

Biorhythms in Children

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Sleep

CHILDREN FIRST INDIA

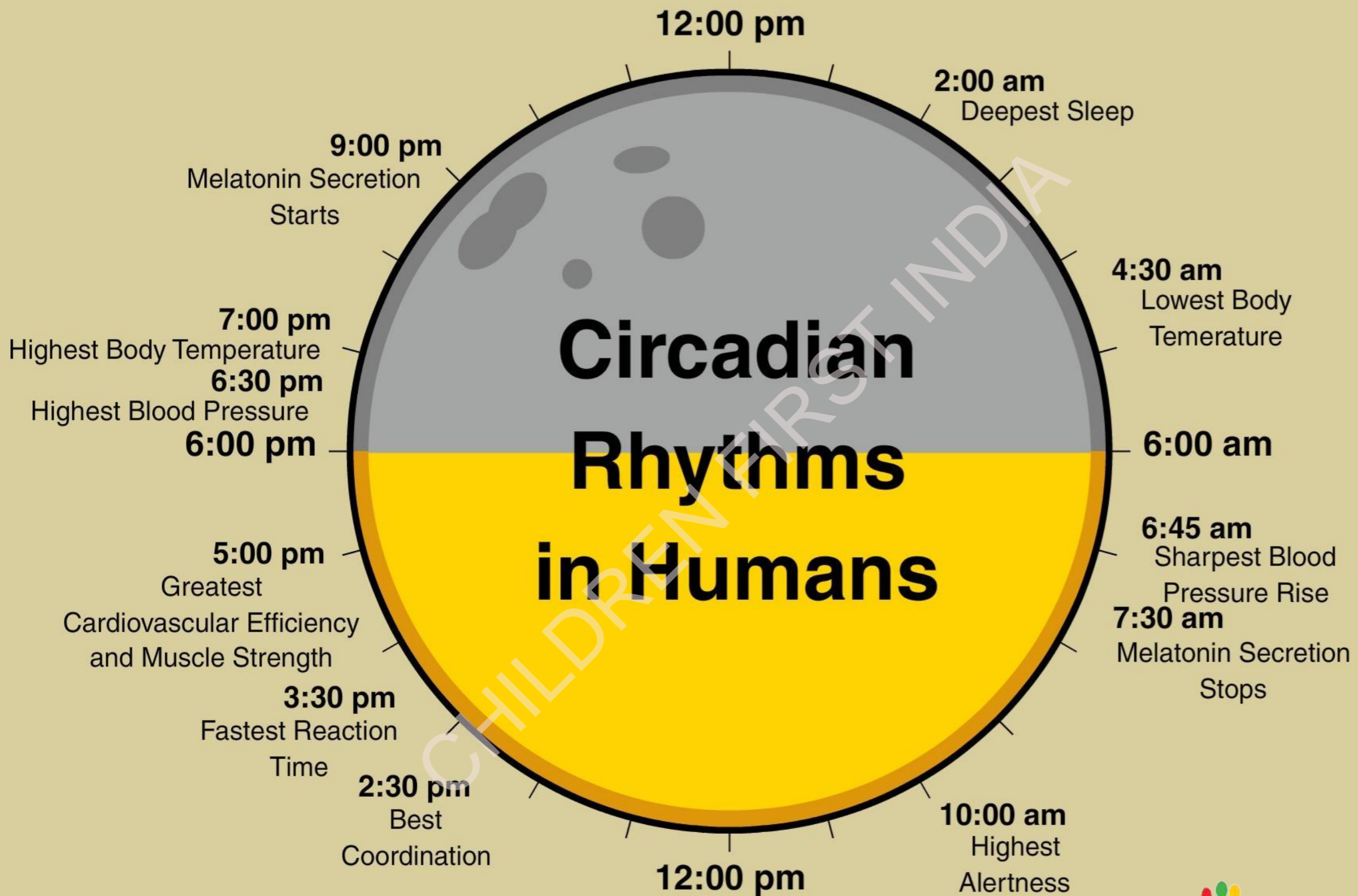
What I Will cover

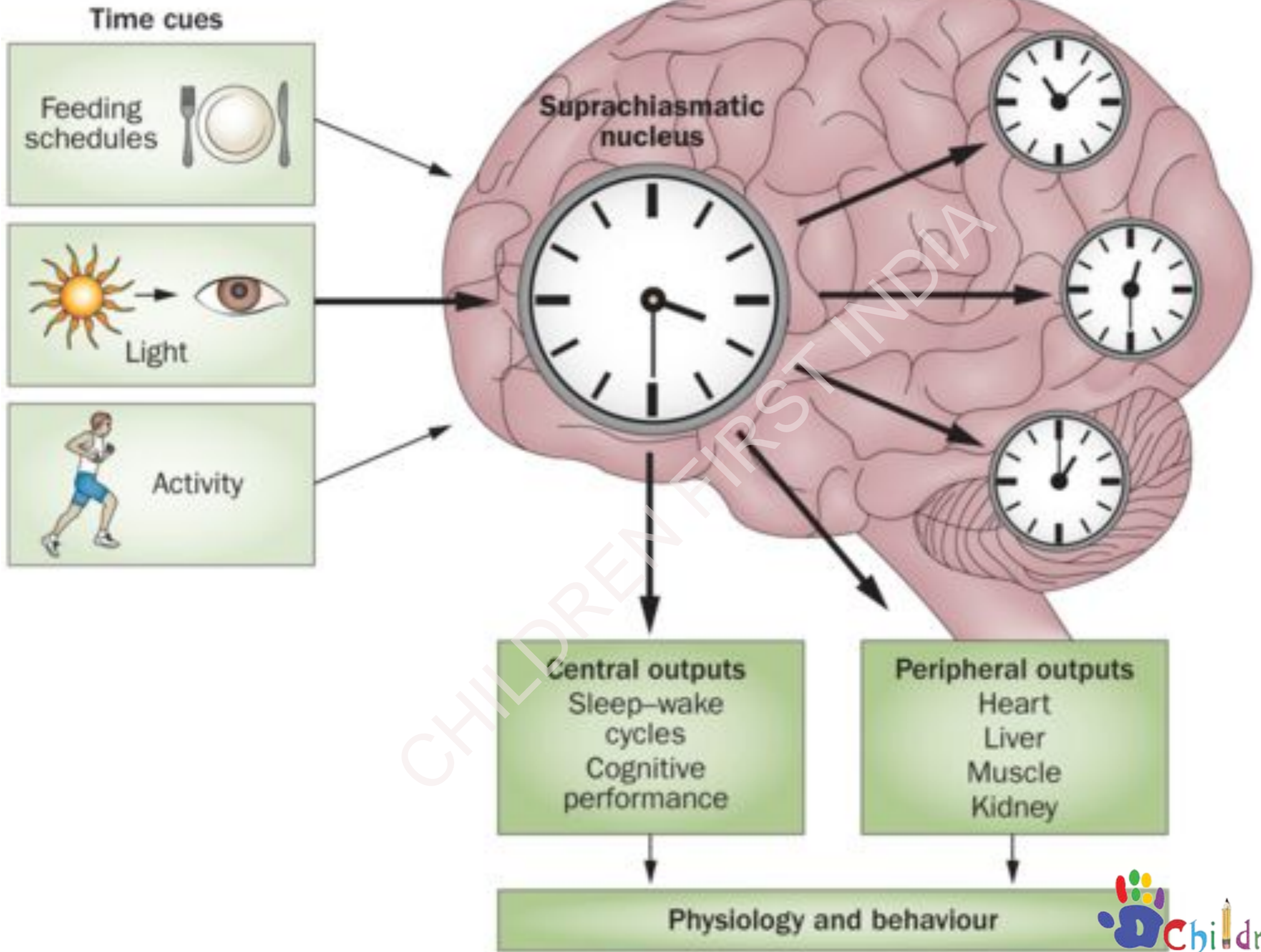
- Sleep wake cycle as a rhythm
- Understanding what impacts it
- Is it important and why
- Factors that can facilitate it

Biological rhythms

- Short term
- Circadian rhythms, feeding, sleep wake cycles.

- Long term:
- Lunar rhythms, life stages , (reproductive) , migratory , breeding



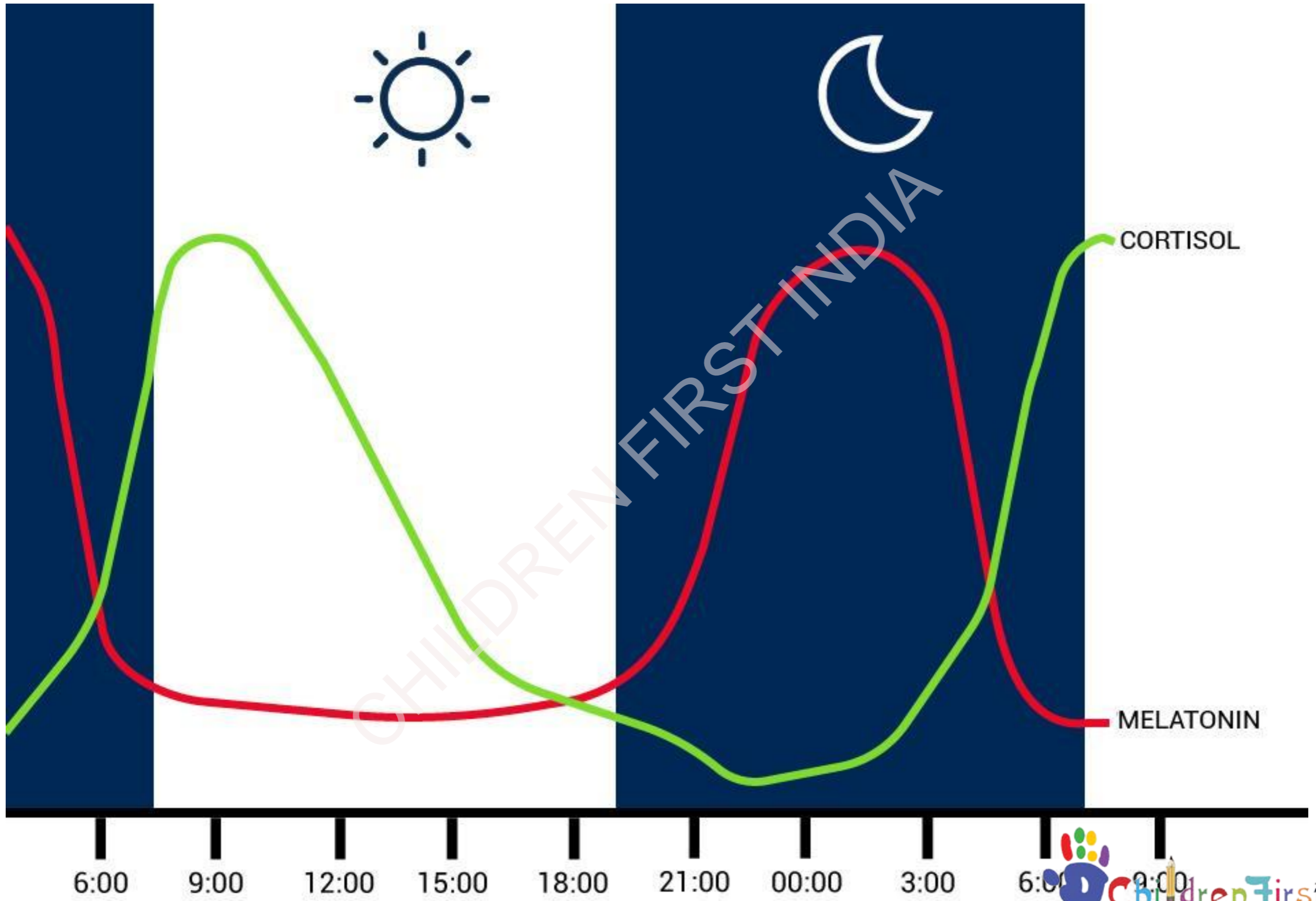


Light
falling on
Retina

SCN

Pineal
gland

Melatonin



Healthy sleep

- adequate duration,
- appropriate timing
- good quality
- regularity
- absence of sleep disturbances or disorders.

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Recommended Daily Sleep for Kids

4-12 MONTHS

12-16
HOURS*

1-2 YEARS

11-14
HOURS*

3-5 YEARS

10-13
HOURS*

6-12 YEARS

9-12
HOURS

13-18 YEARS

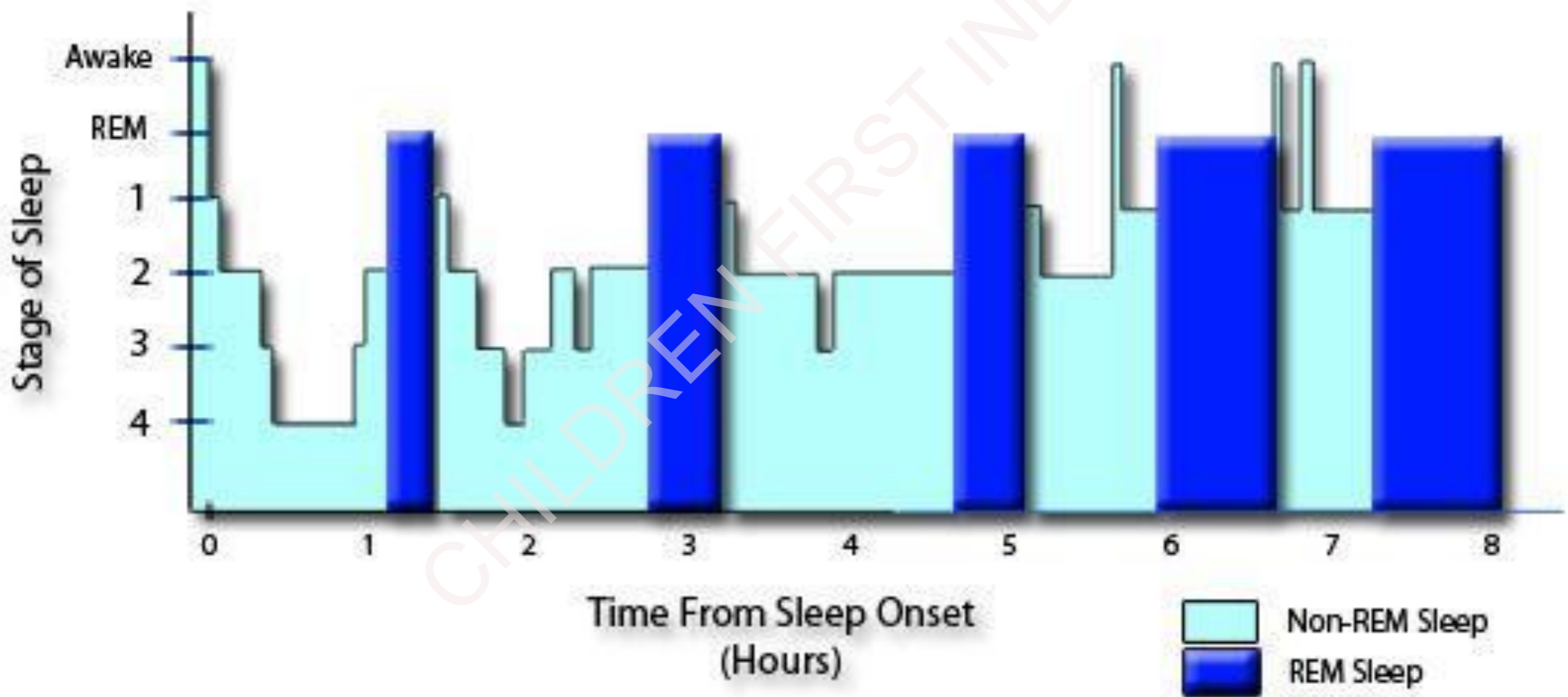
8-10
HOURS

*Includes naps/American Academy of Sleep Medicine



Building a community of concern for our children...

Sleep Stages Through The Night



Sleep facilitation

- 1 Babies need to learn how to soothe themselves.** Putting a baby down drowsy (not fully asleep) encourages him or her to fall asleep on his or her own.
- 1 A consistent bedtime is key.** every night, bedtime should happen around the same time.
- 3 There might be setbacks.** There might be nights where it doesn't go very smoothly (especially if a baby gets sick or a parent is traveling).
- 4 There is no right way to sleep train.** There are many different approaches to sleep training,
- 4 A parent will ultimately be successful.** Between 70 and 80 percent of nine-month-olds sleep through the night, so parents shouldn't get discouraged.

What aids or impacts sleep?

- Internal clock
- External stimuli

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Food

– Awaken

Caffeine content

- Aerated drinks
- Tomato based products
- French fries/deep fried food
- Bacon/sausages/pepperoni
- Aged cheese: Tyramine

– Induce

(Tryptophan plus Ca, Mg)

- Yoghurt , milk
- Cheese
- Bananas
- Eggs
- Peanuts, almonds
- Honey

- Caffeine

CARBONATED WATER

INGREDIENTS: CARBONATED WATER, SUGAR, ACIDITY REGULATOR (338), CAFFEINE. CONTAINS PERMITTED NATURAL COLOUR (150d) AND ADDED FLAVOURS (NATURAL FLAVOURING SUBSTANCES).



“CONTAINS CAFFEINE”

NUTRITION FACTS (Typical Values Per 100ml):

ENERGY: 44 kcal	CARBOHYDRATE: 11 g
SUGAR: 11 g	PROTEIN: 0 g
	FAT: 0 g

MANUFACTURED BY



Sensory Stimuli

- **Pressure :**
 - Deep : massage and rub
- **Visual**
 - Screen x
 - Bright Lights x
- **Movement**
 - Rocking
 - rhythm
- **Touch**
 - Certain areas: e.g. head
 - Initiated by?
- **Music /Noise**
 - Sounds that help: (Nodcasts)
 - Raga Neelambari

Screens before bedtime

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Other stimuli

- Emotional: anxiety , excitement , state of arousal
- Pain :
- Temperature
- Cognitive concept of sleep/dreams

Consequences of sleep deprivation

- Attention
- Mood
- Learning
- Creativity
- Memory
- Chronic : in children? (brain myelination- adults – long term learning)
- Pain tolerance is reduced by sleep deprivation

Is my child sleeping well?

- Duration is not the only criteria

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Figure 2: BEARS Sleep Screening Protocol

The BEARS instrument provides a comprehensive screen for the major sleep disorders affecting children in the 2- to 18-year old range. Each sleep domain has a set of age-appropriate “trigger questions” for use in the clinical interview.

B = Bedtime problems

E = Excessive daytime sleepiness

A = Awakenings during the night

R = Regularity and duration of sleep

S = Snoring

Mindell JA, Owens JA. A clinical guide to pediatric sleep: diagnosis and management of sleep problems.: Wolters Kluwer; 2009.

BEARS Sleep Screening Tool

BEARS is divided into 5 major sleep domains (B=Bedtime Issues, E=Excessive Daytime Sleepiness, A=Night Awakenings, R=Regularity and Duration of Sleep, S=Snoring) and helps clinicians evaluate potential sleep problems in children 2 to 18 years old. Each sleep domain has a set of age-appropriate “trigger questions” for use in the clinical interview. The screen is free to use.

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Source: *A Clinical Guide to Pediatric Sleep: Diagnosis and Management of Sleep Problems* by Jodi A. Mindell and Judith A. Owens; Lippincott Williams & Wilkins

Set the clock: for yourself

- Establish a sleep wake cycle intent
- Get Data first: sleep diary
- Pre Bedtime ritual : examine with intent to identify problem
- ADD Facilitative sleep stimuli
- Subtract : Awakening

- Sleep , wake, repeat with facilitation : 45-60 days.

- <https://sleepcouncil.org.uk/nodcasts/>
- Natural rhythms

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Medication

- Short term
- To set the clock
- Half an hour before desired bedtime
- Formulations: Immediate release and TR (timed)
- Dosage : variable 1.5 mg -20 mg

Melatonin

- Melatonin is secreted by the pineal gland in response to darkness and is involved in maintaining the circadian rhythm of the sleep-wake cycle
- Melatonin supplements provide much larger amount than what is typically secreted
- Studies that exist find benefit and few side-effects
- Short-acting forms used to treat sleep onset problems and
- long acting forms to treat sleep maintained problems

