



# Melatonin, Fertility and the Chinese Medicine Body Clock

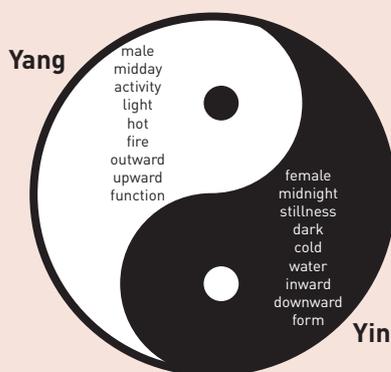
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Medical research is exploring the supplementation of melatonin during IVF cycles. It is primarily being researched for its antioxidant effects on the body. However, melatonin is a hormone well known for helping to set our body's natural daily rhythm - called the circadian rhythm. Chinese medicine has a long established history of recognising this daily rhythm and observing that disruption of this rhythm can affect fertility at a number of levels. Those of us who work with patients who are struggling with fertility commonly observe that lifestyles which are out of balance with this rhythm correlate with fertility issues. Medical research also supports this observation. Clinically, and at the extreme end of the scale, women who work very variable shifts and don't have good rhythms in their lives do seem to struggle more with fertility. At the other end of the scale however, even small changes that both men and women make in their daily routines seem to improve pregnancy and live birth rates.

## What affects melatonin?

Melatonin is a hormone released by the brain's pineal gland. Its levels increase sharply in the evening to help with sleep onset and decrease as we get closer to waking. Its production cycle is largely influenced by our exposure to light. Artificial lighting can therefore be disruptive to establishing good melatonin rhythms. Elevated cortisol levels resulting from prolonged stress also affect the natural rising of melatonin levels to help with sleep onset.

## How does this affect fertility?



Chinese medicine has a clear understanding of the body clock mechanism. Many people are familiar with the Chinese medicine concept of Yin and Yang. This symbol is a diagrammatic model representing the interplay of opposites

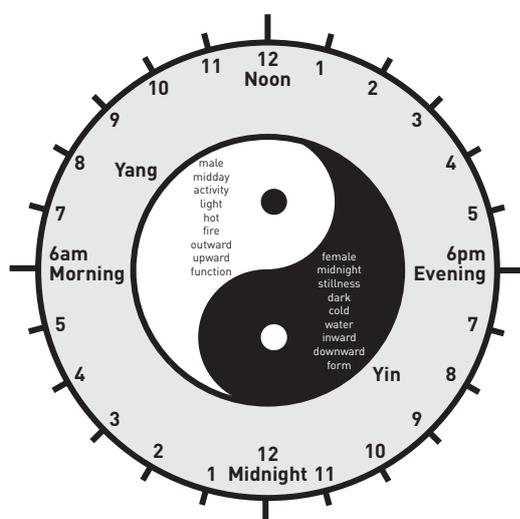
which together form a balanced whole. Physiologically it represents the homeostatic balance that our body works to achieve. It also represents the combining of male and female energies that form a new life.

Essentially the concept of something being described as being more Yin or more Yang is just a way of comparing where something lies on a spectrum of polarity. The small circles within each half represent the interplay between Yin and Yang - one does not exist without the other. The opposites define each other. And so we have hot because we have cold, etc. But also we have all the variations in between because they can merge in and out of one another, hence we have warmer and cooler, darker and lighter, etc.

Our body functions also have this interplay of energy. Throughout the day, through the seasons and in different circumstances, our bodies move in rhythms along this polarity of Yin and Yang, working to maintain our equilibrium or what is scientifically known as homeostasis. These are like having on switches and off switches to maintain hormonal and nervous system balance. However, in modern culture, we often compromise these natural rhythms at the expense of our health and vitality. From a fertility point of view this has massive consequences for both men and women in terms of sperm and egg development and quality, as well as hormone balance.

## Chinese medicine body clock

If we overlay the Yin-Yang symbol with a 24-hour clock face in a way that correlates midday with greatest Yang and midnight with greatest Yin, it looks like this:



Yang represents activity and function. When we look at this clock we can see the Yang energy of the body increases through the morning to peak at midday, then gradually decreases to its lowest point at midnight. This corresponds with what most of our days are like – we get up in the morning, work, play or do our general daily activities, then wind down in the evening and go to sleep.

In contrast, the Yin energy which represents stillness, substance, nourishment and rest is lowest at midday and then increases through to midnight, when we should be soundly asleep. It is during our rest time that the body rejuvenates so that it has enough Yin nourishment to fuel the Yang energy. When the Yang energy has enough fuel, it is able to efficiently carry out its activities of energising all our organ systems, healing and protecting our body as well as giving us the energy for our daily activities. Its energy is also involved with extracting the nourishment we need from food and water to help build Yin.

Your body's natural rhythms can become disrupted by an out of kilter daily routine. Sometimes what you are doing actually works in opposition to your biological rhythms and even though you seem to get away with it for a while, there is a quiet, steady depletion going unnoticed.

### How can I help melatonin levels?

A bed time wind down routine can help train the body into new sleep patterns. Melatonin should peak around 9pm and decrease gradually through the night to help us wake up. With the influence of light on melatonin production, some sleep clinics advocate a short period of time outside in daylight upon rising to help reset the melatonin cycle. At the

end of the day, turning down the lights as part of your night time wind down routine is also a helpful trigger. I suggest turning bright main lights down or off and using lamps and candles instead. Eating regularly also seems to be a factor in helping establish body rhythms. The key is to establish a regular routine of both sleeping and eating habits.

### The impact of stress and busy-ness

Stress reduction or management techniques may also be needed to establish healthy cortisol cycles so melatonin levels can rise adequately for you to be able to sleep well. Unwittingly, when we are stressed we often exacerbate the problem by developing unhealthy lifestyle habits and routines. For example:

- staying up too late working or
- searching for information online
- or eating poorly

When we look at the body clock image we see the Yin of the body starts to build around midday and then reaches its peak around midnight. When we are maintaining busy-ness until late at night, we are working completely against our natural rhythms. We are meant to wind down at the end of the work day, to connect with people socially and within our families and relax. The ideal time to be winding back for this is between 7-11pm. You can see in the picture that the dark area representing Yin is at its greatest after 7pm. But when we are more often than not busy through this time, you can gradually get depleted. This is why many people will have heard that sleep during the hours before midnight is in fact the most restorative, rejuvenating sleep.

From a fertility perspective, living a more balanced lifestyle is very important. When we are striving and pushing ourselves, constantly living a life described as 'busy', our body interprets this as stress. Acute stress creates a physiological response similar to a fight or flight situation. When this occurs, nourishment and energy are taken away from non-vital organs such as the reproductive organs. Over time, if we are not resting enough, this overly Yang way of living can consume our body's Yin, which has a big influence on the development of eggs, sperm and the uterine lining.

### So when is the best time to eat?

Studies are showing that the times we eat may also affect our body clock. In Chinese medicine, the digestive fires are described as being at their highest in the morning. The Chinese medicine body clock says this is particularly between the hours of 7-11am and that we should really have breakfast between 7am and 9am. This is when our metabolism is kicking into gear for the day, firing up to digest food, absorb nutrients and transport them through

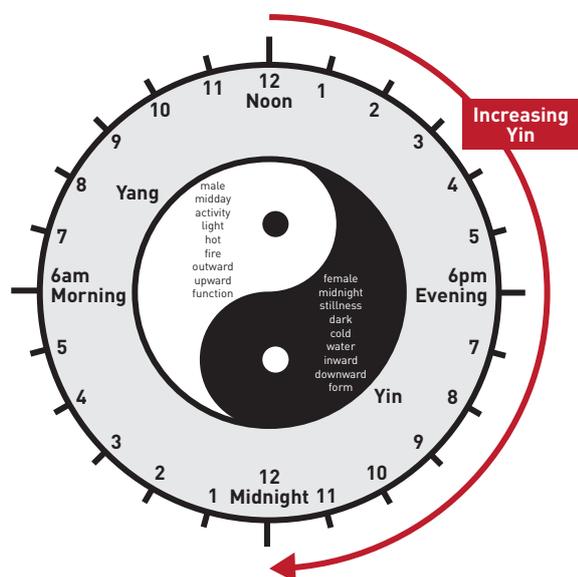
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the blood to all the tissues of the body. Currently, even medical research is showing how important eating breakfast is for our health, vitality and metabolic programming.

Some people eat their largest meal quite late in the evening. Unfortunately, this coincides with when the body's digestive and Yang energy is really slowing down. It's trying to allow the Yin to build so that we can sleep, rest and restore ourselves at every level - body, mind and spirit. When you eat a heavy meal late at night you're effectively giving your body a job to do, which means it can't settle into a sound sleep. We should eat more food earlier in the day and then eat only lightly in the evening.

### Other Chinese medicine body clock tips for fertility

By having a short period of relaxation early in the afternoon, you will assist your body to transition into its Yin building time. A healthy, protein inclusive lunch and afternoon snack, rather than sugar or coffee, will help to stabilise your blood sugar levels and make you less likely to have an energy dip or to crave sugar at night. Stimulating your body with sugar and coffee during its Yin building phase is counterproductive and can damage Yin. It's important to remember that in Chinese medicine, protecting Yin is really important for developing sperm and eggs.



Acupuncture is very helpful for helping to establish physiological rhythms. It has been shown to help increase night time melatonin levels and modulate the body's stress response. A skilled traditional acupuncturist will be able to help identify and interpret specific times when your particular body clock is talking to you. They can also help you find ways to balance your body as best you can when you have a less than ideal work or family schedule. Recent studies are showing that body clock genes can be trained to

adapt to new schedules over about three days, so as long as you can develop some sort of eating and sleeping routine, all is not lost.

### Conclusion

Modern research shows very clearly that our body has a circadian rhythm and increasingly research is showing a strong link between disruption in this rhythm and fertility problems. Western medicine's answer to this problem is to use fertility drugs and artificial means to stimulate the reproductive system temporarily to achieve a healthy pregnancy. Chinese medicine's answer is to support the body to re-establish its own healthy natural rhythm to achieve both a healthy pregnancy and health overall. By understanding the Chinese medicine body clock, fertility patients can be empowered to make positive health changes in their day to day routine as they reach towards their fertility goal.

*Suzanne originally trained at the Canadian College of Acupuncture and Oriental Medicine, then gained a Masters degree with Distinction from Western Sydney University. She has been in private practice for over 23 years and specialises in fertility treatment. She has been an invited speaker to the Australasian Fertility Nurses Christchurch conference; Acupuncture New Zealand annual conferences; Fertility Associates, Christchurch staff professional development; and an invited attendee to the launch of Genea-Oxford Fertility Clinic in Christchurch. She is a published peer-reviewed author and an experienced lecturer who has served in various roles within acupuncture education and on the Acupuncture New Zealand council.*

*Suzanne practises in Christchurch. She has recently developed online programs teaching people Chinese medicine principles to help improve their health as they try to overcome fertility challenges. When not working Suzanne tries to spend as much time as she can back-country skiing.*

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