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PART SEVEN

Sex & Reproduction

75. Men think about sex every seven seconds

Victor Minichiello & Mitra Rashidian
University of New England

Each time you turn on the television after 10 pm, eavesdrop on a group of men at your local pub, or drive past a billboard, you're likely to encounter some stereotypes about masculinity and men's sexuality.

We're told that men's minds are so immersed in thoughts of sex that it can become a full-time preoccupation. Think of James Bond's sexual exploits, Cola Cola's 'bigger is better' campaign, and the folklore that men think about sex every seven seconds (which would amount to more than 8,000 thoughts about sex a day).

Let's focus, first, on one setting where there are ample opportunities for sexual interactions and discussions about sex: university. According to a recent study from Ohio State University, young men think about sex 19 times per day. They also have other regular, needs-based thoughts about eating and sleeping.

In contrast, the Kinsey Report, which examined the sexual behaviour of men aged under 60 years, found 54% think about sex every day or several times a day, 43% think about sex a few

times a week or a few times a month, and 4% reported just one sexual thought, or less, a month.

Another study, from 1990, found 16- to 17-year-olds think about sex every five minutes. By age 40 to 49, this drops to a sexual thought every half an hour, and it keeps reducing with age.

There's certainly no consensus among researchers about the frequency of men's sexual thoughts. And little is known about the nature of these thoughts.

So, do men think about sex more often than women?

A handful of researchers argue there are no significant differences between the frequency of men's and women's erotic thoughts outside of sex. But most studies show that men think about sex more often than their female partners. This is used to support the statement that men have more powerful sex drives than women.

Studies have suggested testosterone contributes to men's frequent preoccupation with sexual thoughts. In other words, because men have a higher level of testosterone than women, they have more frequent sexual fantasies and a stronger desire for sex.

Men's sexual fantasies tend to be more explicit than women's. And interestingly, men are more likely to fantasise during masturbation (86% of the time) compared with women (69% of the time).

This difference has been attributed to men having greater opportunities — culturally and biologically — to experience sexual fantasies.

Why men think about sex

A multitude of factors could contribute to some men's preoccupation with sexual thoughts, feelings and behaviour. A 2009 study by Reid and Carpenter, for example, found that factors such as emotional distress, discouragement, poor self-esteem, difficulties coping with stress, and self-doubt were associated with hyper-sexuality.

Psychologist Michael Bader suggests that sexual fantasies, and resulting sexual arousal, have more to do with unconscious problem solving than most of us realise.

But men's preoccupation with sexual thoughts cannot be fully understood without considering the effects of social media and constant internet access.

Young men are increasingly using Facebook to share pictures and stories about their sexual conquests. And the prospect of 24/7 access to pornography via mobile phones and laptops may prompt compulsive behaviour and excessive sexual thoughts.

More sex

There are other myths about the sexual character of men: they should aspire to be virile, 'well-endowed' studs and always ready for sex. But most men are not 'well-endowed': the average penis size is not nine inches but, rather, between five and seven inches.

As for being ever-ready for sex, as men age, they have sex less frequently and, some may even need medication to help with erectile function.

So the question we need to ask is who benefits from the perpetuation of these myths? Perhaps Coca Cola or the sex industry. But certainly not men.

76. Eating oysters makes you randy

Penny Wilson
Australian National University

The stuff of romance novels or a secret tool to give you a boost in the bedroom? Let us examine the truth about oysters.

Holly gazed around in awe. Rory had brought her to a tiny waterfront restaurant. From the table on the jetty she watched the setting sun sparkle across the bay and reflect off Rory's chocolate brown eyes.

'I hope you like oysters, Holly. I took the liberty of ordering us three dozen with samples of the chef's special toppings. This restaurant is famous for their delicious oysters.'

Holly sighed. Although she had known Rory for a while, this was their first date and very romantic. 'Remember, first date, home alone by midnight,' she murmured, more as a reminder to herself. But, oysters! Heavens, weren't they supposed to be an aphrodisiac?

Does Holly withstand the oyster's reputation for inspiring passion? Or will they make her abandon caution and leap into Rory's embrace?

All will be revealed — but first a short aside.

Like all good myths, there's an element of truth in the 'oysters-make-you-randy' story. But a plateful of oysters for dinner will not, by themselves, lead to a night of wild passion.

Having said that, back in 2005, newspapers in the United Kingdom and in Australia reported with breathless glee that scientists had finally made a connection between eating oysters and a rise in the levels of sex hormones in male and female rats due to the existence of a couple of unusual amino acids.

Perhaps Casanova was right to power up with oysters before his lusty bedroom activities. He went through 60 of the slippery molluscs a day, which would have had a beneficial impact on his body's zinc level, never mind his sex hormones.

Oysters are a particularly good source of zinc, an important mineral in our diet and essential for the function of many of our body's systems. A shortage of zinc can have a detrimental effect on our reproductive systems, and the mineral is also known to help boost testosterone levels.

We don't store zinc in our bodies so we have to replenish the supply regularly. Zinc from fish and meat is better absorbed by our bodies than zinc in grains. Liver has a good supply of zinc — think paté and this option becomes sexier — but oysters have a whole lot more of the mineral than any red meat.

But when did we start eating oysters? There's evidence from middens found around the Australian coast that Aboriginal communities were eating oysters some 12,000 to 20,000 years ago.

In more recent times, the Romans considered oysters a delicacy. Pliny wrote that the best oysters were found in river mouths where light from the sun made them sweet and plump.

So fond were the Romans of oysters that they even developed ways to cultivate them, creating the first oyster farms. And when they invaded Britain, the Romans discovered a plentiful supply of oysters around Britain's coast; oysters that were shipped back to Rome live for the discerning Roman public.

By the 18th century, oysters had become an easily accessible food for New York and London poor. They were dredged by fishermen in barges, or picked over by hand at low tide, and sold by street sellers pushing barrows. But by the middle of the 19th century, the oyster beds were gone — destroyed through indiscriminate fishing practices.

As availability of oysters decreased, cultivated oysters became an extravagance and were sold at a premium price. With the demise of the oyster beds went the natural filtration processes that kept waters clear, an increasingly urgent problem recognised today.

Here in Australia, we have three main types of farmed oysters: the Sydney rock oyster and the Angasi oyster are native to Australia, while the Pacific oyster is a native of Japan. The majority of our oysters are farmed in New South Wales,

Tasmania and South Australia and we enjoy them so much that only 3% is exported.

Oysters may not make you randy but they do contribute to a healthy diet, which is definitely a good way to maintain sexual health. And don't forget the pure sensual pleasure of eating oysters. The slippery, salty creature cupped in its own misshapen shell, bathed in brine, topped with a splash of lemon, a shalloty vinegar reduction or a citrusy ponzu dressing — just orgasmic!

So if you're taking your partner to dinner and want to set the mood, don't abandon the oysters … or the location, the champagne and the candlelight. Oysters can still play an important role in the game of romance, even though they aren't an aphrodisiac in a shell.

And so, back to our story…

Holly woke to find Rory gone. Self-recrimination hung like a shadow in the daylight. Eating those oysters, what was she thinking?

'Are you awake, Holly, gorgeous girl?' Rory stood in the doorway holding a breakfast tray in his hands. 'Breakfast delivered to your bedside, princess. Café au lait and the best pain au chocolat in the whole town.'

Hastily flattening her tousled hair, Holly sat up, sniffing the glorious aromas of steaming coffee and buttery croissants. She gazed hungrily at the curls of chocolate oozing from the crisp pastry.

'Rory … how wonderful!' grinned Holly, feeling overwhelmingly happy.

Rory gave Holly a wicked smile, 'They say oysters are an aphrodisiac but wait til you eat the chocolate. Nothing beats chocolate for arousing passion.'

77. Chocolate is an aphrodisiac

Merlin Thomas
Baker IDI Heart & Diabetes Institute

There are many ways to a woman's heart. But is a box of chocolates really one of them?

What makes chocolate romantic is entirely contextual. Valentine's Day is traditionally the time for couples to profess their love for one another, usually by giving chocolate or flowers and sending greeting cards or, now, e-valentines. Chocolate Easter eggs hold no such allure.

But if its role in romance is just symbolism, why should chocolate take the cake?

One reason may be that cocoa products have historically been considered an exclusive item; the Aztecs thought it was their gods' drink of choice. The scientific name of the cocoa tree, *Theobroma cacao*, actually comes from the Greek words *theo* (god) and *broma* (drink).

So, if you worship your lover and think her a goddess, isn't chocolate a fitting tribute?

Cocoa products contain many biologically active components (including methylxanthines, biogenic amines, flavanols and cannabinoid-like fatty acids) that could, in theory, impact on human health. Some studies suggest regular chocolate intake is associated with a reduced risk of cardiovascular disease and mood disorders.

But in the lead-up to Valentine's Day, what we really want to know is whether chocolate is an aphrodisiac.

It's tempting to hypothesise that chocolate has a direct impact on female sexuality — it's almost believable. Some studies have even suggested women who eat chocolate have bigger libidos than those who don't. But this is not the same as cause and effect.

There's no biological evidence to show that chocolate — or any other food or beverage — works as an aphrodisiac. A number of foods have been ascribed aphrodisiac qualities, and they tend to have a strong placebo effect. In other words, they get you thinking about sex, and this puts sex on your mind.

Many products have acquired an aphrodisiac reputation simply because they were once exotic or unfamiliar foods. Before Hershey, globalisation and mass production, chocolate was the inaccessible luxury of the rich and famous. Who would say no to a bite of that?

Another part of chocolate's aura is sympathetic magic. This idea posits that if two things are alike, then it might be possible to garner the same effects from them. This is also known as the law of similarity and explains the fallacious appeal of rhino horn!

But sex and chocolate have much in common. Both cause blood vessels to dilate (known as vasodilatation) and accentuate flushing, especially as chocolate was traditionally a hot beverage.

Finally, when it comes to hedonistic appeal, the taste, texture, aroma and packaging of chocolate are hard to beat. The sensory qualities of creamy chocolate melting in your mouth may be far more stimulating to the brain than the same chocolate in your stomach.

In mammals, taste and odour are among the most important determinants of sexual attractiveness. The existence of an equivalent human pheromone remains to be established. But if there was one, it would probably smell and taste like chocolate on Valentine's Day.

78. Erectile dysfunction is all in the mind

Doug Lording
Monash University

It's perfectly normal for men to have an occasional problem gaining or sustaining an erection. But for some men, these difficulties are frequent and severe, making penetration impossible. This condition is known as erectile dysfunction, or ED, and occurs when there is a reduced blood flow to the penis at the time of erection.

We now know that erectile dysfunction is in the pelvis, not in the mind — but this understanding is relatively recent.

During my formative years in medical training (late sixties, early seventies) I was taught that 90% of ED (then referred to as impotence) was psychological. All the educational sessions featured psychiatrists or psychologists, and most men who presented were sent to these experts for treatment.

Few treatments were available at the time. There were penile implants, vacuum constriction devices and testosterone therapies, but none were particularly effective. There was also a societal attitude that men should accept their time had come to cease having a sex life.

During the eighties there was evolving appreciation of the role of nitric oxide and endothelial cell function, which increased our understanding of penile neural and vascular mechanisms. This stimulated great interest for scientists working in ED medicine.

But undoubtedly the biggest catalyst for change came from Big Pharma. When Pfizer trialed sildenafil (Viagra) for the treatment of angina, the researchers fortuitously found that the male participants got erections. The pharmaceutical industry

saw the potential for a safe and effective oral medication for the treatment of ED and got the drug to market.

Funds then flowed to facilitate more research about the causes of ED and the general implications for health. Large epidemiological studies showed that ED was much more prevalent than previously thought, affecting at least one third of men over 40 and increasing with age.

Researchers also uncovered strong links between ED and diabetes, high cholesterol, cigarette smoking, hypertension, obesity and heart disease. In retrospect, the association with conditions that affect the blood vessels and cause heart disease isn't surprising, given the vascular nature of the erection process. There needs to be about a ten-fold increase in blood flow to sustain a hard erection.

A major development in ED medicine was the finding in 2005 that ED predicted a risk of heart disease. The researchers followed men aged over 50 for seven years and noted that if a man developed ED, he was at risk of subsequent coronary artery disease. Over a five-year period this risk was 11%, indicating ED was a potent and significant predictor of high risk. Numerous studies have confirmed these findings.

Most recently, an Australian study showed the same increased risk applied to men in the 20-to-50 age range. It's also been shown that among diabetic men, those who have ED are much more likely to have significant undiagnosed coronary artery disease — and the severity of ED predicts the severity of the heart disease.

As well as these vascular conditions, ED can also be caused by prescription medicines, drug and alcohol abuse, hormonal problems, prostate and bowel surgery and pelvic injuries, and spinal cord diseases. In some men, of course, the cause may be purely psychological, or related to depression and anxiety disorders.

It's now estimated that 90% of men with ED have a predominantly physical basis for their condition — so we've come full circle in our understanding of erectile dysfunction. But this doesn't preclude the possibility that these men might suffer from secondary psycho-sexual consequences, or that targeted psycho-sexual treatment will be helpful.

The knowledge that ED might be a symptom of a physical health problem should serve as yet another reminder for men to seek help for this treatable condition. The good news is that with the right information — and the right attitude — men can (and should) overcome it.

79. Men also go through menopause

Carolyn Allan
Prince Henry's Institute

Feeling tired and grumpy? Maybe a litte emotional? If you're a middle-aged male, these symptoms might be hormone-related, but no, you're not going through manopause.

It's true that signs of men's low testosterone are similar to symptoms of menopause: low energy, mood swings, irritability, poor concentration, reduced muscle strength and bone density, and a lack of interest in sex.

But unlike women, whose oestrogen levels fall rapidly when they go through menopause, men's testosterone declines much more modestly and gradually.

Testosterone levels in men are highest between the ages of 20 and 30 years, and from from 30 to 80 years they drop by around a third. Some men will experience a greater drop than others, particularly if they're overweight or obese.

Testosterone is essential for good health because it stimulates the growth of muscles, bones, and the bone marrow that makes red blood cells.

So testosterone or 'androgen' deficiency — which affects one in 200 Australian men under 60 — can have a major effect on the body's ability to function normally.

The 'manopause' myth has been perpetuated by the interest in testosterone replacement therapy (TRT) as an elixir of youth to improve the symptoms and signs of ageing.

Testosterone therapy offers benefits for men with known causes of androgen deficiency, but there is a lack of data to define the level of deficiency that warrants this treatment.

If the cause of androgen deficiency is unknown, treatment needs to be tailored to the individual. Testosterone treatment certainly shouldn't be requested or prescribed in the belief that it's a 'cure-all' for symptoms of ageing.

For ageing men without classic androgen deficiency the jury is still out on the effectiveness of testosterone replacement therapy.

The safety of the treatment — particularly on the prostate and cardiovascular system — is unclear, and the benefits seem relatively modest. There is certainly no remarkable return to youthful vigour.

Often, low testosterone levels can be a sign of underlying health conditions. Low testosterone levels are associated with various chronic diseases such as diabetes, heart disease and depression.

The Massachusetts Male Ageing Study (the largest study of male ageing) found that chronic illness, use of prescription medication, obesity or excessive alcohol intake were associated with a 10 to 15% reduction in serum testosterone levels (testosterone in the blood) in men aged over 40 years.

Treatment, then, should focus on reducing the risk factors for these conditions (for example, weight loss, reduced alcohol intake) rather than the testosterone level.

While the idea that men, too, go through menopause might be a playful explanation of the ageing process, it shouldn't be taken too seriously, especially if serious symptoms of chronic diseases are dismissed.

80. Men are hotter than women

Merlin Thomas
Baker IDI Heart and Diabetes Institute

Holding a body close to you, it's easy to appreciate the warmth a human body can generate.

Humans are 'warm-blooded' animals. We're able to effectively maintain a stable internal temperature, even on cold mornings or hot afternoons. This thermo-regulation is a dynamic process that balances heat generation (through metabolism and muscle activity) and heat loss to the environment, in order to maintain core temperatures.

In the first comprehensive experiments with a mercury thermometer in 1851, Carl Wunderlich demonstrated in studies of more than 25,000 individuals that the normal body temperature was around 37°C. He also noted that 'grown up women may be a trifle warmer than men of an equal age'. Subsequent studies have suggested that if this difference exists at all, it's imperceptibly small (less than 0.2°C).

However, there are a few situations where women's core temperature are more clearly a little higher than men's. Pregnancy and hormonal contraceptives will increase core temperatures by about 0.5°C to 1.0°C.

Core temperature also fluctuates between day and night time in a circadian rhythm: we're generally 0.5°C to 1.0°C warmer in the late afternoon than in the early hours of the morning.

Temperature differences in bed

Interestingly, recent research suggests that men and women don't use the same biological clock. On average, women go to bed earlier and wake up earlier than men. So these mornings can feel colder to women because it actually is colder at the time of their (earlier) waking.

And the night time nadir in core temperature, which occurs about three to four hours before waking, is over an hour earlier in women. So women have a head start: by the time their male partner eventually wakes up, women have been warming up for longer.

Our skin plays a particular role in regulating heat loss, chiefly by the control of perspiration (our own evaporative cooling) and blood flow to the skin. More blood flow makes the skin look redder, plumper and feel warmer to touch. But on cold mornings, these vessels constrict, reducing the volume of blood in the skin and heat loss to the environment.

While the core temperature remains within narrow parameters, the warmth of the skin is much more variable. On average, it sits around 33°C, but can vary a lot between different skin sites. The extremities (toes, fingers, lips, tip of the nose and ears) are the first to cool and can drop to below 25°C some nights if left outside the doona.

Unlike our core temperate, skin temperatures are clearly lower in women than in men, especially in cold air. One study, for instance, reported that the average temperature of women's hands exposed to cold was nearly 3°C degrees lower than that observed in men.

This has been largely attributed to the very obvious dimorphism in body structure, limb proportions, surface area, insulating muscle and fat mass, thickness and distribution between men and women, which result in women maintaining a lower skin blood flow and, consequently, lower skin temperatures.

At the same time, our sense of how cold our bedroom is (or how warm our partner is) comes largely from skin temperature. By having cooler skin, women appear to be more sensitive to incremental skin cooling, meaning it takes less (cold) to reach a point at which skin sensors 'feel the cold', say enough is enough, and reach for the extra blanket.

Partly as a preemptive strategy, women (particularly younger, slimmer women) generally favour a higher skin temperature than men. Ultimately, this means that any gender differences in skin temperature under experimental conditions are eliminated in real life by prudent behaviour. If women feel chilly, they make themselves warmer. Men, by comparison, may be unfeeling but never cold.

81. Sex induces labour

Monique Robinson
Telethon Institute for Child Health Research

Sex. It's what got you into pregnancy, but is it also the pathway to getting you out?

Around a quarter of all Australian pregnancies are medically induced, with a third of those inductions occurring due to pregnancy continuing beyond term (40 weeks). Induction is not without its risks and discomfort and it is understandable that women may look to some alternate method of inducing labour.

One American study reported that half of women who reach their due dates attempt to initiate labour through a variety of non-medical techniques. There is a proliferation of DIY methods to induce labour that can be found online, and

one of the most common recommendations is to have sex. But does sex initiate labour?

There are biologically plausible reasons why having sex at term may help to speed the arrival of a baby. First, semen is a natural source of prostaglandins, which are used in synthetic form to encourage cervical ripening in preparation for labour. Second, sex plus or minus orgasm has been found to increase uterine activity, and nipple stimulation is also thought to stimulate the uterus to induce labour.

But despite the biological plausibility and popularity in the community, there has been very little scientific evidence so far to support sex as a method of inducing labour.

One study found that sexual intercourse at term was associated with earlier onset of labour. However, when the researchers repeated this study, they found the reverse: women who reported having sex at term were actually less likely to go into spontaneous labour than women who abstained.

A US study confirmed these results and also found no significant cervical changes for women who were sexually active at term compared with those who were not, disputing the cervical ripening hypothesis.

So if there is no scientific evidence to support this method of labour induction, why are more than three quarters of pregnant women aware of this myth and why do almost half of all women believe it?

Well, the thing about being 40 weeks pregnant, is that sex or no sex, you are likely to go into spontaneous labour at any moment. So it's very easy to mistakenly identify sex as the cause when, in fact, it may be completely irrelevant. Psychological research has shown that once something has happened to us, we are more likely to believe that it is universally true, hence the proliferation of testimonials for this being the cause of labour.

It's also a difficult thing to assess, as sexual activity is hard to uniformly define. Breast stimulation, for example, may or may not be part of sexual activity, and the role of prostaglandins from semen will depend on condom use, volume of ejaculate, and concentration of prostaglandin within the ejaculate.

There are reasons why some women may avoid sex at term, not the least of which is the necessary gymnastic skill. Women who are experiencing abdominal discomfort, mild contractions, or pelvic pressure may be less likely to extend a 'come hither' look to their partner, and these symptoms may also indicate labour is imminent. Hence the findings that those who abstain from sex at term are more likely to go into spontaneous labour.

In terms of other labour induction myths, there is also no evidence to suggest that eating spicy food at term can speed the arrival of your baby.

The same goes for castor oil, which is more likely to have you running for the toilet than the delivery suite.

Reportedly, some Native American tribes traditionally believe that a fright can induce labour, and other cultures believe that starving the mother in the last week of pregnancy will encourage the baby to emerge in search of a feed. Aside from the lack of scientific evidence, frightening or starving the baby out really doesn't seem like the kindest way to welcome your bundle of joy to the world.

So it would appear that, in the tradition of the online Chinese baby gender predictor that is right 50% of the time, having sex at term may indeed induce labour, or equally likely, it may not.

Toey even though you can't see your toes? Unless you have a high-risk pregnancy and have been advised to abstain, there is no harm done from sex, curry or both.

82. The pill affects long-term fertility

Sonia Davison
Monash University

The combined oral contraceptive pill is the most popular form of contraception in Australia and is taken by an estimated 100 million women worldwide.

The pill's most obvious use is to prevent pregnancy. But it's also prescribed to treat acne, regulate periods, alleviate menstrual pain and reduce the symptoms of conditions such as endometriosis and polycystic ovarian syndrome.

The average duration of pill use is estimated to be about three to five years, but varies widely by country.

Research suggests that most women want to promptly return to their pre-pill fertility levels when they stop taking the contraceptive. But some women have difficulty falling pregnant after ceasing the pill, leading them to question whether the contraception affected their long-term fertility.

This myth is so pervasive that researchers have identified fear of infertility as a key reason for women avoiding this effective form of contraception.

How does the pill work?

The pill works by effectively switching off a woman's natural production of ovarian oestrogen and progesterone and replacing this with a synthetic version of both hormones. This sets off a number of mechanisms: inhibiting egg release (ovulation), changing the consistency or thickness of cervical mucus and altering the lining of the womb so that implantation of a fertilised egg is less likely.

The early contraceptive pill used much higher doses of hormones than currently available pills, which also vary in their dose of hormones. Most pills contain the oestrogen ethinyl oestradiol and there are a number of different synthetic progesterone-like compounds in different pill formulations.

Women often try a number of pills throughout their reproductive lifetime and, unsurprisingly, find it difficult to recall the exact duration they've taken a particular pill. All these variables mean it's difficult for researchers to make general conclusions about the effects of 'the pill': it's not just one particular hormonal agent taken for a defined time in one particular group of women.

Fertility

A woman's fertility declines with age, particularly from 36 to 37 years and this is, in part, genetically determined.

Fertility is also affected by general and gynaecological health, concurrent illness, weight, exercise levels, cigarette smoking and stress. Weight above and below the recommended range for height can have an impact on fertility.

Health-based fertility problems are often signalled by irregular or absent menstrual cycles. This is one of the body's natural 'safety valves' to protect against pregnancy when the health of the foetus or mother may be at risk.

Long-term effects of the pill

It's difficult to assess the effects of the pill on a woman's fertility when so many other factors may be contributing. Some women will return to their normal levels of hormone secretion within a couple of days of ceasing the pill. Others may take up to six or 12 months. But the majority of women will return to normal within the first few months.

The very limited evidence we have suggests the pill has no overall effect on long-term fertility. A review of studies

comparing reversible forms of contraception found between 79% and 96% of women were able to get pregnant in the 12 months after they stopped taking the pill.

Another study reported that pill users who ceased the pill in order to become pregnant had some delay in conceiving. But this impairment of fertility was temporary and limited to the first few months after coming off the pill.

Overall, the pill — when taken as directed — is extremely effective at inhibiting fertility in the short term. With the evidence showing no long-term impact on fertility, this myth is no reason to avoid the pill.

83. The pill increases your risk of cancer

Sonia Davison
Monash University

Millions of women around the world have used the combined oestrogen and progestogen oral contraceptive pill to protect themselves from pregnancy for more than 50 years. The overall risk of reproductive-aged women developing cancer is low, but debate continues as to whether using the pill could increase this risk.

In fact, fear of cancer has been identified as a major reason for women not using reliable contraceptive methods.

Women's risk of developing cancer depends on a large number of factors, including family history, cigarette smoking, weight, diet and physical activity and whether you've had children (and at what age), among other things.

The pill works by effectively switching off a woman's natural production of ovarian oestrogen and progesterone and replacing this with a synthetic version of both hormones.

A change in cancer risk associated with the pill could potentially be related to the synthetic hormones within the pill. But it could also be due to the fact that the ovaries have been 'shut down' for a period of time. It's likely a range of determinants are involved.

Researchers' attempts to assess any link between the pill and cancer are complicated by a number of factors.

Firstly, women have access to a wide variety of contraceptive pills, which have different oestrogen and progestogen components, doses of hormones, and schedules of delivery. Some pills have a stable dose; others vary throughout the cycle. The original contraceptive pill also had much higher doses of hormones than the modern pill. So there's no standard 'pill' researchers can use to generalise cancer risk.

Secondly, many women have taken a variety of contraceptive pills throughout their lifetime. This makes recalling the type of pill — and the duration of the prescription — difficult. And this creates some uncertainties in the research.

So what does the research say?

Despite concerns that the pill increases the risk of cancer, systematic studies have found the incidence of some cancers is actually reduced in women taking the pill.

Numerous studies confirm that taking the pill is associated with a reduced risk of ovarian cancer. This protective effect is greater the longer one uses the pill, and extends for several years after use is ceased.

Multiple studies have also found a 50% reduction in the risk of endometrial cancer for women taking the pill, which is still apparent for 10 to 20 years after use has ceased.

A study of more than 300,000 European women reported a decrease in colorectal cancer in women who had ever used the pill, but the effect was only significant among postmenopausal women.

The studies for breast cancer and the pill report conflicting findings. Most researchers have concluded there is no significant link between previous or current use of the pill and breast cancer risk. But some studies suggest a slightly increased risk for current pill users, which disappears five to ten years after a woman stops taking the pill.

Using an oral contraceptive for more than five years has also been linked to an increased risk of cervical cancer. Again, this additional risk decreases with time after a woman stops taking the pill and has disappeared within ten years of cessation.

So, what does this all mean for women taking the pill?

Be reassured that if you're at low risk of cancer, the pill is unlikely to place you at higher risk — and may even protect you against some cancers after your reproductive years end.

But every woman's risk profile is different. When you discuss your contraceptive choices with your doctor, be sure to ask about your specific risks and benefits associated with the pill.

84. Wearing tight undies will make you infertile

Robert McLachlan
Prince Henry's Institute

Most men have a preference for boxers or briefs, but which are better when it comes to fertility?

Many things can affect a man's ability to make or transport sperm, including sexually transmitted infections, prostate and testicle infections, drug use, smoking, obesity and, perhaps surprisingly, heat.

Sperm are made in the testes (or testicles), a pair of egg-shaped glands that sit in the scrotum, in a lengthy and continuous process. It takes about 70 days for germ cells to develop into the mature sperm, found in semen, that can fertilise an egg.

Around one in 20 men have some kind of fertility problem, with low numbers of sperm in their ejaculate. But one in every 100 men produces no sperm at all.

Of the couples who present with fertility problems, almost half are due to fertility issues in the male partner only, or in both partners. It's important to note, though, many men will still be able to father children naturally, even with a lowered sperm count.

The location of the testes in the scrotum makes the testes vulnerable to trauma, but it serves a strategic purpose — to keep them around 2°C cooler than normal body temperature, which is required for the production of top-quality sperm.

Normally, the sweating of the scrotal skin serves as an 'evaporative air cooling system' for the testes. But if it's too hot and the scrotum can't sweat, the testes will have trouble making sperm.

If the testes are too hot for too long, sperm production is interrupted and won't return to normal until their temperature returns to normal. It can take a few months of keeping the testicles at a normal temperature for sperm counts to improve if they have been lowered by heat stress.

Excess testicular heating can happen internally, as a result of feverish illnesses such as severe influenza. In cases such as these, there is no way to avoid the testes overheating because the core body temperature may be 40°C or more.

As for external testicular heating, this is more easily avoided by saying no to spas, saunas and hot baths.

While wearing tight-fitting underwear might seem to increase the temperature of the scrotum, there is no evidence to suggest it leads to infertility due to impaired sperm production.

A review of studies of genital heat stress on semen quality published in Andrologia (2007) found no conclusive link. The review looked into several aspects of heat stress, including more than 10 studies on wearing tight underwear and/or tight clothing.

The reviewed studies, from varied population groups and different methodologies, showed that while wearing tight-fitting underwear or clothing was associated with increased scrotal temperatures, there was no clear evidence that this resulted in reduced semen quality.

The upshot of all this is that more research is needed to answer the question of whether wearing tight underwear makes a significant contribution to fertility problems in men who would otherwise have normal sperm counts.

But for men with an already low sperm count who are trying to conceive, keeping the scrotum as cool as possible should give the testes the best chance to do their job. Keeping a pair or two of boxers on hand isn't such a bad idea.

85. You can control the sex of your baby

Monique Robinson
Telethon Institute for Child Health Research

Despite most parents ultimately just wishing for a healthy baby, there are many cultural and social factors that can drive the desire for a baby of a particular sex.

The medical technology for sex selection of embryos has existed in Australia for many years, but such an option is only available for medical reasons, such as sex-linked chromosomal disorder.

This leaves parents who do have a gender preference looking for natural ways of predetermining the sex of their baby.

In the 1960s, the idea that timing sex around ovulation can tip the odds in favour of a girl or a boy was popularised by Shettles and Rorvik in the best-selling book, *How to Choose the Sex of Your Baby*.

Alongside thinking about the pH status of the reproductive tract, Shettles' idea was that Y sperm (leading to male babies) swim faster than X sperm (leading to female babies), therefore if sex is timed close to ovulation they will arrive at the egg first.

However, Y sperm live fast and die young. If sex occurs a number of days before ovulation, the Y sperm die off before they reach the egg, maximising the chances for X sperm to achieve fertilisation.

Leaving aside the quandary raised by conceiving opposite-sex fraternal twins via this method, what does the science say on whether timing sex can result in a shift in the gender ratio?

Two studies in the 1970s found very small shifts, with sex close to ovulation more likely to result in girls and sex on either side of ovulation more likely to result in boys. While rejecting Shettles' theory, these studies did find some influence of timing (albeit small).

Since then, the evidence has been mixed, but leans towards disputing any effect of timing on sex selection. Perhaps the most high-profile study, published by American epidemiologist Allen Wilcox, found no evidence to suggest that the timing of sex around ovulation led to a significant change in the sex ratio of resulting babies.

If anything, again they found some minor support contradictory to Shettles' theory, with girls slightly more common when sex and ovulation were close together.

If timing sex around ovulation doesn't necessarily change the odds of having a boy or girl, what else might?

Some studies suggest that male conceptions are favoured in the midst of wars and conflicts. An interesting finding, given it's a time when male mortality rates are high.

Contradicting this, other research finds that extreme stress can lead to more female births. The cause of this is unknown but may be related to the increased fragility of Y sperm during stressful times, or general hormonal changes that favour females when times are tough.

More research has focused on maternal diet pre-conception to predict changes in the sex ratio. Mothers who ate cereal for breakfast were more likely to have boys in one study. Another found that a low-salt, high-calcium diet favoured girls.

I was ecstatic to find that a respected Swedish pregnancy researcher conducted a scientific study of the accuracy of the much-googled Chinese lunar calendar sex-prediction method, based on an ancient chart 'buried in a tomb for 700 years' but conveniently now available online.

Alas, planning your conception based on your Chinese lunar age and the month of conception turns out to be no more accurate than flipping a coin.

Perhaps the most interesting study I've come across on this topic is one examining the offspring of the 2009 Forbes 400 Richest Americans list.

In this study of billionaires (Bill Gates is at the top), men who inherited their money (heirs) were more likely to have sons than both self-made billionaires and the general population.

Heiresses were more likely to have female children than heirs, self-made billionaires and the general population. There were too few female self-made billionaires (just three) to be included.

Harking back to evolutionary theory, where higher parental resources lead to more male births, the author suggested that wealth without stress led to sons. He theorised that self-made billionaires were under more stress than heirs, plus due to the years required for empire building, they may have children prior to achieving their wealth.

So, scheduling sex to coincide with ovulation may not give you the little Mary-Jane or Thomas you were looking for. Moving to a war zone or starting your day with Special K might tip the scales towards Thomas, but if the war zone is stressful or you add too much high-calcium milk to that cereal, you're sending the odds back towards Mary-Jane.

Chances are, the moment you hold your new baby for the first time, it won't matter anyway.

86. Eat for two during pregnancy

Susie de Jersey
Queensland University of Technology

We've all heard people sprout the phrase, 'go on, you're eating for two now' at barbecues, dinner parties and wherever food is being served, forcing pregnant women to decline offers of more and more food from well-meaning friends and family.

While pregnant women don't have to eat twice as much food, the growth and development of a baby certainly does rely heavily on its mother's nutrient stores and intake during pregnancy. The Dutch Famine during World War II demonstrated that poorly nourished mothers were more likely to give birth to babies with restricted growth. Their children were also more susceptible to chronic diseases in adulthood.

During pregnancy, a woman's nutrient requirements increase by between 10% and 50%, depending on the specific nutrient. But her energy intake only needs to increase in the range of 15% to 25%. In Western societies, excess energy and body weight are more common than nutritional inadequacies.

The amount of food a woman consumes during pregnancy shouldn't increase substantially. Generally, it should only increase by the equivalent of two medium-sized pieces of fruit and half a glass of reduced-fat milk averaged over the pregnancy term. But everyone is different.

If women do kick back and eat for two, they're likely to gain too much weight, particularly if there's not a substantial increase in physical activity. Recently, my colleagues and I found that one third of Australian women who were a healthy weight and just over half of women in the heavier-than-healthy category gained too much weight during their pregnancy.

The complications arising from gaining too much weight during pregnancy include a greater risk of developing gestational diabetes, problems during labour for the mother and baby, weight retention after delivery for mothers and an increased likelihood that the child will become overweight later in life.

This is not to say weight gain should be restricted. Not gaining enough weight can have negative consequences for both mother and baby, so it's important to achieve a healthy balance.

There are several resources available to guide a healthy weight gain in pregnancy. Your doctor, nurse or dietitian will be able to give you information specific to you and your pregnancy, but here is a starting guide, based on pre-pregnancy body mass index (BMI):

- women who are underweight (with a pre-pregnancy BMI of less than 18.5) should gain around 12.5 to 18 kilograms

- women of a healthy weight (pre-pregnancy BMI 18.5 to 24.9) should gain around 11.5 to 16 kg
- women who are overweight (pre-pregnancy BMI 25 to 29.9) should gain around seven to 11.5 kg
- women who are classified as obese (pre-pregnancy BMI above 30) should gain around five to nine kilograms.

So, how do women meet the extra nutrient needs without piling on the kilos?

A pregnant body becomes more efficient at absorbing nutrients. A high-quality diet is still important but there is not as much room for those discretionary foods that have few nutrients but loads of energy.

It's important to eat four serves of fruit and five serves of vegetables every day. Lean meat, reduced-fat dairy products and wholegrain breads and cereal products will ensure women get plenty of nutrients without overdoing the kilojoules.

Physical activity is also important — maintaining an active lifestyle and getting 30 minutes of physical activity each day will help achieve a healthy weight.

It's difficult to meet folic acid and iodine requirements during pregnancy through a regular diet. So folic acid and iodine supplements are now routinely recommended for at least one month prior to pregnancy and for the first trimester. Ideally, the iodine supplementation should continue during pregnancy and breastfeeding.

There is insufficient evidence to support taking other vitamins or a multivitamin unless low levels are diagnosed.

While it might be nice to indulge during pregnancy, the 'eating-for-two' myth should be discarded to give babies the best chance of optimal development and future health.

87. Peanuts in pregnancy cause allergies

Monique Robinson
Telethon Institute for Child Health Research

Anyone else have the feeling something radical has happened with peanut allergy in the past 30 years? I don't recall knowing anyone allergic to peanuts or peanut butter as a child in the 1980s, yet today every school is equipped with EpiPens and detailed peanut-response strategies.

And for good reason too. Peanuts are the most common cause of severe allergic reactions to food, including anaphylaxis, the name given to the rapid onset of allergic reactions all through the body including throat swelling, itchy rashes, and wheezing. Anaphylaxis will often result in a trip to hospital; at worst it can be fatal, and the swift onset of symptoms makes it extremely frightening for children and parents.

Global data backs up this inkling that peanut allergy is increasingly common in the current generation of children. Australian research reports a five-fold increase in hospitalisations for anaphylaxis due to food allergy between 1994 and 2005, particularly in very young children.

So, peanut allergy is on the rise, and it's scary. Even worse, we don't yet know what is causing it. It's the perfect storm for the creation of a medical myth that eating peanuts while pregnant causes allergies!

Where did the myth start? In 1996, British researchers observed that infants who had not been given peanuts before showed allergic reactions to peanuts on the first ingestion. Therefore, perhaps the maternal consumption of peanuts or peanut products during pregnancy was causing the child's allergy.

It was just a suggestion, without any evidence as to what mechanism might lead from mum's peanut ingestion to peanut allergy in the unborn child. However, remarkably, in 1998 the United Kingdom's Committee on Toxicity of Chemicals in Food (COT) released advice based on this study stating that pregnant or breastfeeding women who have allergies themselves (or with close relatives with allergies) should avoid eating peanuts and peanut products during pregnancy and lactation.

As you can see, it's a complicated guideline where simple messages are needed. And so it was inevitably shortened, and from 1998 to 2008 while the guideline was in place, around 60% of women, regardless of allergic status, avoided peanuts during pregnancy. First-time mothers were particularly vigilant, being twice as likely as women on second or subsequent pregnancies to avoid peanuts.

In terms of pregnancy myths, this one is not entirely without basis, as there does seem to be some role for maternal transmission of peanut allergy when the mother is allergic to peanuts herself. And while there are one or two studies that support the link between mum's peanut consumption and increased risk for peanut allergy in the baby, there are far more studies that have found this is not the case and many that have found a peanut ingestion during pregnancy can reduce the risk of peanut allergy in the child.

The problem is, it's complicated. As anyone with peanut allergy can tell you, it is extremely hard to avoid peanuts entirely, so mothers who reported not eating peanuts may have been exposed to peanuts in other foods or even through body creams. Scientific studies in the area use words such as 'insidious' and 'occult' when describing peanuts, and in my career researching pregnancy risk factors, I can't recall reading such evocative descriptions before. Such is the sneakiness of the peanut.

Then there's the question of how many peanuts does a peanut allergy make? And does it matter when they were eaten

— early or late in pregnancy? And most importantly, what about genetic links and other factors in the mother's environment or the child's postnatal world that might have led to the allergy developing?

We just don't know the answers to these questions, but there were enough studies refuting the mother's ingestion of peanuts during pregnancy as the cause of child peanut allergy for the UK guideline to be withdrawn in 2008. Plus, time has shown an increase in the diagnosis of peanut allergy while the guideline was in place and women were avoiding peanuts while pregnant and breastfeeding.

So at this stage, there is no evidence to support the claim that eating peanuts or peanut butter during pregnancy will make your child allergic to peanuts. As a mother, you'll have plenty of things to feel guilty about, but being the cause of your child's peanut allergy all because you like peanut butter on your toast at breakfast is not one of them.

Should we stay away from peanuts and peanut products anyway while pregnant just to be on the safe side? Probably not, especially given the research suggesting consumption of peanuts might actually build tolerance in the child.

The best advice might be to eat as you would normally, except the foods that Food Standards Australia New Zealand and your doctor recommend you stay away from.

88. Water births are risky

Hannah Dahlen
University of Western Sydney

'Women aren't dolphins' is a phrase often bandied about by those who question why women want to immerse themselves

in pools or warm baths during labour and birth. They forget that we're not mountain goats or birds, but that doesn't stop us from rock climbing or hang gliding.

As more scientific evidence emerges about the benefits of water immersion in labour and birth, hospitals and birth centres are increasingly adding large baths to their delivery rooms. The New South Wales department of health has even given a directive that 'all maternity services offer access to water immersion in labour (target 100% by 2015)', in an attempt to stem the rising caesarean section rate.

There are tales of generations of women in the South Pacific giving birth in shallow sea water, but long before this — and possibly throughout the history of humankind — water has been used for pain relief.

The modern use of water immersion for labour and birth began in 1970s Russia when Igor Tjarkovsky, a boat builder, began looking into the therapeutic effects of water. He later installed a glass tank in his home for women to use during childbirth.

Michel Odent, the French obstetrician, went on to popularise water immersion in the 1970s and 1980s in Europe, after installing a plastic paddling pool in a French hospital and finding it reduced women's need for painkillers. His first water birth occurred by accident, and Odent soon realised the potential benefits of leaving women in the water for the birth.

Water births moved from fad to mainstream maternity care in 1993, with the publication of the United Kingdom's *Changing Childbirth* report, which recommended pool facilities be an option available to women in all UK maternity units.

The benefits of using water in labour are mainly attributed to buoyancy, hydrostatic pressure and the effect of warmth. Women can move more easily than on land, enabling them to change position with ease. Movement and relaxation help facilitate positive neuro-hormonal interactions that alleviate pain naturally.

There is some evidence that water immersion may be associated with improved blood flow in the uterus, lower blood pressure, less painful contractions, shorter labours and fewer interventions. There are also psychological benefits, with women feeling more in control and that they have their own space, with the bath forming a natural barrier between her and the health providers.

A common concern with water birth is that the baby could try to breathe underwater and drown. But healthy babies have what's called a diving reflex (or bradycardic response), which causes the infant to hold his breath when under water. The reflex is stimulated via the the infant's facial skin receptors, which detect the water and inhibits breathing.

There are also concerns about increased tearing of the perineum (the tissue between the vagina and anus) due to the lack of control of the baby's advancing head. But randomised trials to date, and more importantly a systematic review of these trials, has not shown this to be the case.

Recently, I published a study in the *Journal of Midwifery,* examining the outcomes of 6,144 Australian women who had normal vaginal births in a birth centre over a 12-year period. I compared outcomes for the mother and baby when women gave birth in water, with those who gave birth in six other birth positions on land: kneeling or all fours, squatting, side lying, semi-seated, using a birth stool, and standing.

Compared with water birth, the women who gave birth on a birth stool had nearly one-and-a-half times higher rate of major perineal trauma and more than twice the rate of haemorrhage after delivery.

There was no difference in major perineal trauma and haemorrhage after delivery between women who gave birth in water and those who opted for a semi-seated position, the most common birth position in Australia.

Compared with water birth however, babies born in a semi-seated position had a four-and-a-half times higher incidence of five-minute APGAR scores less than seven. APGAR scores rate the newborn's breathing effort, heart rate, muscle tone, reflexes and skin colour. A score of less than seven at five minutes following the birth indicates medical intervention was needed to resuscitate the baby.

We controlled for as many variables as we could, including whether it was a first or subsequent birth, a long period of pushing, a big baby, or a midwife or obstetrician undertaking the delivery. All these women had normal vaginal births so surgical birth was not a variable.

So the idea that babies are more likely to drown if born in water, or that rates of tearing and injury are worse, doesn't hold up.

While women may not be dolphins, they are drawn to water during labour and birth, with little evidence of harm and some evidence of benefit. And once experienced, women usually make the same choice for a subsequent birth and reported many benefits to this style of birth.

89. Women forget the pain of childbirth

Monique Robinson
Telethon Institute for Child Health Research

In an evolutionary sense, memory of pain serves an important purpose. Pain indicates a threat to our safety or our life, and human survival depends on us avoiding things that are going to kill us.

Historically childbirth has been both incredibly painful and associated with a high risk of maternal death. So how come humans kept lining up to do it over and over again? It makes sense that somewhere along the line a theory was posited that, unlike other pain, women just don't remember the pain of childbirth. If they did, women might never go back there and thereby threaten the survival of the species.

The myth that women are biologically programmed to forget the pain of childbirth is also fostered by the language we use to describe the euphoria and relief of delivering a healthy baby. At the moment of holding a child for the first time, women often report that the pain of labour has all but been forgotten. It hasn't really been forgotten, but the happiness and reward colour the memory of the preceding pain. This is known as the halo effect.

Interestingly, while the science won't back up the claim that women forget entirely, it does suggest that over time, many women remember labour and birth pain as being less severe than they originally recalled. This relationship seems to hold mainly for women who reported moderate levels of pain.

At the extremes of pain, memories appear more constant. Women who reported soon after the birth that their labour pain constituted 'the worst pain imaginable' were mostly sticking to that opinion when questioned one year later. Same for the women who reported their birth as 'pain-free'.

Pain is only one element of the overall birth experience, and other factors that contribute to how a birth is remembered include satisfaction with care-providers, choice of pain relief, level of medical intervention, complications, outcomes for the baby, and all sorts of personal factors. These elements may play a large role in determining how pain is remembered.

When all those other aspects added up to a positive overall birth experience, women reported less pain at the time, and were more likely to lower their rating of the pain over time.

When these aspects combined to produce a negative experience, women reported more pain in childbirth and did not forget the intensity of that pain up to five years later.

It seems that with time comes more opportunity to process the birth and with that, more distress at the way a negative experience played out. In fact, Australian data suggest that around 3-6% of women develop post-traumatic stress symptoms after a negative birth experience.

Serious complications such as very preterm labour increase the risk for a negative recollection of birth over time. There is no opportunity for a halo effect when a newborn in distress is rushed to the intensive care unit.

A slightly depressing finding for those who plan to be on first name terms with their anaesthetist during the birth is that even when pain relief is used, it may not lessen the memory of pain overall. One study found that women who had epidural analgesia during labour remembered pain more intensely than women who didn't. This pointed to 'peak pain' memories for these women prior to the epidural, indicating pain isn't evaluated on average across labour but instead particular moments stand out.

However a child is brought into the world, there are many health professionals who can talk to women about their fears and anxieties about pain or the experience as a whole. Being psychologically prepared may assist some women, particularly those having their first child or those who have had a negative experience in the past.

There are lots of options for pain control in childbirth and like everything with parenting, you need to know yourself (and your threshold for pain) and work out a plan with your care-provider that feels right for you. You may not forget the pain, but if you're lucky, the end will justify the means.