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**twoplus**  
*Sperm Guide*  
*fertility tips*

*led by science, trusted by couples*

# The Journey From Ovulation To Pregnancy.

## WHAT IS OVULATION?

Ovulation is part of your menstrual cycle. Every month, your ovaries produce a group of eggs that grow inside small sacs called follicles. Ovulation happens when one of these eggs ruptures its follicle – usually about two weeks before your period arrives. The egg then moves down the fallopian tube where it can be fertilised. Your most fertile days are those leading up to ovulation. You can track your ovulation based on your cervical mucus, (refer to how to track cervical mucus) Your cervical mucus will become more slippery in order to aid the sperm in fertilising the egg.

## HOW LONG DOES OVULATION LAST?

Ovulation lasts between 12 to 24 hours. That is how long an egg released by the ovary is viable!

## HOW DO YOU KNOW THAT YOU'RE OVULATING?

Here are 7 main signs of ovulation that you should look out for:

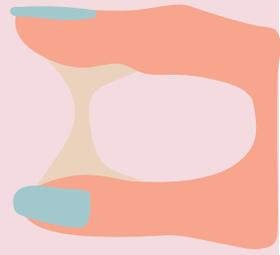
1. Your basal body temperature falls slightly, then rises again.
2. Your cervical mucus becomes clearer and thinner with a more slippery consistency similar to that of egg whites.
3. Your cervix softens and opens up.
4. You may feel a slight twinge of pain or mild cramps in your lower abdomen.
5. Your sex drive may increase.
6. You may notice some light spotting.
7. Your vulva or vagina may appear swollen.

## HOW DOES FERTILISATION HAPPEN?

Prior to ovulation, your body produces high level of estrogen that will help thicken the lining of your uterus and create a sperm friendly environment! These high estrogen levels will trigger a sudden increase in another hormone called luteinising hormone (LH). This will result in the release of the mature egg from the ovary - this is ovulation. Meanwhile, the egg has travelled into the fallopian tube, where it sits for 24 hours waiting to be fertilised by a sperm. If the egg isn't fertilised, the lining of your womb will shed and your period will begin. If a sperm cell survives its journey through the vagina, into the cervix, and beyond to the fallopian tube, it can penetrate the egg and fertilise it. After that, no further sperm can enter the egg.

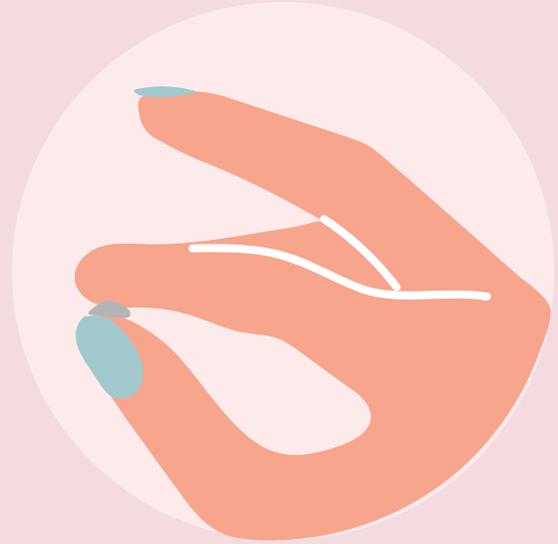
## WHAT IS THE DIFFERENCE BETWEEN OVULATION AND FERTILE DAYS?

While an egg only survives for up to 24 hours, sperm can remain active for up to five days. It may therefore be surprising to learn that a couple can conceive through sexual intercourse four to five days before the egg is released. This 'fertility window' takes into account the lifetime of both the sperms and the egg will be about six days. The 'fertile days' are all the days during your menstrual cycle when you have the ability to become pregnant if you have unprotected sex. Identification of additional fertile days provides couples with more flexibility to plan more opportunities to conceive, which may reduce the pressure that couples can experience when trying to get pregnant.



**NOT OVULATING:**  
dry/sticky

**OVULATION IS  
VERY CLOSE:**  
wet & watery



**BEFORE OVULATION:**  
creamy

**OVULATION:**  
very wet, stretchy  
& egg white-like



# 10 tips on how to improve women's fertility

1. Record menstrual cycle frequency
2. Monitor your ovulation
3. Have sex every other day during fertile window
4. Maintain a healthy bodyweight
5. Eat healthily
6. Exercise regularly
7. Take a pre-natal vitamin
8. Kick the smoking and drinking habits
9. Understand that age causes fertility decline
10. Know when to seek help

\*If you have a 28-day cycle and starts having sex every other day from Day 10 for six days, that will cover your fertile period 98% of the time!

# Exercises to do to improve women's fertility

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Keeping active is a one of the best and most simple ways to increase fertility. Research has found that women who do regular, moderate exercise get pregnant more quickly than those who don't.



## 1. WALKING

Walking is a fantastic way to get active when you're trying to conceive, especially if you're initiating a fitness routine. Low impact exercise like walking is low risk, but can still get your heart rate up. It's recommended to be active at least 30 minutes a day, and it's also easy to incorporate walking in to your daily life.

Get off one stop earlier during your commute or walk to the supermarket rather than driving – your steps will soon add up!



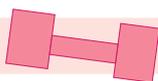
## 2. RUNNING

If you are a regular runner, then you should be totally fine to continue with your routine when trying to conceive. However, don't overexert yourself and push your running. If you start to have abnormal menstrual cycles, you should reduce the amount of running. Always keep an eye on your menstrual cycle.



## 3. YOGA

Yoga is great for encouraging conception! As a low impact exercise, yoga is a great way to get active, especially if you are not that sporty. Yoga is not only helpful for the physical side of things, but is great for your mental health. There is a clear link between fertility and stress, so the calming nature of yoga is perfect for those on the journey to motherhood. Even when you fall pregnant, you can still continue your practice. Instructors are well trained to help advise pregnant women of poses that are safe for them to hold whilst carrying a baby.



## 4. MIX IN SOME STRENGTH EXERCISES TWICE A WEEK

Try and work all of the major muscles as you prepare your body for pregnancy – pregnancy puts strain on the body, and you may find it easier to cope with if you are fit, strong and flexible. It has also been shown that labour is easier for women who are active during pregnancy. Strength exercises might be lifting weights, working with resistance bands, yoga, pilates.



you are  
allowed to be  
both a  
masterpiece  
and a work  
in progress  
simultaneously.

# 10 tips to improve men's fertility

1. Eat more antioxidant supplements
2. Get enough vitamin E and C
3. Quit smoking
4. Avoid certain prescription medications  
(decreases sperm production)
5. Relax and minimize stress
6. Exercise regularly
7. Get enough folate and zinc
8. Limit the consumption of soy and estrogen  
rich foods
9. Take D-aspartic acid supplements
10. Take a fenugreek supplement

# ALL ABOUT SPERM

## SPERM QUANTITY

### 1. Sperm Count

Your sperm count provides the best indication of how effectively your testicles are producing sperm. The amount of sperm in your semen has been shown to be directly correlated to fertility.

### 2. Sperm Volume

The amount of ejaculate can matter. However, semen volume alone has little to no indication of fertility but used to calculate other sperm parameters (like total sperm count).

## SPERM QUALITY

### 1. Sperm Motility

Sperm motility measures the percentage of your sperm cells that can swim. Most of the time, only about half of sperm are swimmers. However, motility is a little tricky as sperms are dependent on environmental triggers like temperature, pH, etc.

### 2. Sperm Morphology

Not all sperm are created equal, and in fact, half of them have weird shapes: two heads, no tails, etc. Morphology measures the percentage of your sperm cells with a normal shape. But generally, abnormally shaped sperm will have more difficulty swimming and fertilizing an egg.

## OTHER FACTORS

The factors described above are the top indicators of sperm health. Andrology labs will often look at other semen parameters to round out their analysis, including color, pH, viscosity, liquefaction time, sperm agglutination, and whether any non-sperm cells are visible. Hence, a sperm test will give you a detailed analysis of your sperms such as sperm's DNA integrity, oxidative stress, capacitation, etc. that have been shown to correlate with fertility.

**Here's the cool part: most men can improve their sperm production through smart health and lifestyle changes.**

# Exercises to do to improve men's fertility

A recent study in the British Journal of Sports Medicine showed that men who watched more than 20 hours a week of television had a 44% lower sperm count than men who exercised instead.



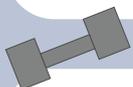
## 1. CARDIOVASCULAR EXERCISES

Jogging, hiking or swimming helps to condition the heart and improve blood flow throughout the body. This can help strengthen erections and reduce toxins in the testicles. Better cardiovascular health can also improve sperm count. Recently, a six month study recruited sedentary men and assigned them various forms of cardiovascular exercise. Compared to the control group (who did nothing), men who went for a 30 min jog 3-6 days a week saw improvements semen volume, sperm count and sperm health.



## 2. GET COMPETITIVE

Team sports are a fun, easy way to keep your heart rate up for a longer period of time. Competition has also been shown to boost testosterone levels which will aid in sperm production!



## 3. HIT THE WEIGHTS

A study in the Journal of Human Reproduction showed that regular weightlifters and outdoorsmen had 42% higher sperm counts than other guys. Working the large muscle groups, quads, hamstrings and glutes are particularly helpful in boosting testosterone levels, so don't skip out on leg day.



## AVOID THESE!

### 1. Avoid the juice

Steroid abuse inhibits natural testosterone production and can prevent you from making sperm. Long term use can irreversibly damage tissues in the testicle which can lead to lifelong infertility, shrunken testicles, man boobs and low T.

### 2. Minimize time on the bike

Cycling is great cardiovascular exercise, but bike seats can be a bit hard on the family jewels. Try not to put too much pressure on them or let them get overheated. Both of those things can impact sperm health.

# The Fertility Diet

## FOR HER.

EGGS

WILD SALMON

NUTS & SEEDS

SPINACH

AVOCADO

FULL FAT YOGURT

LENTILS & BEANS

ORGANIC CHICKEN

BANANAS

FOLATE RICH

## FOR HIM.

SPINACH

GRAPEFRUIT

BROCCOLI

COOKED ASPARAGUS

OYSTERS

EGGS

PUMPKIN SEEDS

TOMATOES

BLUEBERRIES

MULTI-VITAMINS

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## FOODS TO AVOID.

TOO MUCH DAIRY

ALCOHOL

PROCESSED SNACKS

REFINED SUGARS

BEEF BURGERS

FATTY RED MEAT

WHITE CARBS

SOY & ESTROGEN-RICH

# smoothie recipes

## RECIPE #1



Frozen fruit (mangoes, cherries, strawberries, and blueberries!)  
Liquid of choice (raw milk or fresh juice)  
1 raw egg yolk  
1T flax oil  
3t. Acerola cherry vitamin C powder  
1/3 C. kefir or yogurt  
1t. spirulina  
1T Maca



Blend and enjoy!

## RECIPE #2

1 cup organic romaine or butter lettuce, or 1/2 cup lightly steamed spinach or kale  
1/2 cup – 1 cup organic berries  
1/2 Tbsp organic walnut oil  
1 scoop wheatgrass powder  
1 tsp spirulina  
1.5 cup filtered water  
2 tbsp coconut manna  
1 scoop acai powder



Blend and enjoy!

## RECIPE #3



2 ripe bananas, peeled and sliced  
1/2 cup water  
2 oranges, peeled and sliced  
3 cups plain Greek yogurt use nut-based yogurt if you are vegan  
2 tbsp grated orange zest (from orange)  
2 tsp pure vanilla extract  
1 cup ice

Blend and enjoy!



# breakfast recipes

## RED AND GREEN FRITTATA

(Serves 6 to 8)

### INGREDIENTS:

6 cups (1.4 liters) bite-size broccoli florets  
8 large eggs  
1/4 cup (59 ml) milk  
1/4 teaspoon (1 ml) salt  
1/4 teaspoon (1 ml) freshly ground pepper  
1 red bell pepper, cut into 1/4-inch thick slices  
1 cup (113 grams) grated white cheddar  
4 tablespoons (60 ml) grated Parmesan cheese  
2 teaspoons (10 ml) olive oil



### HOW:

1. Bring a large pot of water to a boil; add the broccoli and cook until just tender, about 3 minutes. Drain well.
2. Preheat the oven to 350°F (177°C). In a large bowl, whisk the eggs, milk, salt, and pepper together in a large bowl. Stir in the broccoli, red pepper, 3/4 cup of the cheddar, and 3 tablespoons of the Parmesan cheese.
3. Heat the oil in a 12-inch ovenproof nonstick frying pan over medium-high heat. Pour the egg mixture into the pan and reduce the heat to medium. Cook for 3 minutes to set the bottom of the frittata. Sprinkle the top with the remaining 1/4 cup of the cheddar and 1 tablespoon Parmesan cheese.
4. Transfer the pan to the oven and bake until the frittata is set in the center and slightly puffed up, about 15 minutes.
5. Let cool for 5 minutes in the pan, and then loosen the edge with a spatula and slide onto a large plate. Cut into wedges and serve warm or at room temperature.

# lunch recipes

## OPEN FACED VEGGIE MELT

(Serves 1)

### INGREDIENTS:

1 slice of hearty, whole-grain bread  
Dijon mustard  
1 to 2 thin slices red onion  
4 to 6 thin slices cucumber  
1/2 ripe avocado  
Sea salt  
Freshly ground pepper  
1 slice (about 1 ounce or 28 grams) Swiss cheese

### HOW:

1. Preheat the broiler.
2. Spread the bread generously with mustard. Scoop the avocado flesh from the peel with a spoon and slice lengthwise. Fan the avocado on the mustard. Arrange the onion slices and cucumber over the avocado and sprinkle lightly with salt and pepper. Top with the cheese.
3. Place under the broiler until the cheese is just melted and bubbling, about 1 minute.



# dinner recipes

## GLAZED SALMON WITH MUSTARD AND APRICOT GLAZE

\*Wild-caught salmon is more nutrient-dense than farmed salmon — more zinc, iron, and potassium, and less fat.

Makes: 2 servings, 3 ounces each. Gluten-Free.

### INGREDIENTS:

Two 4-ounce wild salmon fillets, with skin  
1 tablespoon stone-ground (whole-grain) mustard  
2 teaspoons apricot preserves  
1/4 teaspoon kosher salt  
Black pepper, freshly ground, to taste

### HOW:

1. In the oven, place the rack about 5 to 6 inches away from the heat source. Preheat the broiler. Line a rimmed cookie sheet or broiler pan with foil and coat the foil with nonstick cooking spray.
2. In a small bowl, combine the mustard and apricot preserves.
3. Place the salmon on the prepared pan, skin side down. Sprinkle with salt and pepper. Place in the oven and broil for 5 minutes. Remove the pan from the oven and spread the mustard mixture evenly over the top. Cook the salmon an additional 5 to 6 minutes, or until the fish is just opaque inside when tested with a small knife, and the internal temperature reaches 145°F on a food thermometer.

**STORAGE:** Let cool, cover, and refrigerate in a sealed container for up to 3 days.

### NUTRITIONAL INFO: (Per Serving)

Calories - 200  
Fat - 8g (Sat 1.5g)  
Protein - 26g  
Carb - 4g  
Calcium - 17mg  
Iron - 1.1mg  
Sodium - 380mg  
Folate - 29mcg V



# #TTC MYTHS!

## 1. HAVING AN ORGASM HELPS SUCK UP THE SPERM

MYTH –

Orgasms are awesome but it doesn't affect your chances of conceiving. There are studies that shown that there's no correlation between orgasm and conception correlation!

## 2. HAVE SEX EVERYDAY

MYTH –

Treating it super seriously can lead to unnecessary stress for both parties. Ovulation occurs roughly 14 days before the start of your next period. To make the best of this fertile window, have sex every two or three days 18 days before your next period.

## 3. ONLY HAVE SEX DURING DAY 14 (OVULATION)

MYTH –

Start having sex a few days before ovulation (Day 11). Sperm are pretty patient and determined, and the winning sperm will hang out in your cervix for 72 hours to be ready for the descending egg. If you wait until your basal temperature is elevated, you will have already ovulated and may have missed the window – an egg only survives for 12 to 24 hours after being released!

## 4. STAY IN BED 30 MINUTES AFTER SEX WITH YOUR LEGS UP AGAINST THE WALL

MYTH –

It makes absolutely no difference if you stand up or stay in bed after sex. There can be a trickle, but that's mostly seminal fluid!

## 5. WANT A BOY? HAVE SEX RIGHT BEFORE OVULATION. WANT A GIRL? DO IT FEW DAYS PRIOR!

MYTH –

There is no natural way to determine or predict the sex of your baby! Mother nature has built in tamperproof odds to ensure that there's a pretty even population split.

# SEMEN FLOWBACK

## WHAT IS SEMEN FLOWBACK?

Most of the semen flows out of vagina after intercourse in all normal fertile couples. Semen is expected to flow out of vagina after intercourse. Semen contains millions of sperms. A very small amount of semen needs to enter the uterus, and only a single sperm is responsible for conception to take place. The rest/most of it is expected to flow out of vagina in all normal fertile women.

## WHY IS SEMEN FLOWBACK A PROBLEM?

A study published in the Human Reproduction Update found that “flowback” (loss of semen post coitus) occurred in 94% of copulations. In 12% of copulations, there is an elimination of almost 100% of the sperm inseminated. As a result, there is less than 1% of sperm that will be retained in the female reproductive tract. This shows that only a minority of sperm cells will actually enter the cervical mucus. Hence, twoplus Sperm Guide is designed to reduce semen flowback and increase rate of sperm survival and insemination.

## HOW DOES TWOPLUS HELP WITH SEMEN FLOWBACK?

twoplus Sperm Guide is placed into the vaginal tract prior to sexual intercourse for the purpose of capturing the semen near the cervix. After ejaculation, the petal feature will open and capture the semen, preventing semen flowback. It will place the semen near the cervix (the opening of the uterus), cradling the sperm in the protective environment of the cervical mucus. This way, there will be prolonged exposure of the sperm cells to the cervical mucus and more of the sperm cells will survive and swim up into the uterus. As such, there are higher chances that a sperm will reach and penetrate the egg, increasing the odds of conceiving. twoplus Sperm Guide is also a less invasive method of aiding in conception with a limited number of risks.

## OTHER OPTIONS

There's no need to do the legs up in the air method after sex or even perform a bicycling motion! However, it's ideal for the women to lay flat for 15-20 minutes after sex, with hips elevated (using a pillow!) which will give the sperm time to swim through the cervical canal - the first of their journey to reach the egg.

# Tips on emotional support for infertility & wellbeing

Infertility is without doubt a life altering experience. Dealing with the multitude of medical decisions and the uncertainties that infertility brings can cause a great deal of emotional stress for many couples. So if you find yourself feeling anxious, depressed, out of control, or isolated, you are not alone. Here are some tips on coping with infertility and focus on your emotional wellbeing.

## 1. COMING TO TERMS WITH DIAGNOSIS

Stop feeling panicky and anger towards yourself. There are as many as one in seven couples trying to have a baby will experience infertility.

You're not alone.

## 2. RECOGNISING YOUR EMOTIONS

Don't shut off your feelings and take steps to treat yourself with care & love. Write it down, paint, develop a self care routine.

## 3. LEARN STRESS-REDUCING TECHNIQUES

Assess the stress you feel and learn stress-reducing techniques to help manage your wellbeing. Try techniques to relax and destress.

## 4. TALK TO YOUR SPOUSE

Give your spouse space and time to cope differently. Tell your spouse how you want to be helped/loved.

## 5. FIND A COMMUNITY

Find a community and connect with people who understand & going through a similar process.

## 6. LOOKING INTO SOLUTIONS

Research on the different solutions and move forward in whatever way you choose. Mindfully accept the changes and challenges yet to come. Identify and write down activities that will help you.

# fertility tracker.

CYCLE DAY														
DATE														
BASAL TEMPERATURE	<a href="http://www.twoplusfertility.com">www.twoplusfertility.com</a>													
	SYMPTOMS	ALL'S GOOD												
		CRAMPS												
		TENDER BREAST												
		HEADACHE												
		BACKACHE												
		FATIGUE												
	VAGINAL DISCHARGE	NO DISCHARGE												
		SPOTTING												
		STICKY												
		EGG-WHITE												
		WATERY												
		CERVICAL FLUID												
INTERCOURSE														
OVULATION														

# period tracker.

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
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# thoughts & to-dos.

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# notes to self.

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# about us.



**Benjamin Tee**  
**Co-Founder, twoplus fertility**

Dr. Benjamin Tee started twoplus fertility after he and his wife faced challenges conceiving after several years. Like many couples, Ben and his wife were very excited to start a family together after spending time on their careers. However, the longer the process took, the greater the frustration became for them. Fertility doctors had diagnosed them with unexplained infertility.

As a scientist with a PhD from Stanford University and a Stanford Biodesign Fellow, Ben decided to channel his frustrations to understanding fertility and conception. He was frustrated by the lack of good and credible home-based solutions for couples that preserved the privacy of the process. He wanted this to change.

After developing a good understanding of fertility through researching this space and speaking with top fertility scientists and clinicians, Ben teamed up with a couple of engineers to start twoplus fertility. They aim to look for ways to improve the likelihood of conception for couples anywhere in the world.

twoplus fertility's approach is simple: "We want to build products that couples like Ben and his spouse would use."

Our first product, the twoplus sperm guide, focuses on a key aspect of natural fertility: improving sperm transport for fertilization. Men of this generation carry about half the number of sperms compared to men from 40 years ago (1). Coupled with the fact that most sperm don't make it very far into the female reproductive tract(2), the twoplus sperm guide is designed to get as many sperm as possible to the right location within the vaginal tract for conception.

The team took over two years to develop the technology behind twoplus sperm guide. The process had been long and arduous. However, it was all worth the effort when twoplus welcomed the first baby born using its technology. Having hit that milestone, Ben now wants twoplus to aim higher: "We want to help 1 million couples conceive over the next 10 years."

References:

1. H. Levine et al., "Temporal trends in sperm count: a systematic review and meta-regression analysis," Human Reproduction Update, vol. 23, no. 6, pp. 646-659, 2017.].
2. reference-S. S. Suarez and A. A. Pacey, "Sperm transport in the female reproductive tract," Human Reproduction Update, vol. 12, no. 1, pp. 23-37, 2005.