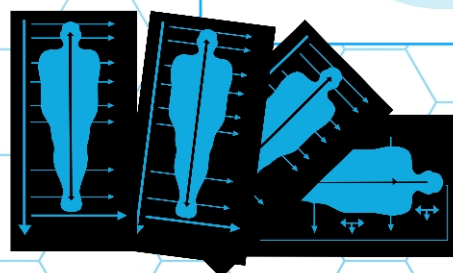
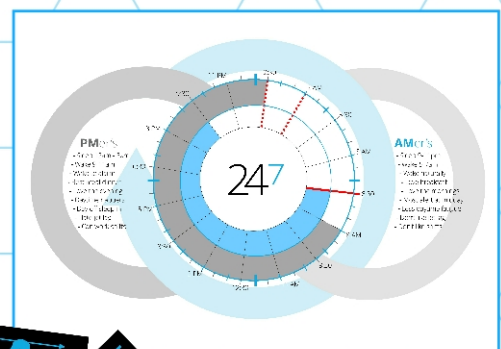
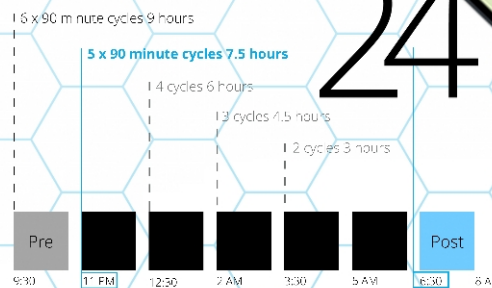
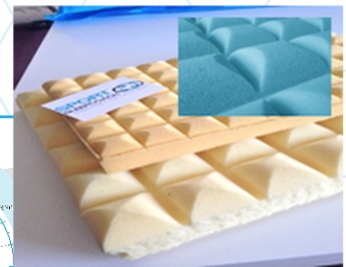
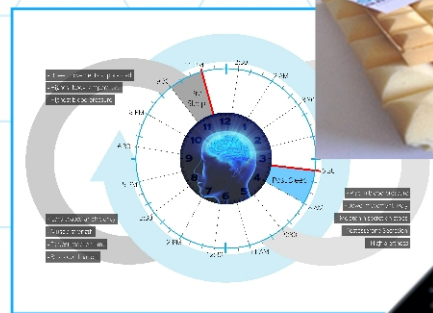




Sleep Recovery Program

- KSRI 1** Circadian Rhythms
- KSRI 2** Chronotype
- KSRI 3** Think Cycles not HOURS
- KSRI 4** Pre & Post Routines
- KSRI 5** Activity / Recovery Harmony
- KSRI 6** Sleeping Products
- KSRI 7** Sleeping Environment



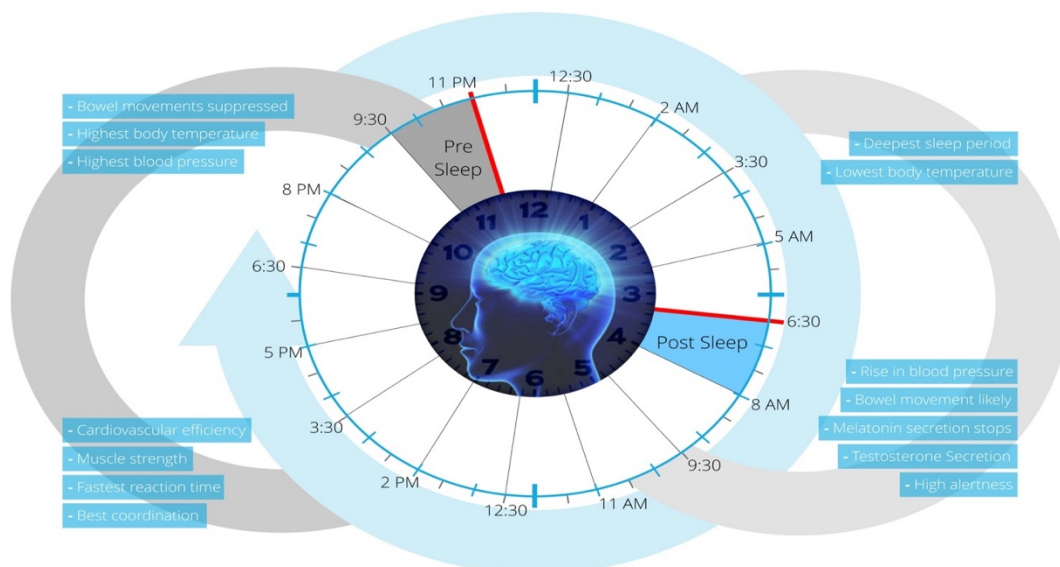
KSRI's – Key Sleep Recovery Indicators - Seven key indicators which determine the levels of mental & physical recovery in every 24 hours.

SEVEN steps: A combination of achievable, practical steps (gains) will aggregate into a more significant overall improvement, rather than one in isolation.

Sleep wake routines and the varied associated habits we adopt, are determined by many internal and external factors, the key ones being our chosen occupation and associated lifestyle at any given time. KSRI's are the SEVEN main factors that will determine how well we recover mentally & physically from any 24-hour timeframe, month or year.

KSRI 1. Circadian Rhythms

The 24-hour circadian clock, held deep inside the brain, cycles through phases known as "circadian rhythms". (Circ = about and Diem = day). It regulates our biological & physiological processes synchronizing all our internal systems, sleep wake cycles, levels of alertness, mood and digestion, creating a bio-harmony with the outside world.

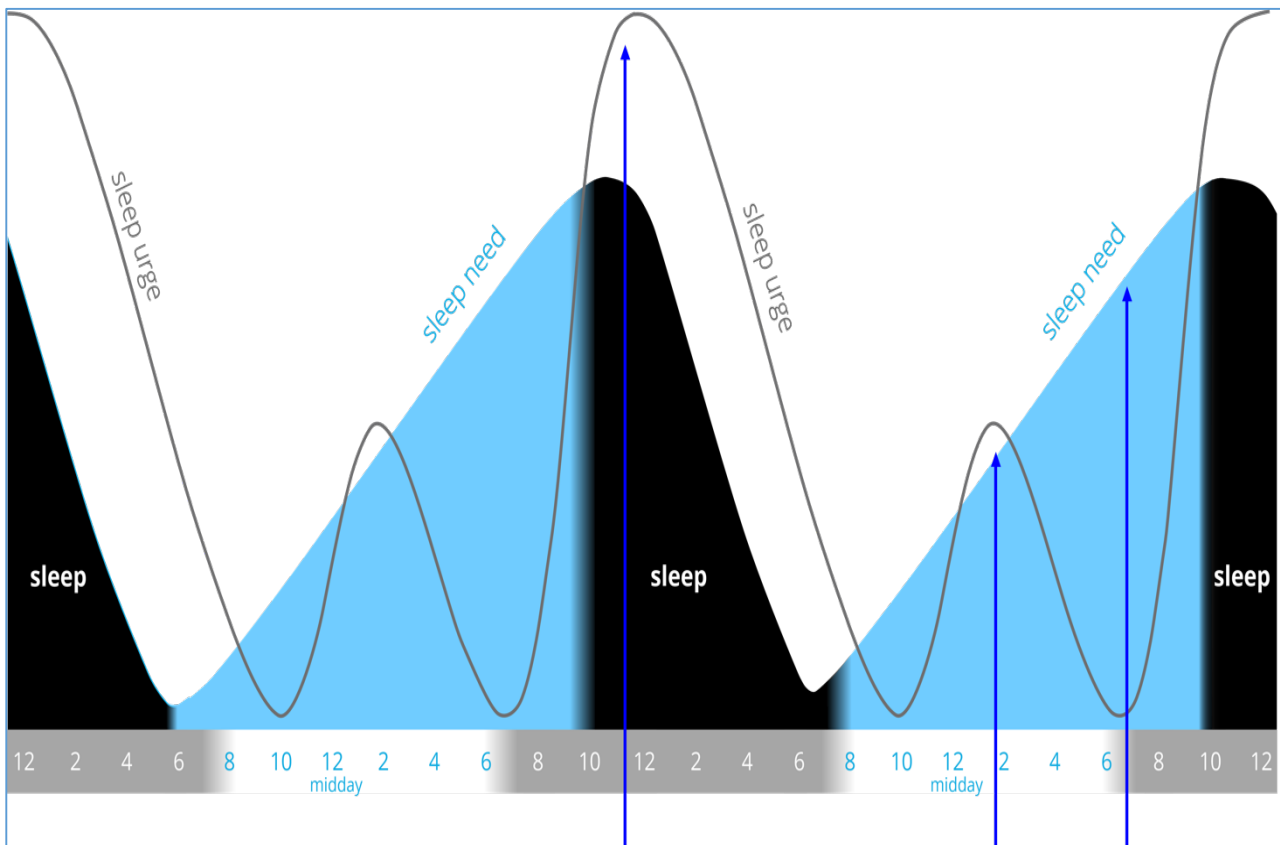


Understanding this process and trying to set daily routines that are in harmony with it, are vital to how well you can recover in any 24-hour period.

These light, dark and temperature changes, sunRISE & SUNset, trigger millions of cells and every day key body functions, in particular levels of melatonin and serotonin and when they are produced. [sleep & wake hormone switches]

Sleep Urge & Need

The graphic shows a 48-hour sleep wake URGE V NEED cycle, part of the circadian process.



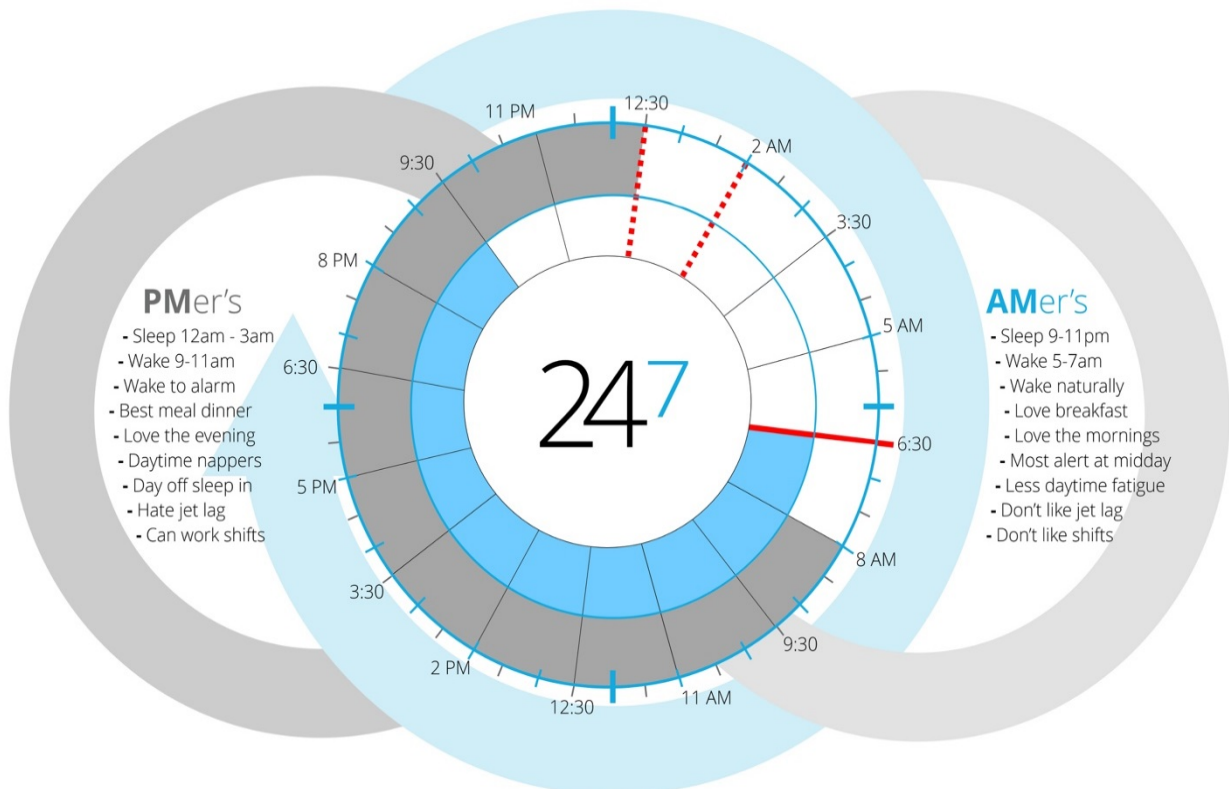
At around 11pm our bodies URGE & NEED to enter a sleep state is at its peak. From that point they both decrease gradually until 6am, when the NEED then starts to gradually increase throughout the day back up to 11pm. However, our URGE remains low in the morning period, until we experience a spike and clash at midday, between 1pm and 3pm. This second natural sleep period (Siesta) is were as humans we can and are designed to boost recovery. [NAP]

A third natural sleep (NAP) period is also available between 5pm & 7pm, because the NEED is very high and has been growing all day. However, modern day lifestyle and occupational demands suppress this third natural recovery timeslot.

As we continue to experience fundamental changes in what we do, when and why, many are out of sync with circadian rhythm's and suffer the mental & physical recovery consequences.

KSRI 2. Chronotype

Knowing your Chronotype, sleep[ing] characteristics, is key to any recovery, activity 24-hour routine. It provides a conscious control, that prevents you from adopting routines that are counterproductive to your natural Personal Best characteristic. And as important providing you with the opportunity to minimise the effect of routines outside of your control.

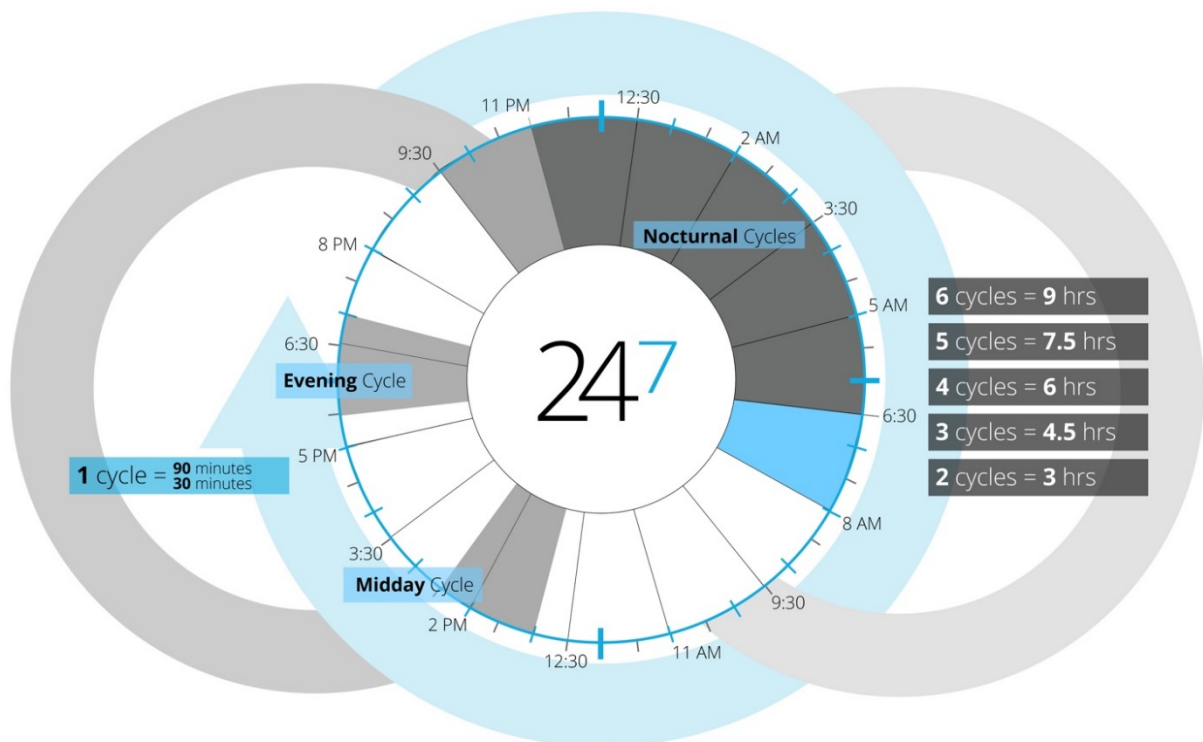


Whilst many know if they are a morning or evening person, routines and tasks, never take this into account. Like the 24/7 circadian rhythms your Chronotype will play a key role in how well you can recover. SLEEP

KSRI 3. Think CYCLES not hours

Under clinical conditions Ninety Minutes is in principle how long it takes to experience the various recovery stages of sleep. If we use this time frame (1 x sleep cycle) to create sleep wake routines, we gain more subconscious and conscious control over the process of sleeping.

I am sleeping "OK" and try to get EIGHT hours is the common answer, however many adopt a random approach, take sleep for granted, so the timings are random and by default the benefits.



Slept well, bad night, poor night, no sleep, go to bed early & catch up, sleep in later.....

This graph is an example of a FIVE cycle routine:

5 x 90 minute cycles = 7.5 hours, with a consistent every day wake time [sunRISE] at 6.30am and entering a sleep state naturally at 11pm.

24/7 35 cycles

Your first step is to identify the most consistent wake time over a normal three-month period and make this your EVERY DAY wake time target. Ideally set between 6 & 7.30am to help maintain harmony with the circadian rhythm's. **Sunrise.**

Then simply work back in 90 minute cycles to identify a set of timings and sleep time slots.

R90 sleep wake cycle routines:

- ///** 8pm **pre sleep** 9.30 - 11pm - 12.30 - 2am - 3.30 - **5am post sleep** 6.30am
- //** 8.30 **pre sleep** 10pm - 11.30 - 1am - 2.30 - 4am - **5.30am post sleep** 7am
- /** 9pm **pre sleep** 10.30 - 12am - 1.30 - 3am - 4.30 - **6am post sleep** 7.30
- /** 9.30 **pre sleep** 11am - 12.30 - 2am - 3.30 - 5am - **6.30am post sleep** 8am
- //** 10pm **pre sleep** 11.30 - 1am - 2.30 - 4am - 5.30 - **7am post sleep** 8.30am
- ///** 10.30pm **pre sleep** 12am - 1.30 - 3am - 4.30 - 6am - **7.30am post sleep** 9am

12.30 – 6.30am (4 cycles) & 2am - 6.30am (3 cycles) can be applied when circumstances dictate in advance or even on that day. Rather than trying to sleep randomly this technique should at least ensure you adopt a 90/60-minute downtime pre sleep period every time.

Key is maintaining a constant wake time, which will then help you get to know how many cycles you actually need and when.

When circumstances dictate using a shorter nocturnal sleep cycle, it would be supported with either, a 30-minute Controlled Sleep Recovery Period [CSRP – nap] during the second natural recovery period between 1pm & 3pm, or the third one between 5pm & 7pm.

Moving from one cycle into another naturally will hopefully unlock all of the sleep stages and benefits. This process provides a subconscious routine, concerning timings and outside influencers allowing you to plan and or react to every day events in a controlled, not random way.

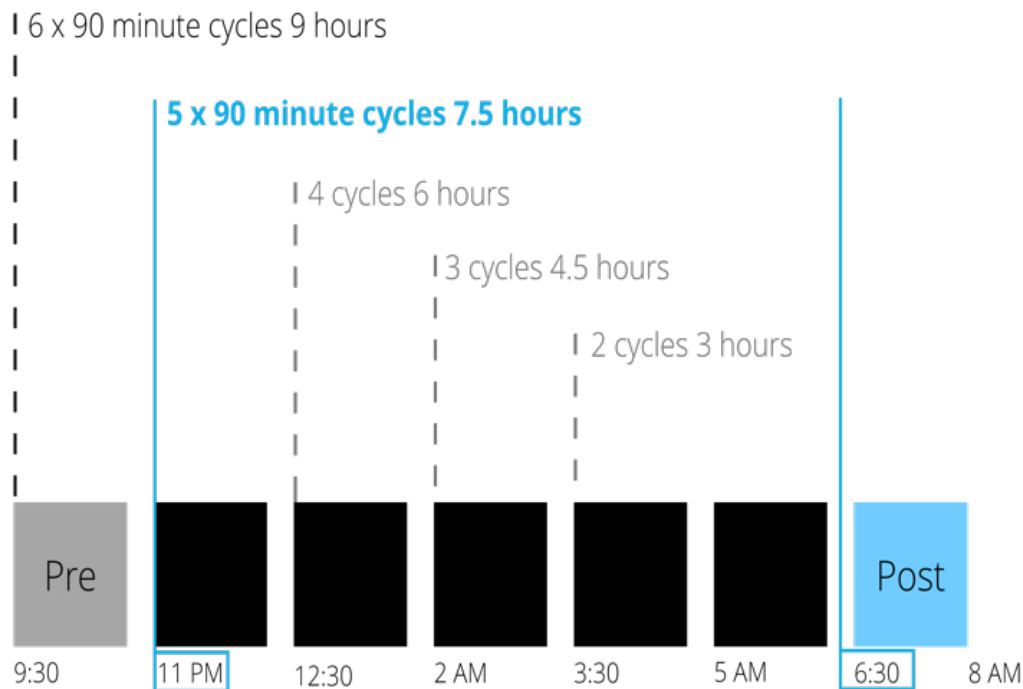
It's very much like being sleep prepared at the top of your stairs and at the bottom is that good stuff deep sleep. NREM & REM. Every 90 minutes you want roll through the stages reaching the bottom, stay as long as can before you have to come back up, repeating FIVE times without any disturbances. It does not actually work out like this, but the technique creates a far better positive mind set.

Hip to Kip: We have THREE natural sleep periods every day, some cultures still maintain two (Siesta) most of us have to rely on one (nocturnally) but that's increasingly under pressure....
NAP[ing]: Between 1 & 3pm (Corporate grave yard slot) and or 5 & 7pm wherever you are, allocate 30 minutes and find or create a safe quiet place to sit or lie down, but not in your bed.

KSRI 4. PRE & POST sleep routines

Of course every day is driven by routines and outside influencers that are not always under our control. We also like to live every minute to the MAX, so ending the day is difficult if we have something that could be done.

So we need to at least, have some structure, to help us prepare and enter a sleep state naturally.



Simple, always achievable, techniques to adopt every night during the final 90 minutes into the targeted sleep time for that day.

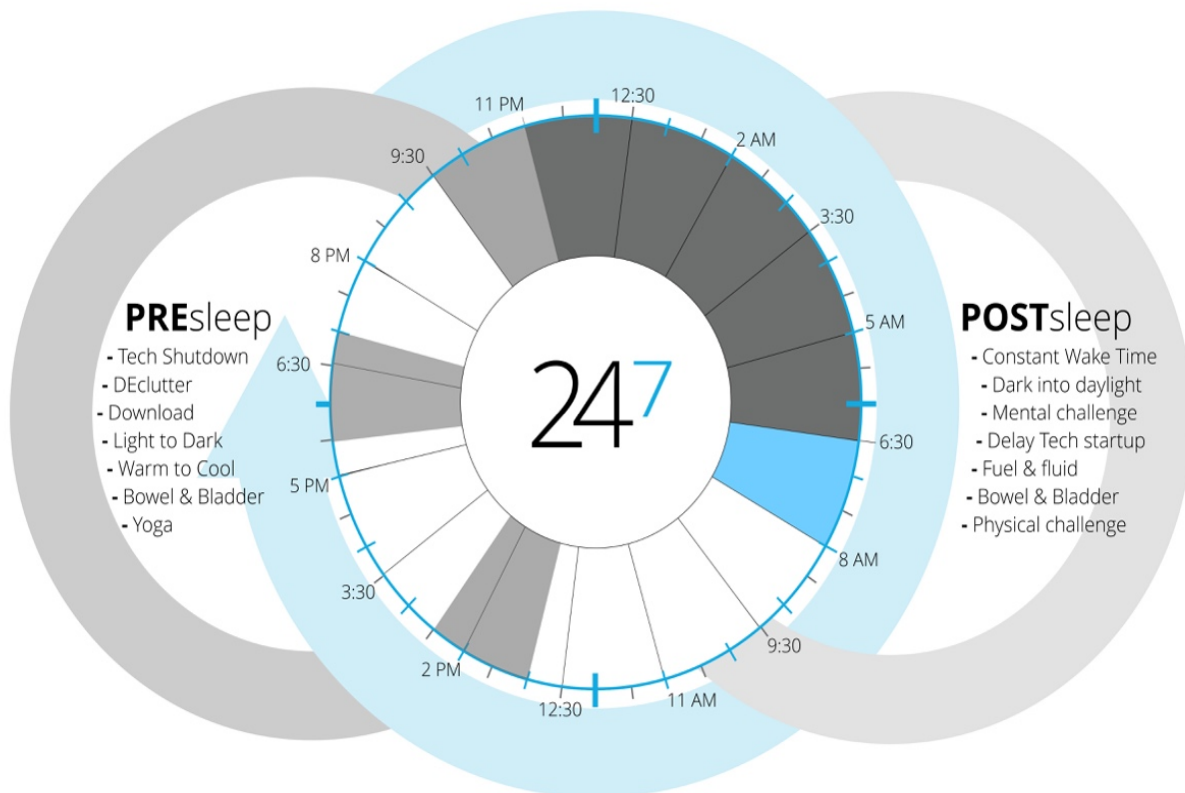
You have your plans in your head and on a device. Doodle this "to do or want to do" list with pen/pencil and paper and download your day/tomorrow's plans and thoughts. (Put it with your house/car keys) A place even in an unconscious state you would not leave the house without checking. A simple technique that works, activating a "forget that" state of mind in sleep.

Pre sleep de-cluttering & organizing in your own way as a form of down time, but active function can help increase the more productive deep sleep stages to occur **(up to 60%)** DE cluttering = just checking everything is where you left it or want it. That's all...

Avoid over training and higher levels of exercise into the late evening period and or directly before sleep. Plan to put the bedroom in darkness before getting into bed.

If you like to read then use a DWS [Dawn Wake Simulator], which will gradually dim a natural light, chapter by chapter, leaving you in darkness and prepared to sleep naturally. The same process in reverse to wake you up naturally from darkness.

The same applies adopting practical and achievable techniques that can be applied during the first ninety minutes on and after wake that promotes a naturally stimulated wake [UP] state.



Note: Pre & Post routines can involve many different techniques and interventions, but whatever you choose to apply they must be based on these key factors and repeatable where ever you are asked to sleep.

Just because it's something you have always done "Rethink it" maybe you can adopt a better approach. For example, we tend to brush our teeth last thing at night and first thing in the morning. So it's a sleep and wake technique?

Maybe brushing your teeth at night a little earlier without the bathroom artificial light on [with candle or ambient red/yellow light] is a better approach.

KSRI 5. Activity & Recovery Harmony

Technological advancements, occupational demands, a desire to live a healthier, more active [Go for it] lifestyle has had a significant effect on what we do every day, in particular over the last two decades.

One real change is our increased exposure to artificial light, driven initially by spending long hours staring at desk top computers and more recently portable smart devices that are with us from wake to sleep 24/7. Another key change is how much information is so easily available and our ability to use it and communicate it.

These two things alone combine to make it even more difficult to enter and or stay asleep.

We need darker, darkness to trigger the hormone switch from serotonin [wake - sunRISE] into melatonin [sleep – Sunset].

The brain needs time, moments to download and file information or we simply take this into sleep, increasing opportunities of anxiety, stress, worry and over thinking.

Think recovery break every 90 minutes

Completing short (5/10mins) breaks getting away from what you are doing, outside even better to get a blast of daylight, providing enough time for main meals [fuel/hydrate up] non occupational physical & social activities, a performance boosting CRP [NAP]

Build your routines around a balanced approach to activity and recovery. You will achieve more not less and avoid over stimulating, burn out, stress , anxiety and Electronic Insomnia a new "sleep disorder" as a result.

KSRI 6. Sleep[ing] Products

The best sleeping position is, foetal, on the **OPPOSITE SIDE** to your dominant more sensitive side, with your full body shape easily accepted by the mattress surface and you're much lighter sleeping weight evenly distributed from head to toe, maintaining a balanced postural alignment.

Ideally complimented by ONE shallow pillow, simply comforting the head, not raising it up. Although common place, it's not advisable to use a number of pillows of different shapes and sizes to make an incorrectly profiled mattress more comfortable.

SIZE Matters: A mattress for two adult partners should be at least two single bed sized sleeping areas, commonly known as Superking. General rule go as big as you can.

It is also common place to select or be advised on a firmer mattress as a suitable surface to sleep on. [Orthopaedic] This however is a misconception driven by a general consumer "misunderstanding" that a harder, firmer system will provide better postural care and last longer.

Constantly adjusting positions (toss & turn), pillow hugging, upper body aches and pains, lower back pain, neck pain, overheating, **heavy breathing, snoring**, tired and under slept are some of the most common side effects of an incorrectly profiled mattress.

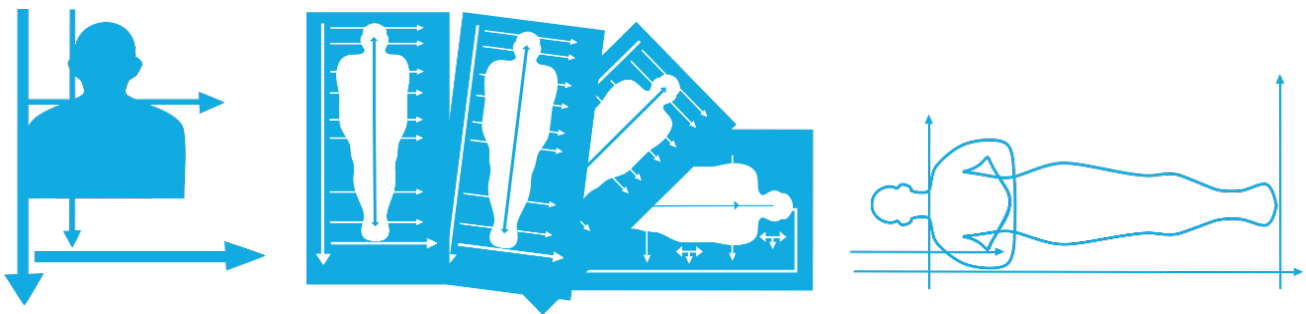
MATTRESS CHECK UP:

Ideally get your partner or friend to observe and complete this check with you or selfies can work

Firstly, strip your bed leaving just the mattress on your base with no bedding or pillows. Then stand with your arms gently folded, holding a good posture facing forwards; bend your knees keeping your back straight (squat) to a comfortable and balanced position.

This is the standing foetal position.

Now adopt this position directly onto your bedroom floor on the opposite side to your dominant side and hold this for one minute.



You will observe a large gap between your head and the floor and the need to hold your head up (back in line). At the same time pressure will be building up all along your body in particular on the shoulder and hip. The longer you hold this position the more you will want to move and adjust, which is what commonly happens in sleep.

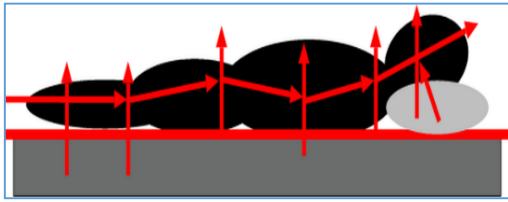
This demonstrates the natural foetal sleeping position and why a hard/firm or incorrect sleeping surface provides little comfort, postural alignment and constantly asks you to adjust position.

Now adopt this very same position on your mattress without any pillows or bedding and compare.

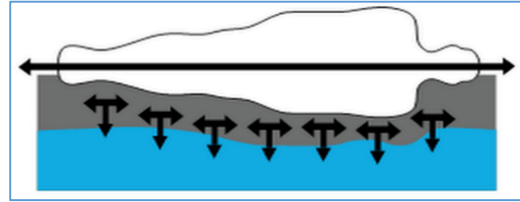
If you have a clear gap of 6/10cm or more between your head & mattress when your head and neck vertebrae are aligned, feeling your head dropping onto the surface (like the floor), then your product is too firm or hard. To soft or collapsed if your head is being raised up and out of line by the mattress and or the hip area is dropping or dipping down into the mattress.

Bad...

Correct...



Don't



just

put up with what you have got, use this check up to stimulate how you can improve what you have now and or as soon as. Change the mattress or add toppers.

KSRI 7. Sleep[ing] Environment

Imagine taking everything out of your room and then only putting back what's designed to help you recover mentally and physically.

RE-think your bedroom to ensure its main function is to promote a natural sleep state and maintain it for the long hours allocated to nocturnal sleeping. We have brought allot more into this room that can be very counterproductive. [TV's, standby lights, smart devices and lap tops]

Bedroom or mental & physical recovery room.

An alarm clock associated with a sleep wake time only, can be better option than smart phones, tablets, laptops which are communication tools keeping your brain alert and ready to respond. The first thing most would do on wake is hit the alarm, snooze for a bit and then hit the toilet.

Today its swipe the smart device, snooze a little then check the stream of notifications then hit the toilet. THINK post sleep routine and ensure you and your brain have shifted from sleep to wake before completing any important tasks that may shape your day.



Not texting, tweeting when we may have had a glass or two makes lots of sense, so responding to notifications 15,30,60 minutes after wake, hydrated, fuelled up and daylight triggering the brain to kick start millions of cells means you will react to them differently.

Tech Breaks: If we are in the gym/swimming the devices are alone, whilst we are doing something more important.

In the Dark: Whilst we should actually be sleep wake activated by the natural sunup/down process, that has been lost since the invention of artificial light. So we need to move away from blue/day/device light to dark as we get closer to the targeted sleep time. Red, yellow, amber (candle) light can really help this process and putting your bedroom into darkness/blackout.

Switch on: Daylight contains blue light which is picked up by receptors on the back of the retina (even with the eyelids closed) which in turn triggers the pineal gland to suppress melatonin levels and increase serotonin levels stimulating a wake up state. So whilst dark will help enter a sleep state it makes it more difficult to come out of it.

Recovery Hack: Use blackout (darkness) red /yellow/amber light, to induce and maintain a sleep state, but ensure you use a light therapy device to wake up naturally.

Basic KSRI's

Sleep Diet: Maintain a regular food & fluid intake plan, identify if you have any food allergies, try a broader variety of fresh foods, hydrate with the correct amount of water (not just loads). Many foods are rich in tryptophan [sleep promoter] chicken, turkey, cheese, cottage cheese, fish, milk, nuts, avocados and bananas.

Protein based snacks taken late, to close to the targeted sleep time can suppress tryptophan. Carbohydrate based snacks can digest & produce insulin, which in turn increases tryptophan. High carbohydrate and B5 Vitamin drinks suppress the production of cortisol creating a feeling of calm and or induce a sleep state in periods of high anxiety or activity.

Target to eat your final meal of the day two cycles (3) hours before your planned sleep time, and any snacks 90 minutes before. Or if you have a social engagement and plan to eat later watch what you eat during the day or change your eating plan for that day. Maybe take a main meal at lunch time so you can limit what you eat later?

NOTE: Eating to late simply means too close to your targeted sleep time.

Try and avoid taking on food that is not easily digested pre sleep. While you want to avoid going to sleep feeling hungry or thirsty, having an empty bowel and bladder reduces counterproductive, disturbances and awakenings.

Tip: Avoid taking water (Fluids) to bed as this creates a mental trigger to wake up and drink it? Pre sleep water lightly diluted with fruit juice/squash can speed up

the digestive process and get that bladder emptied before you have hit one or two sleep cycles.

If you get dehydrated in sleep and or suffer from dry mouth, review your daily hydration plan, bedroom temperature, sleeping products and daytime breathing technique.

Exercise: Not going to dwell on this, but whether you are an athlete or not always adopt a balanced approach to exercise, completing higher and lower intensity routines at the right times, don't push to hard and remember you will get more from what you are doing if you are recovered. Social exercise is as important as physical, so mix it up.

EatWELL – DrinkWell - ExerciseWell - SleepWell

Nick Littlehales elite sports sleep coach 2016

