Sleep

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One third of our lives are spent trying to sleep. Most us have disturbed, restless nights and rely on a cocktail of caffeine and sugar to drag us through the day. Yet the hours we spend in bed shape our mood, motivation and decision-making skills – defining our performance in work, at home and keeping fit.

* A circadian rhythm is a 24 hour cycle driven by our internal body clock.
* Light matters. Our bodies melatonin production is triggered by blue wavelength light. In the evening you need to limit exposure to blue light (electronic devices) to allow commencement of melatonin production and in the morning you want to expose yourself to blue light (daylight) soon after waking to trigger cessation of melatonin production and start to wake up to the day.
* The human body has been perfecting dark light cycle synchronicity for thousands of evolutionary years. Artificial light has only been influencing humans since the nineteenth century yet most people allow their effects on our daily cycles far more that our bodies have been able to evolve and adapt to cope with these.
* **Circadian Rhythms: Seven Steps To Sleep Smarter**
  1. Get outside! Set your body clock with daylight,  LT artificial light.
  2. Take the time to learn about your rhythms and how they affect you – engage family and friends too.
  3. Know your peaks and troughs: monitor yourself against what should be happening naturally – use a wearable fitness tracker to measure.
  4. Peak sleeping time is around 2–3 a.m. If you go to bed as the sun comes up, you are fighting against your body clock.
  5. Slow down in your mornings; rushing off from the word go can disrupt your body. Sleep quality is all about what we do from the point of waking.
  6. Blue light is badly timed light in the evening – dim it down when you can. Go for red or yellow light – or even candlelight.
  7. Picture yourself by the fire on an island: what are you doing right now that is in conflict with this? What are you going to do about it? Plan simple changes to current routines to align yourself better with th circadian rhythms chart.
* There are three chronotypes that determine how a person aligns with the standard circadian rhythm. These are genetic and become solidified in young adults in the early twenties. Larks are morning people, Owls are night people and I between ears are somewhere in between. Modern society expectations does not support allowing people to remain aligned with their natural chronotype circadian rhythm therefore forcing people to operate outside of their peak performance times. This is known a social jet-lag.
* Caffeine is the most common drug used to counter the effects of being required to perform outside your chronotypes circadian rhythm cycle. It is typically used by people to get them int9 a position where they can perform as required and often used liberally throughout the day. Owls will generally need caffeine in the morning and larks in the evening. Rather than executive liberal use of caffeine it should have a targeted use to inhance performance for a specific event and be treated with respect as it has the ability to exasperate the negative effects of operating outside your chronotypes circadian rhythm.
* Hack your environment to support your periods of social jet-lag. If in a relationship identify your chronotypes and structure your lives to cover each other’s social jet-lag times with the others period of alertness. In a work environment plan your tasks to align with your periods of greater alertness and know your subordinates chronotypes to better manage their performance.
* **CHRONOTYPE: SEVEN STEPS TO SLEEP SMARTER**
  1. Know your chronotype, and establish those of close friends and family. Use the Munich University questionnaire if you’re not sure.
  2. Manipulate your day so you can be at your best when it matters most.
  3. Use caffeine as a strategic performance enhancer, not out of habit – and no more than 400mg per day.
  4. PMers – don’t lie in at weekends if you want to beat social jet lag.
  5. Fit meeting rooms, offices and desks with daylight lamps to improve alertness, productivity and mood at work.
  6. Know when to step up and when to take a back seat: should you volunteer to take a penalty in a late-night match when you’re an AMer?
  7. Learn to work in harmony with your partner if your chronotypes differ.
* The socially accepted standard of requiring eight hours of sleep per night is incorrect. All people are different and require different amounts. In stead it is better to look at the amount of sleep cycles you should be getting in a week.
* The standard sleep cycle takes around 90 minutes and contains four (sometimes five) stages.
  1. Non-Rapid Eye Movement (NREM) Stage 1.Somewhere between awake and asleep for a few minutes when you can be easily disturbed by indirect external influences.
  2. NREM Stage 2. Light sleep when heart rate slows and body temperature drops. This state is the biggest percentage of time asleep and can be interrupted by direct external influences. This stage is linked to information consolidation and improved motor skill performance.
  3. NREM Stage 3 (and 4). Deep sleep where the brain produces the slowest-frequency brain-waves (delta waves). This is where you want to spend the most time (20% of total sleep time) due to release of Human Growth Hormone (HGH) which provides the major physical restorative benefits of sleep. It is very difficult to be woken from this stage and if you are you will feel punch drunk and confused.
  4. Rapid Eye Movement (REM) Stage 5. Rousing to light sleep territory for a short while before our mind takes us off on a ride while our bodies are temporarily paralised. REM sleep is believed to have benificial effects on creativity and should account for 20% of total sleep. At the end of the REM stage we wake but will usually not remember this before starting the next cycle.
* Each cycle during the night is different. Earlier cycles contain more deep sleep and later cycles contain more REM sleep. If however you have been getting less sleep than normal your brain will drop into REM sleep earlier and for more cycles which clearly demonstrates its importance.
* To plan your ideal sleep cycles per night you first. We’d to identify your ideal wake up time. This must be achievable every day (including weekends). You can then count back to find your bed time by how many cycles you think you need. To find your required cycles start with five per night for a week then change to either four or six for another week depending on how you feel and then see which is better.
* Once you know this deal you can start to accommodate interruptions to this. Wherever possible avoide three consecutive nights of less cycles than you optimum. Look forward in your week and month to plan sleep depending on your demands. For a short period you may be able to drop a cycle per night to free up time for a busy work project.
* **CYCLES NOT HOURS: SEVEN STEPS TO SLEEP SMARTER**
  1. Your constant wake time is the anchor that holds in place the R90 technique – set one, and stick to it. If you share your bed with a partner, get them to do the same, and ideally make them the same time.
  2. Think of sleep in ninety-minute cycles, not hours.
  3. Your sleep time is flexible, but it is determined by counting back in ninety-minute slots from your wake time.
  4. Look at sleep in a broader tract of time to take the pressure off. One ‘bad night’s sleep’ won’t kill you – think of it in cycles per week.
  5. Try to avoid three nights of fewer cycles than your ideal back to back.
  6. It’s not simply quality vs. quantity. Know how much you need. For the average person, thirty-five cycles per week is ideal. Twenty-eight (six hours per night) to thirty is OK. If you’re getting anything less which isn’t planned for, you might be overdoing it.
  7. Aim to achieve your ideal amount at least four times per week.
  8. If you are too late for your optimal bed time, wait u til the start of the next 90 minute cycle and forgo one cycle for that night. Use the time instead to wind down rather than lie in bed unable to get to sleep.

**PRE AND POST SLEEP ROUTINES**

* Along with 90 minute sleep cycles you should also allocate a 90 minute period before and after sleep to wind down or wind up respectively.
* Pre-Sleep (90 minutes before commencement of first cycle)
  + Not a formal process or anything but more of an understanding of what to start including and eliminating from your environment and activities.
  + Last food and water intake.
  + Technology free to avoid blue light and remove potential stressful incoming information.
  + Transition from warm to cool by possibly having a warm (not hot) shower, keeping the bedroom and a cool temperature and having appropriate quantity of bed linen.
  + Spend some time preparing for the next day as it will assist in decluttering your mind for the night ahead.
  + To avoid thinking about events of the day you just had it is good to spend a shot time downloading your day. This can be via journaling, meditation, quiet time or a to do list of things on your mind. This will also allow your brain to process the information while you are asleep.
  + Going to sleep is n
  + The most vulnerable time of your day, spend some time check8ng doors are locked etc so you do not worry about that.
  + Some light exercise before going to be can be benificial however it must be light.
* Sleeping.
  + Ensure you breath through your nose while sleeping. If you wake up in the morning with a dry mouth and through you probably breath through you mouth during sleep. Use one of the many products to assist you in nose breathing through the night.
* Post-Sleep (90 minutes commencing at the end of your last cycle).
  + Must be built on the foundation of a regular wake up time.
  + The bodies cortisol (hormone response to stress) is the highest shortly after waking. This is not the time to view or respond to technological stresses like phone notifications.
  + Where possible avoid using your tech device as an alarm in stead use a basic clock.
  + Get the curtains open and absorb some natural blue light to set the body clock and make the final hormone shift from melatonin to serotonin.
  + Set your phone alarm for increasing amounts of time after you wake and don’t touch it until then. Slowly increase morning tech free time up to 90 minutes.
  + Daylight, hydrating and fuel will all help your body wake up in good time if you let them, and they won’t make you crash later in the day.
  + Incorporate some exercise preferably outside in fresh air and sunlight.
  + If you need a recovery day in bed or just a sleep in, still get up at your standard time, do what you can muster of the 90 minute post sleep routine then go back to bed.
* PRE- AND POST-SLEEP ROUTINES: SEVEN STEPS TO SLEEP SMARTER
  + Pre- and post-sleep routines directly affect the quality of your sleep and waking day: value them as the important activities they are, and you’ll be more efficient all day and night.
  + Take technology breaks during the day as a reward and training for body and mind.
  + Post-sleep is vitally important for PMers if they want to keep up with the AMers – don’t forgo this in favour of the ‘snooze’ button.
  + Don’t text drunk! Raise your alertness before you reach for your phone.
  + Moving your body from warm to cooler helps trigger the natural drop in body temperature – a quick warm rinse under the shower and a cooler sleeping environment will achieve this.
  + Declutter your environment and mind and download your day before bed, so you don’t lie awake thinking when you could be asleep.
  + Pre-sleep is about shutting down – nose-breathing, relaxing, light to dark – while post-sleep is about starting up in an unrushed way: these periods belong to you and no one else.

**TIME OUT**

* Balancing the circadian rhythms “urge to sleep and the bodies always building, need to sleep”, results in not only the evening sleep window but another in the mid afternoon between 13:00 and 15:00 and again in the evening between 17:00 and 19:00.
* These windows can be used to fit in a full 90 minute cycle or a 30 minute Controlled Recovery Period (CRP). These can be to catch up on lost cycles or in anticipation of a forecast loss in cycles. A full cycle may result in sleep inertia so a CRP will be more practical for most people. If you drink coffee consumption of caffeine at the start of your CRP will ensure it is starting to take effect as you finish you 30 minute CRP.
* If there is no possibility to rest during these periods try and get some exposure to sunlight to help boost you through these slumps. Some tech hacks for sunlight are a daylamp or the Valkees Human Charger headphones which deliver light directly to your penal gland through your ears.
* Take breaks from whatever is demanding your mental concentration every 90 minutes. Also use this time to physically seperate yourself from your direct work environment. Also try to take breaks from technology throughout the day. Start with 5 minutes every 90 and work up to 20 minutes.
* ACTIVITY AND RECOVERY HARMONY: SEVEN STEPS TO SLEEP SMARTER
  1. A Controlled Recovery Period during the midday window (1–3 p.m.) is the perfect way to supplement your nocturnal cycles in harmony with your circadian rhythms.
  2. The early evening (5–7 p.m.) is the next best opportunity, as the need is high – but limit this one to thirty minutes maximum so it won’t affect your sleep at night.
  3. Can’t sleep in the day? It doesn’t matter – just spend thirty minutes switching off and disconnecting from the world.
  4. Take breaks at least every ninety minutes to refresh your mind and your concentration levels. Avoid technology during these windows, so that you’re not spending a whole ninety minutes connected.
  5. Stop any preconceived notions of daytime sleepers being ‘lazy’ in whichever culture you work in, and provide a culture where CRPs and breaks are accepted – if you don’t snooze, you’ll lose.
  6. Use meditation apps, mindfulness or hold an item of personal value to help you slip away from your immediate environment.
  7. If you really can’t get away, manipulate your day so that you’re not caught doing anything too taxing in the mid-afternoon slump.

**THE SLEEP KIT**

* The sleeping position is the first thing to rectify. Sleeping on you back is good for spinal allignment but does close the airways causing some breathing interference or sleep apnoea. Sleeping on the belly is good for keeping the airways open however usually results in curvature of the spine and strain of the neck. Sleeping on your non-dominant side is the most optimal and is based on a foetal position with straight spine from bottom to neck, slight bend in the knees and arms crossed in front of the chest.
* Conduct a mattress check either in your current mattress or when purchasing a new one. Lie on the mattress to be tested in the previously discribed optimal sleep position (non-dominant side foetal position) with head, neck and vertebrae in allignment (may need to suspend the head in the air above the mattress. Have another person check the following:
  + Check the gap between head and mattress.
    - Gap greater than 6 centimetres (two hands flat on each other) the mattress is too firm.
    - No gap and the head is being raised up by the mattress then it is too soft.
  + Check the hips depth in the mattress.
    - Hip dropping into the mattress and putting the spine out of allignment then the mattress is too soft.
* The correctly profiled surface should easily accept your body shape and weight, distributing your weight evenly and giving you a straight postural line, like the diagram below.
* A pillows sole purpose is to compensate for an imperfect mattress. A mattress perfectly supporting you profile as in the image above will not require you to need a pillow. It is difficult to find a perfect mattress especially if sleeping with a partner. Completely disregard the wide variety of types and styles of pillows an simply find one that perfectly fills the gap between the head and the mattress.
* If sharing a bed with a partner the only correct size bed is a super king. Anything smaller will result in you disrupting each other’s sleep. If you need spend 100% of your budget on the mattress and simply put in on the floor. Frames are purely decorative.
* Dust mites feed on the dead skin scales shed by you while in bed. It is not the mites that cause irritation must their droppings. Always use hypoallergenic bedding to avoid these mites setting up home in your bed.
* All bedding and sheets should be natural breathable fibre that support maintenance of a comfortable sleeping environment.
* Is your bed more inviting when you have just put on fresh clean sheets? This is primarily a psychological thing however you will get slightly better sleep in clean sheets. Try and change them as regularly as possible. Daily is obviously optimal but possibly not practice for everyone.
* THE SLEEP KIT: SEVEN STEPS TO SLEEP SMARTER
  1. Learn to sleep in the foetal position, on your non-dominant side (left-handed people sleep on their right; right-handers on their left).
  2. Do the mattress check-up and know what your correctly profiled surface feels like. Do the same for your sleeping partner.
  3. Take an incremental approach: spend £500 twice over seven years on your sleeping surface rather than £1,000 in one go. Think about layers that can be washed and replaced regularly.
  4. Use hypoallergenic and breathable bedding, whether you have allergies or not, to keep out potential impediments to sleep and regulate your temperature.
  5. Size matters – buy as big as you can. A super king mattress is the minimum size a couple should contemplate (space permitting); a ‘double’ bed is a bed for one person.
  6. Don’t buy blind! Engage with the salesperson’s knowledge to help define what is available, but use what you have learnt in this chapter when it comes to making the final choice.
  7. Remember the mattress-to-bed-frame ratio of importance: the mattress can be as much as 100 per cent of your budget because the bed frame is effectively a decorative item.

**RECOVERY ROOM**

* The bedroom must become a sleep sanctuary of physical and mental recovery. Ideally there should be nothing in the room except a bed, some side tables, lamp and basic clock, wardrobe and that’s about it. Get rid of many electronic devices and light sources as possible.
* Some points for bedroom design from a blank canvas:
  + White walls with no stimulus on them (pictures etc).
  + Remove all ambient light to aid production of melatonin in the dark. Blackout curtains are a must.
  + Curtains must be easily opened in the morning at your optimal waking time to stream in the natural light and start the natural awakening process.
  + Warm to cool temperature transition is vital. Ideally the bedroom will be constantly between 16-18 degrees centigrade. If this doesn’t work find a temperature that works for you but the bedroom should be cooler than the rest of the house.
  + The only technology your bedroom needs is an alarm clock preferably a dawn wake simulator.
* Cleanliness is important including the air you are breathing. If you have particular allergies or live in an area of high air pollution consider using a High Efficiency Particulate Air (HEPA) filter.
* An organised and clutter-free environment will also assist in removing stimulus for the mind.
* Noise hygiene is important. If need be consider use ING ear plugs but be aware of their potential discomfort and distraction. You may find white noise beneficial to drowning out other leak and trough sounds.
* The feeling of security, safety and comfort are paramount characteristics of your bedroom. Whatever you may need in the room to give you this feeling is a welcome addition to the room.
* RECOVERY ROOM: SEVEN STEPS TO SLEEP SMARTER
  + Your bedroom should not be an extension of your living space if possible – rename it your mental and physical recovery room.
  + Empty your room (if only in your head) and bring back only the items necessary for rest, recovery and relaxation.
  + Black out your room so that external light does not interfere with your sleep.
  + Make your room a cooler, but not cold, environment compared to the rest of the home.
  + Feel safe and secure in your room – a favourite teddy, a picture of loved ones or double-checking the doors and windows are locked can all help.
  + Have a neutral decor, keep it clean and avoid anything that is likely to stimulate the mind (bright pictures or books with which you make strong personal connections).
  + Control tech use in your room – standby lights off at night and your phone either out of the room or at least out of sight (and silenced).

**A HEAD START**

* The R90 program in action will not only break down your day into planned manageable slots to be used appropriately but will also allow for planning your week to include your optimal amount of cycles while accommodating life’s unexpected requirements.
* To get a look at how your recover plan is working keep a basic daily record for a few weeks:
  + CRP: Note any cycles you get during the midday and evening windows.
  + Nocturnal: Note the amount of cycles for each night.
  + Activity: Note any key events that effected you cycles on a particular day.
* You can then start to do this in advance forecasting the week ahead and planning where you can and will need to fit in additional CRP’s.
* Plan to eat your evening meal two cycles (three hours) before your targeted sleep time and any last snacks at the start of your pre sleep routine (90 minutes before). If you do eat late push your sleep time back one cycle.
* Technology like fitness and sleep trackers and not 100% accurate and should only be used to check trends and inform possible ways to improve your recovery. Do not not check these things on a daily basis.

**SLEEPING WITH THE ENEMY**

* When looking to make changes to your wake/sleep times and the amount of cycles you get night, implement changes for a minimum of 7 days. After this period assess if it is working or if another change is required.
* Over the counter and prescription sleeping drugs should be a last resort and avoided at all costs.
* Time zone travel can have an unavoidable effect on your bodies circadian rhythm synchronisation to light/dark times.
  + Changing time zones to the east (earlier) is generally worse. In an attempt to reduce the impact you can adopt a simple pre-adaptation routine moving your wake and sleep times earlier each day for a few days.
  + Use of light exposure control can greatly assist this shift in sleep and wake times.
  + This can be done in reverse for west timezone changes.
  + Control light exposure on the plane to align with the destination.
  + Upon arrival at the destination light exposure is the most effective tool to help you align.
* Seasonal changes in light/dark times can be combatted with daylight producing products to simulate longer days and keep in check with your wake and sleep times.

**THE HOME TEAM**

* If sharing a bed with a partner be aware of optimal sleeping positions. Ideally you will both be in your non-dominant side facing out of the bed. If this is not the case due to both having the same non-dominant side simply be aware of who is not in the ideal position and  considerate to disturbances for this person.
* Prior to a big even when optimal recovery is required consider sharing pre-sleep routine prior to retiring to seperate bedrooms.
* If you have a newborn interrupting your perfect R90 recovery program the best thing is to stick to the principles.
  + If you get up in the night wait until the start of the next sleep cycle before trying to get back to sleep.
  + Use the afternoon and evening CRP periods to catch up on a cycle but don’t have more that one even if the baby sleeps for longer than 90 minutes.
* You need to be proactive in setting good recovery habits for young children and teenagers. In particular the following:
  + Suitable sleep environment.
  + Pre and post sleep routines.
  + Avoid over stimulation during the routine periods (including food types).
  + Regular sleep and wake times.
  + Spot your child’s chronotype early, educate them on how to best conduct themselves to support their peaks and troughs.
  + The ability for adults to accrue a sleep debt to be repaid later is not a practice suitable for children.
  + Teenagers will naturally become PMers as their bodies produce melatonin later in the night resulting in staying up later but their extenuating requirement for sleep will mean they need to sleep in longer in the morning.
  + The teenagers perfect storm of biological changes, social opportunities later in the evenings and technology all lead to a big impact on recovery and performance at school. Remove technology wherever possible.