancy produces hCG. The course cannot be predicted exactly from the first day of symptoms.

During recovery, bloating and tiredness may improve before the ovaries return to their usual size. Keep any planned monitoring appointments even if you feel better. Your clinic may continue checking symptoms, blood results, or ultrasound findings until the condition is clearly resolving.

OHSS does not usually cause lasting problems once it has settled. A previous episode does mean that future ovarian-stimulation treatment needs careful planning because OHSS can happen again. The fertility team can use details from the earlier cycle to choose a lower-risk approach.

Recovery can interrupt work, exercise, travel, treatment plans, and embryo transfer. It may also be emotionally difficult after an already demanding fertility cycle. Ask the clinic what activity is safe, when travel is reasonable, and when sexual activity or exercise can restart.

## When to get medical help

Contact your fertility clinic promptly if you develop new bloating, pelvic discomfort, nausea, vomiting, or noticeable weight gain after ovarian stimulation. Routine follow-up is appropriate when symptoms are mild, you can drink and pass urine normally, and symptoms are not getting worse.

Seek same-day medical assessment if you have increasing abdominal swelling, repeated

vomiting, worsening pain, rapid weight gain, dizziness, or much less urine than usual. If you cannot reach the fertility clinic, use an urgent medical service and explain that you recently had ovarian stimulation.

Get emergency help for:

These symptoms may indicate severe fluid changes, ovarian torsion, internal bleeding, or a blood clot. Do not drive yourself if you are faint, breathless, or in severe pain.

- Trouble breathing, chest pain, coughing blood, or fainting
- Sudden severe abdominal or one-sided pelvic pain
- Heavy vaginal bleeding with weakness or dizziness
- A painful, swollen leg
- New confusion, weakness, severe headache, or problems speaking

## Common questions

How long does ovarian hyperstimulation syndrome last?

Without pregnancy, symptoms commonly improve within days and settle over about one to two weeks. Pregnancy can prolong OHSS for several weeks because hCG levels continue to rise. Severe cases may need longer monitoring.

Can I have OHSS without having IVF?

Yes. OHSS can follow other fertility treatments that use medicines to stimulate ovulation, especially injectable gonadotropins or an hCG trigger. It is much less associated with natural, unstimulated cycles.

Does OHSS mean I am pregnant?

No. Early OHSS can occur before a pregnancy can be confirmed. Pregnancy can cause later symptoms or make existing OHSS last longer, but the symptoms themselves do not prove that implantation occurred.

Will OHSS harm my ovaries or future fertility?

Most people recover fully without lasting ovarian damage. Rare complications such as ovarian torsion, rupture, or reduced blood supply can affect an ovary. A previous episode should be considered when planning future treatment.

Why am I gaining weight if I am not eating more?

Rapid weight gain during OHSS usually reflects fluid moving out of blood vessels and collecting in body tissues or the abdomen. It is not the same as gaining body fat. A quick increase

accompanied by swelling, reduced urine, or breathlessness needs prompt assessment.

Can I exercise or have sex while I have OHSS?

Enlarged ovaries are more vulnerable to twisting or injury. Your clinic may advise avoiding strenuous exercise, high-impact movement, and sexual intercourse until symptoms and ovarian enlargement have resolved. Gentle movement may still be encouraged to reduce prolonged immobility.

## Sources

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