

Adolescent Sleep-Problems & Solutions

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Are sleep, learning, & mental health problems linked?

- Below are 3 of the biggest problems in adolescents
- Teen sleep deprivation has doubled in the last 15 years from 35% to 70%
- Teen mental health problems increasing @ 27% per year = a tripling since 2008
- Meanwhile learning outcomes are heading south. PISA data-learning outcomes in our 15 yr olds dropped from top 12, to 39th of 41 high/middle income countries
- Teens in my sleep clinic are tired, AND most have mood &/or learning issues BUT is there a linkage?
- Well yes, because when I optimise their sleep patterns & treat their sleep disorder, their moods improve as does their ability to learn. So this makes them (& their parents & teachers) HAPPIER
- So this is practical evidence of a link.
- BUT, in the medical world, sleep is often a forgotten issue when teens are assessed for mental health or learning problems. Sleep issues are UNDERMEDICALISED
- AND so this is the key reason I have come to speak to you today to, hopefully increase your awareness of sleep health (& show how you make a BIG DIFFERENCE)]

Talk outline

- General points about sleep deprivation-to show you that it is real, it is impairing health, & it is BIG (& growing)
- How sleepy are our teens & why is sleepiness increasing
- How electronic screens sabotage sleep
- Effects of sleep deprivation on learning
- The intimate & sometimes confusing relationship between sleep & mood
- Explanation of specific sleep problems (not just a lack of sleep)
- Practical treatment strategies for all of you
- What to do with failures-what I do!



Myths, Misconceptions & Gimmicks.

- Drugs, & other "magic bullets" for sleep (except melatonin in selected cases)
- Blue light/low light screen filters
- Runaway alarm clock
- Face slapping alarm clock



The "3 pillars" of good teen health

- Good sleep
- Regular exercise
- Good nutrition
- These together protect mental & physical health, and reduce the chance of a crisis at times of elevated stress



The most googled personal question worldwide is...

- We are all tired (& getting tired)
- Teens are the most tired age group of all



How sleepy are our kids ? – Upper Primary

- 65% of 9-10 year olds have chronic sleep deprivation that impairs their maths & science learning, 5th globally
- Grattan report. One in three primary school students were "PASSIVELY INATTENTIVE" in class & not engaged in learning irrespective of teacher's level of experience. Fly under teacher radar & thus termed "CLASSROOM GHOSTS". The inattentive group trended towards later bedtimes & less sleep (& we already know smart kids sleep longer & better)
- But it gets worse for high school students, who rise to the bronze medal position



How sleepy are Oz teens & at what cost?

- 70% are chronically sleep deprived on school days
- Doubled in last 15 years
- Australia is 3rd worst globally
- The lifetime "cost" of missed learning opportunities in teens has never been calculated



Multiple factors conspire to sabotage teen sleep-the "perfect storm"



- ✓ Social connectedness & FOMO (a powerful addiction)
- Exams & Daylight Saving
- ✓ Late body clocks & non flexible school starting times
- Part time jobs
- Homework & extra curricular activities-over scheduling-too busy to sleep
- ✓ Ambition, pressure, stress & high expectations of our teens
- Our 1st world 24hr, electronically connected society
- The gap between social norms & scientific data
- Competition of wakefulness ("sleep is for wimps")
- Sleep is no longer precious, so has low priority
- Reduced parental control

Effects go way beyond tiredness & academic failure

- Altered body image
- Screen addiction
- Poor food choices & obesity
- High cortisol (stress hormone)
- More infections & slower recovery
- School lateness & absenteeism
- Cyber & non cyber bullying
- Depression (1.5 fold)
- Anxiety
- Impaired ethical & moral judgement
- Suicide- 1 hour lost sleep=58% increase in teen suicide
- Motor vehicle accidents=27% drop with late school start times
- Lower self esteem
- Drug use risk elevation
- Self harming
- Teen pregnancy
- Poor stress coping
- Family relationship breakdown
- Emotionality
- Loss of sense of humour

"All petrol no brakes"-the nocturnal teen brain-a strange organ!!

- Limbic system, the brain's emotional regulator, "fires up" at night, causing overly emotional responses to often trivial issues
- The pre frontal cortex, the "rational brain", shuts down when tired & is relatively under developed in teens
- Teens make emotional & risky decisions, driven by the limbic system, when tired & the pre frontal cortex fails to input any rational thoughts
- Increased cyber bullying, car accidents, anxiety, suicidal thoughts, drug use at night



A Tsunami of teen Sleep Data US Nat Sleep foundation 30,000 teens across 50 states

- 96% screen use in the hour before bedtime
- Active screen activity(phones, games) worse than passive (TV, DVDs)
- Only 8% turn phone off at night
- 34 texts per night average. No real school night weekend difference (insight lacking)
- 77% report sleep difficulties &/or morning tiredness
- 35% have 2 or more energy drinks per day-surrogate marker of sleep deprivation
- 25% of final school year students use a stimulant drug or so called "smart drug" as a "study aid" in order to stay awake in order to complete homework or study



The 5 ways screens sabotage dreams in "screenagers"

1. Screen time delays bed time
2. It's exciting, fun & highly addictive. Dopamine & Adrenalin surges. High cortisols. These are awake-promoting chemicals
3. The "anticipation" effect resulting in "infomania" & constant checking for new messages. Occurs even when not using devices.
4. Portability means less on desk & more on bed. This blurs the boundary between awake, non bed activities & sleep. Brain gets "mixed messages" resulting in "conditioned arousal"



Conditioned Insomnia-training to be awake in bed

- Screen use in bed trains the brain that bed is a place of exciting wakeful activity. This is called "conditioned arousal"
- Then, "Conditioned Insomnia" follows, which is the inability to get to sleep, because of this wakeful training



The 5th effect of screens on sleep

- Blue screen light lowers melatonin & signals the brain to "wake up"
- Smaller screens are worst as light intensity is highest & screen held closer to face
- Electronic devices best "sleep" away from the bedroom



Lessons learned from the gibberish language learning experiment

- Early high school kids are taught a gibberish (nonsense) language for 10 days
- All have the same baseline knowledge of the language ie zero
- 50% have 2 hours of teaching in the afternoons
- 50% have 2 hours of afternoon teaching plus 2 hours of evening teaching
- The second group have their school night bed time delayed by 2 hours
- All get up at their school day wake up time ie no sleep ins
- Then there is a gibberish exam, with prizes
- Which group comes out on top & why?
- This is translatable to classroom learning & evening learning

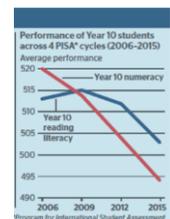
Learning to remember & learning to forget-missed learning opportunities

- Learning has 2 steps
- To acquire short term memory, good quality sleep on the night PRIOR is required. New learning initially enters the brain's short term memory banks. "Cognitive shutdown" occurs when a tired brain blocks out new learning. "In one ear & out the other".
- A well rested brain, which processes new classroom learning into short term memory, then needs consolidated REM sleep on the subsequent night to file this learning into long term memory banks



The spiral of cognitive slowing & futile learning at night

- A tired at night teen brain slows down, it goes into "low power mode" & becomes more easily distracted & less attentive
- So homework & study completion takes longer
- So bedtime is delayed
- So sleep time is reduced
- So the day's & that evening's learning is not consolidated into long term memory & is thus forgotten
- The next day same again & so on.
- Late night learning which compromises sleep time is called "FUTILE LEARNING", ie it is totally wasted learning



So here we are, from top 12 to 39th of 41 Countries

- A 16 year decline in maths, science & reading in 15 yr olds. SOME of this relates to worsening sleepiness
- It's not because "most Maths teachers don't have a tertiary Maths degree"
- \$28 billion of "Gonski 2" & extra \$2.2 billion in NSW 2017 budget may not work if kids stay tired!
- Maybe sleep education should be part of every school's well being curriculum, rather than just in the medical curriculum

UN agency ranks Australia 39 out of 41 countries for quality education



"Sleep Matters" @ Brisbane Boys Grammar

- Initial sleep health program for athletes, then integrated to Student Wellbeing Curriculum
- Teaching the benefits of good sleep
- Partnership between school, students & parents
- Recognition of impact of "over scheduling" on sleep
- Balancing homework & sleep needs
- Undertaking a trial of late school start times to fit with teen body clocks
- Reasonable limiting of screens at night



An intimate & bi directional relationship

- Is the relationship opposite intimate?
- Is it bi directional? Boy likes girl likes boy
- This photo is unlikely to be a CROWS' supporter with his arm around a POWER supporter
- Anxious kids have trouble sleeping & sleep deprivation fuels ANXIETY
- Same with DEPRESSION
- Same with just generally feeling UNHAPPY



But this relationship can be unexpectedly confusing

- So most mood disordered teens are tired & most tired teens are moody
- BUT, when a teen is diagnosed with a mood/psychological problem, their sleep issues are usually "forgotten"
- So, don't be fooled. Remember to ask about sleep when a teen is unhappy, grumpy or anxious



Resilience in the face of stress

- Assessed US students at a stressful time (college entrance).
- Measured sleep time, genetic risk of Depression, & Mood (CES-D)
- Those with inadequate sleep & genetic depression risk, became clinically depressed at college entry time
- Those with genetic risk of depression & adequate sleep did NOT become depressed



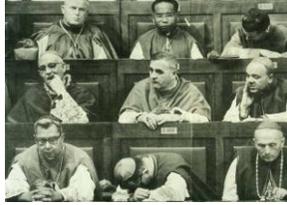
A toxic mix, but good sleep helps u cope

- Sleep deprivation + genetic tendency to depression or anxiety + stress = disaster/crisis of NON COPING
- Stress + genetics are unavoidable
- BUT, sleep can be trained/fixed
- THEN, good sleep provides resilience & mood protection in the face of stress, so one COPES



So what are the sleep problems ? The "won't sleepers" & the "can't sleepers"

- Voluntary sleep restriction...can get to sleep but don't
- Delayed Sleep Phase Disorder-late body clock ..."can't sleep" at normal bed time. Can sleep if they go to bed late. Get great benefit from late school start times
- Conditioned Insomnia-screens & other non sleep activities "train" the brain to be awake in bed
- Psychological insomnia...sleep onset is delayed by anxiety, low moods & so on



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The disconnect between science & society

- Real life drop off from 9-7.5 hours
- Science says sleep need is constant at around 9 hours from 12-18 years of age
- This is a "hard sell" to teens. "What, you mean at 16 I should go to sleep at the same time as my 13 yr old brother-you must be dreaming!"
- Educationalists fit with the social norm, not the scientific norm, by increasing study & homework thru high school years which then reduces sleep opportunity



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Late body clocks (owls) & social jet lag

- Inverted sleepiness-Social jetlag
- Full of beans, wide awake & "wired" late at night. So they CANT sleep at a normal bed time. Because they are so awake, they are more likely to use screens, which further delays their already late body clocks via the blue light effect
- Lethargic & cranky first thing in the mornings. Can't get out of bed. Slow to dress & breakfast. May be late for school. This morning lethargy is called "SLEEP INERTIA"
- So the teen body clock is misaligned with school scheduling. Late school starting times, as legislated in many US states
- So this is how we all feel with bad jet lag, except in late body clock kids it is chronic- so called social jetlag



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Treatment-1st step-detection-the 2 "red flag" questions

- Sometimes tired body language is obvious.
- Big weekend sleep ins. This is "catch up" sleep which is proportionate to weeknight insufficient sleep or the so called "sleep debt"
- Very difficult or "impossible" to get out of bed on school mornings. Leads to family disputes and school lateness. Slow to get moving
- Be proactive. These are "must ask" questions of all teenagers, but especially those presenting with low moods, anxiety or learning problems.



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Barriers to treatment-"Selling Sleep" to teens is tricky

- Sleep is not viewed as something precious needing protection, but more as an inconvenient interruption to their busy days
- Thus sleep is not usually prioritised
- Awake activities are much more fun
- There is "no time" to sleep for busy-bee teens
- Sleep deprivation is "normalised", so most tired teens don't think it is a problem
- Sleep is not sexy or cool
- "Selling" healthy sleep to PARENTS is easier.



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Specific treatment strategies for YOU to employ

- When? The earlier the better. It only gets worse. Do not "wait & see". In upper high school it becomes really difficult!
 - Teens usually won't manage their own sleep. They need support from you, & their parents. Parents need to be "empowered" by you. This means you are the "director" or "advisor" and parents are the conduit. Say you are concerned about tiredness/learning/moods etc
 - SO LET'S START FIXING SLEEP-STEP 1 to 6
1. Have a family meeting where parents put their cards on the table. "We think you are sleep deprived. We want to help you fix your sleep. This will make you smarter & happier"
 2. Ask the teen for their suggestions. "What are you willing to change?" "Name one thing"



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Family treatment strategies for sleep

3. Encourage parents to think of evening efficiencies & organisational strategies that help avoid bed time delays. Boys particularly are often hopeless evening organisers, so things happen slowly. Maybe a timetable to avoid bedtime delay
4. Use the bed for sleep only (avoid conditioned arousal).
5. Agree on a reasonable school night bedtime. IDEAL WORLD says 9 hours, REAL WORLD, maybe 8 hours in upper high school. COMPROMISE is often the key
6. Electronic "BEDROOM CLEANOUT" 1 hour b4 bed. This will be a very unpopular suggestion. May need a compromise & progress slowly to overcome FOWO. "Brain hacking" is a real issue



Night time screen management is difficult

- Parents often disempowered ie they know what should be done but can't do it. They may get "stuck" at this point in the "best friend" vs "best interest" vs "teen need for independence" conundrum
- Parents need to be good digital role models
- All electronic devices removed from bedroom at night. The "ANTICIPATION" effect & the "TEMPTATION" effect occurs even when devices not being used. So "out of sight-out of mind"
- If above cannot be achieved, by mutual agreement, the next step is "parent determined electronic control".
- Family Zone places limits on timing & type of electronic activities. Sometimes the threat of a screen limiting device is enough to change nocturnal screen habits



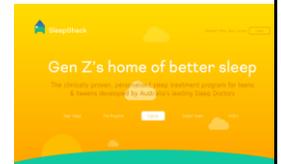
Reasons for treatment "failures"-what to do then?

- Low motivation to change
- Poor insight
- Chaotic, disorganised families
- Parental disempowerment
- Significantly delayed body clock
- Overwhelming psychological issues
- Then consider SleepShack or Somnia Sleep Psychology in Adelaide. Chat to Hayley or Karina



Online diagnosis & treatment via SleepShack-10-18 years

- Replicates face to face consultation, diagnosis & treatment in the online environment. An alternative to interdisciplinary Woolcock Sleep Clinic in Sydney. Same assessment & treatment but delivered electronically
- Educational-research, media, FAQs, Facebook & Blogs
- Multidisciplinary treatment needed as there are multiple contributing factors
- Circadian-body clock treatment
- Behavioural treatment
- Environmental treatment
- Psychological Treatment
- Drug free
- All this is explained in detail on site-have a look @ sleepshack.com.au



Resources

- Online Sleep Treatment (10-18 years) (sleepshack.com.au)
- In School Sleep Health Seminars & Workshops Australia wide (thesleepconnection.com.au)
- Screen management tool (familyzone.com.au)
- In Adelaide, see Hayley or Karina @ Somnia Sleep Psychology (Colonel Light Gardens)
- Further questions or patient direction advice-email Chris via SleepShack (sleepshack.com.au)



Some key "take home" points

- The most chronically sleep deprived group on the planet are teenagers. Yet it is poorly recognised as a health problem
- Many sleep deprived teens are labeled as depressed, or mood disordered, or lazy, or even normal
- Sleep deprivation brings mood vulnerabilities to the surface
- Teenagers are generally trustworthy, but don't trust teens to manage their own sleep. The temptations not to sleep are too great !!
- Sleep health should be taught in all high schools
- Teens are sleepy either because they choose not to sleep or they can't sleep (or both)
- Stress & sleep deprivation are a toxic combination, & together may trigger mental health problems
- Building resilient sleep protects teens from mental health problems, particularly at times of stress, & optimises learning
- When you see a unhappy, grumpy, lazy, moody teen who has no engagement whatsoever in learning, you can (almost) bet your bottom dollar they are sleep deprived!
- Be PROACTIVE. You can make a huge difference