

SOMMEIL, L'ENFANT ET L'ÉCOLE



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CSEN Groupe de travail "Bien-être à l'école"

UN BESOIN QUI ÉVOLUE



Naissance
<12 mois



14 à 17h

Polyphasique

Petite enfance
3 à 5 ans



10 à 13h

Une sieste

Enfance
6 à 14 ans



9 à 11 h

Nocturne

Adolescence
14 à 17 ans



8 à 10h

Nocturne

Adulte
>18 ans



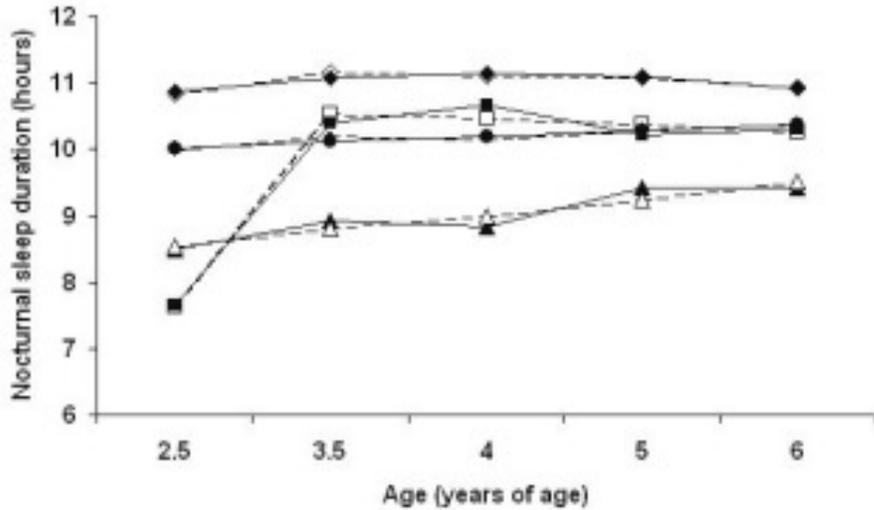
7 à 9h

Nocturne



PERFORMANCES COGNITIVES

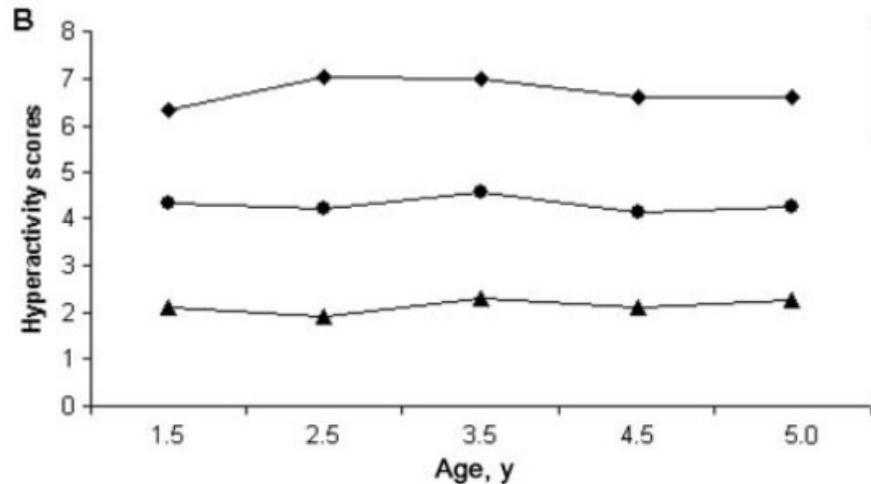
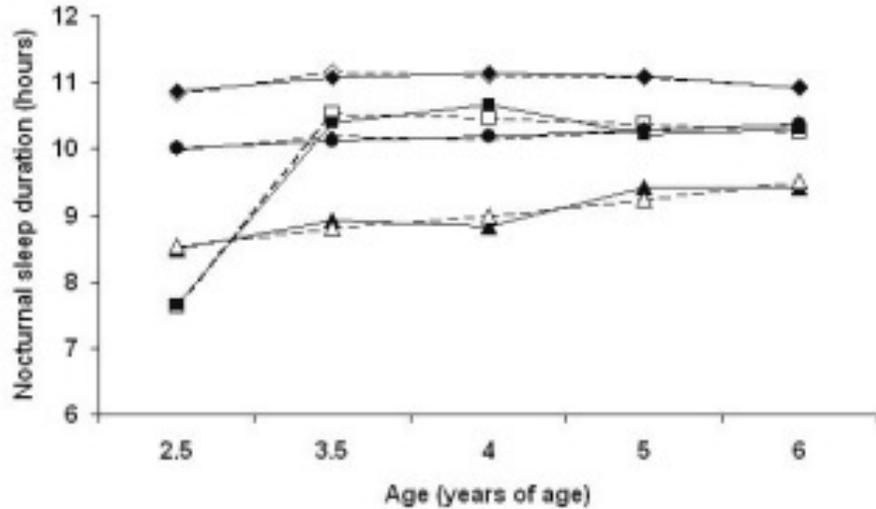
Peabody Picture Vocabulary Test—Revised (PPVT-R)



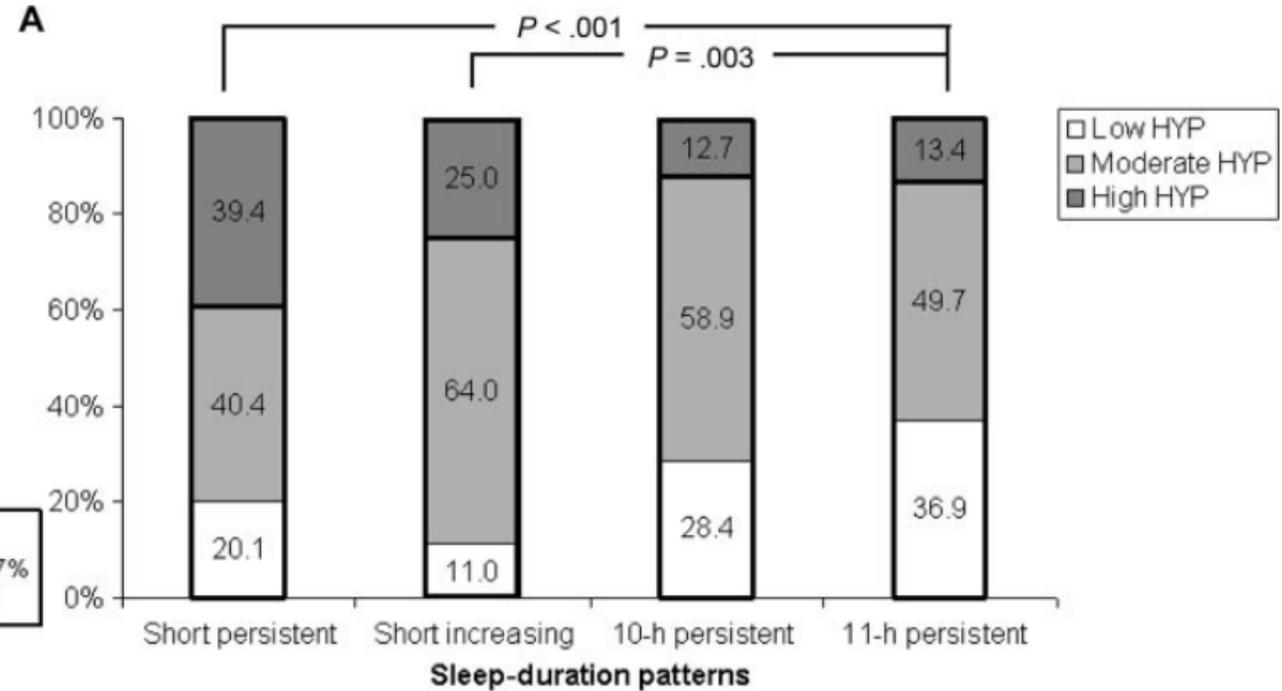
Risk factors	OR	95% CI	P
Unadjusted model†			
Sleep duration patterns§			
Short persistent duration	3.6	(1.9 - 6.7)	<0.001
Short increasing duration	2.2	(1.0 - 6.7)	0.04
10-h persistent duration	1.2	(0.8 - 1.7)	0.45
n=915			

Temps de sommeil <10h multiple par 3.1 le risque de faible performance au test de vocabulaire

PERFORMANCES COGNITIVES



▲ Low persistent: 30.3%
● Medium persistent: 54.7%
◆ High persistent: 14.9%



Dormir <10 h par nuit = 4,1 fois plus de risque d'avoir un score d'hyperactivité élevé
Enfants avec score hyperactivité élevé = 5.1 x plus de risque de présenter un sommeil réduit

PERFORMANCES COGNITIVES

Table 2. Adjusted associations between night-sleep duration trajectories and behavior at age 5–6 years.

	Conduct problems		Hyperactivity/inattention		Emotional symptoms		Peer relationship problems		Low pro-social behavior	
	aOR [95% CI]	p	aOR [95% CI]	p	aOR [95% CI]	p	aOR [95% CI]	p	aOR [95% CI]	p
Raw Model										
SS	1.36 [0.72– 2.57]	0.34	2.61 [1.41– 4.80]	0.002	1.41 [0.73– 2.73]	0.31	1.19 [0.63– 2.24]	0.59	1.72 [0.94– 3.16]	0.08
MLS	1.10 [0.81– 1.49]	0.55	1.56 [1.14– 2.13]	0.005	1.03 [0.74– 1.43]	0.86	1.12 [0.84– 1.51]	0.44	0.83 [0.61– 1.13]	0.23
MHS	Reference		Reference		Reference		Reference		Reference	
CS	1.37 [0.72– 2.57]	0.32	1.86 [1.00– 3.45]	0.05	1.18 [0.60– 2.31]	0.62	1.41 [0.77– 2.58]	0.26	1.12 [0.60– 2.10]	0.71
LS	0.56 [0.24– 1.31]	0.18	0.71 [0.30– 1.64]	0.42	0.59 [0.24– 1.44]	0.25	1.64 [0.87– 3.13]	0.14	1.00 [0.50– 2.02]	0.99
Model 1^a										
SS	1.05 [0.51– 2.17]	0.89	2.57 [1.30– 5.08]	0.007	1.10 [0.53– 2.29]	0.80	1.08 [0.54– 2.14]	0.83	1.22 [0.62– 2.39]	0.57
MLS	1.03 [0.74– 1.44]	0.85	1.73 [1.24– 2.42]	0.001	1.03 [0.72– 1.45]	0.89	1.14 [0.83– 1.55]	0.42	0.73 [0.53– 1.01]	0.06
MHS	Reference		Reference		Reference		Reference		Reference	
CS	1.64 [0.84– 3.21]	0.14	2.06 [1.05– 4.02]	0.03	1.23 [0.61– 2.51]	0.56	1.23 [0.65– 2.32]	0.53	1.23 [0.63– 2.38]	0.55
LS	0.48 [0.2– 1.19]	0.11	0.61 [0.25– 1.51]	0.29	0.51 [0.20– 1.3]	0.16	1.55 [0.79– 3.04]	0.21	1.04 [0.50– 2.17]	0.91
Model 2^b										
SS	0.88 [0.42– 1.85]	0.73	2.65 [1.29– 5.45]	0.008	1.11 [0.53– 2.32]	0.79	1.06 [0.53– 2.11]	0.86	..	..
MLS	1.01 [0.72– 1.42]	0.94	1.71 [1.20– 2.43]	0.003	1.03 [0.72– 1.47]	0.86	1.13 [0.83– 1.55]	0.43	..	..
MHS	Reference		Reference		Reference		Reference		..	..
CS	1.90 [0.95– 3.76]	0.07	2.03 [1.01– 4.08]	0.05	1.43 [0.70– 2.92]	0.33	1.23 [0.65– 2.33]	0.52	..	..
LS	0.51 [0.20– 1.28]	0.15	0.67 [0.26– 1.75]	0.42	0.48 [0.19– 1.22]	0.12	1.55 [0.79– 3.05]	0.20	..	..

aOR adjusted odds ratio and 95%CI

SS Short-Sleep duration trajectory, always <10hrs30/night (5.0%); MLS Medium-Low-Sleep duration trajectory, 10hrs30-11hrs00/night (48.4%); MHS Medium-High-Sleep duration trajectory, around 11hrs30/night (37.0%); LS Long-Sleep duration trajectory, ≥11hrs30/night (4.3%); CS Changing-Sleep duration trajectory, i.e. up to age 3 similar to LS and then to MLS (5.3%).

^aAdjusted for recruitment center, household income, parental education, mother's age at delivery, mother's depressive and smoking status during pregnancy, gender, birth order, term at birth, breastfeeding duration, parental antecedents of childhood behavior problems, child temperament traits at age 1, child exact age at behavioral assessment, number of hours spent in front of a television at age 2, care arrangement at age 2, maternal working status at age 2, falling asleep with a parent at age 2, irregular bed-time at age 2, frequent night waking at age 2 and nap duration at age 2.

^bAdjusted on the same variables than model 1, and additionally on the corresponding behavioral measure at baseline (i.e. age 2)

PERFORMANCES COGNITIVES

Les habitudes de sommeil sont fortement corrélées aux performances académiques de l'école élémentaire (Dewald et al., 2010) à l'université (Trochel et al., 2000; Kelly et al., 2001)

Relation entre sommeil (durée et efficacité) et

- Somnolence
- Vocabulaire
- Contrôle exécutif
- Contrôle émotionnel
- Mémoire

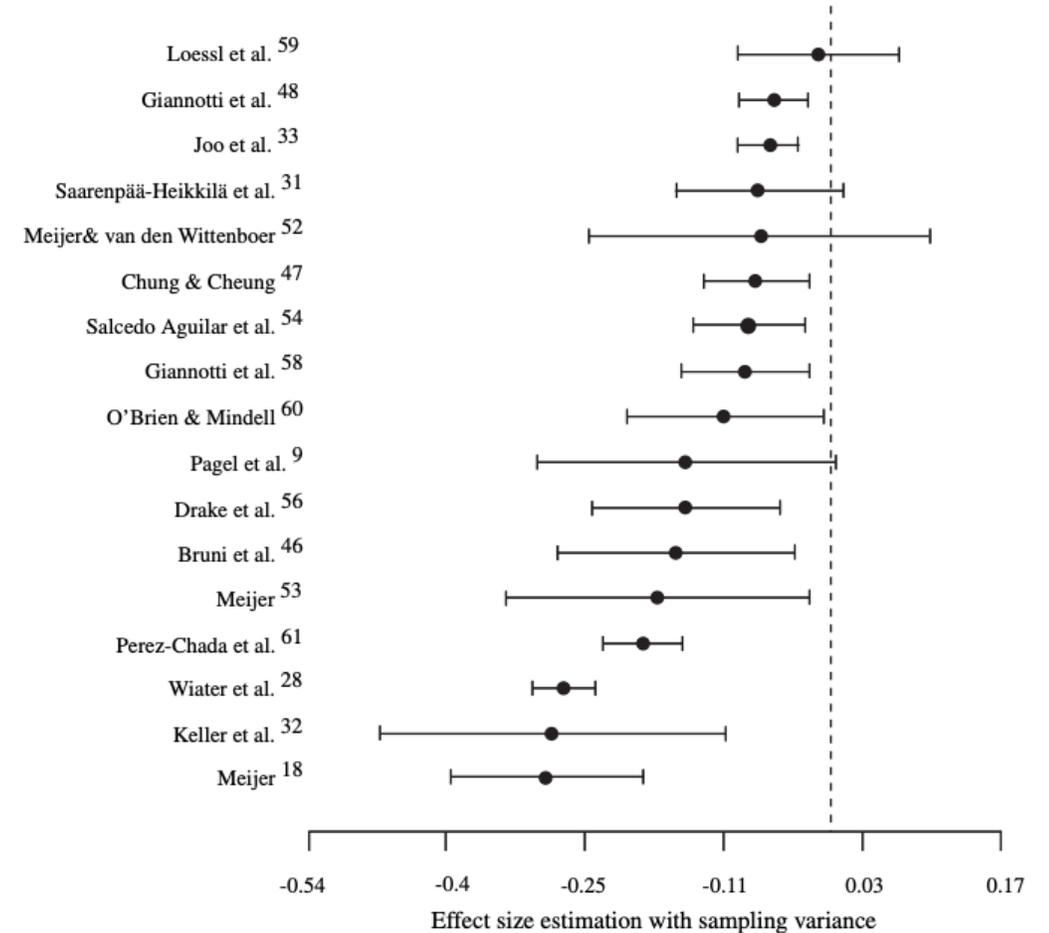
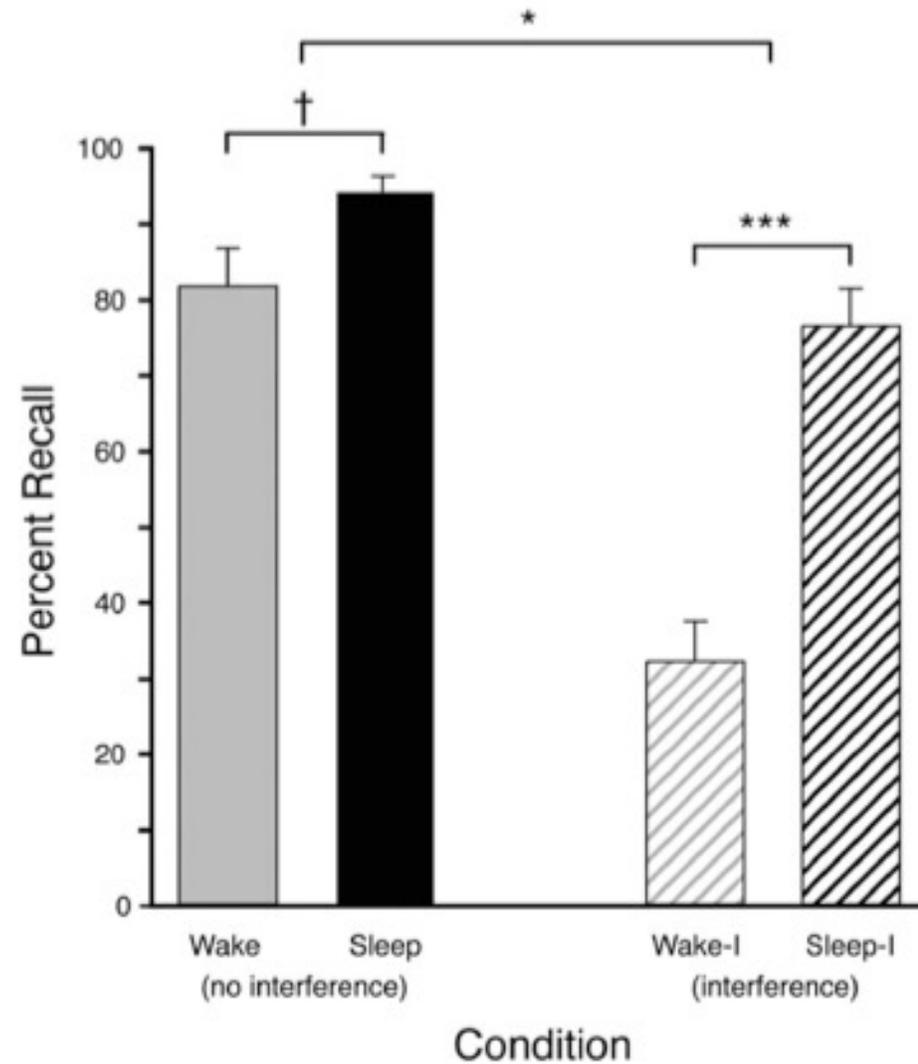
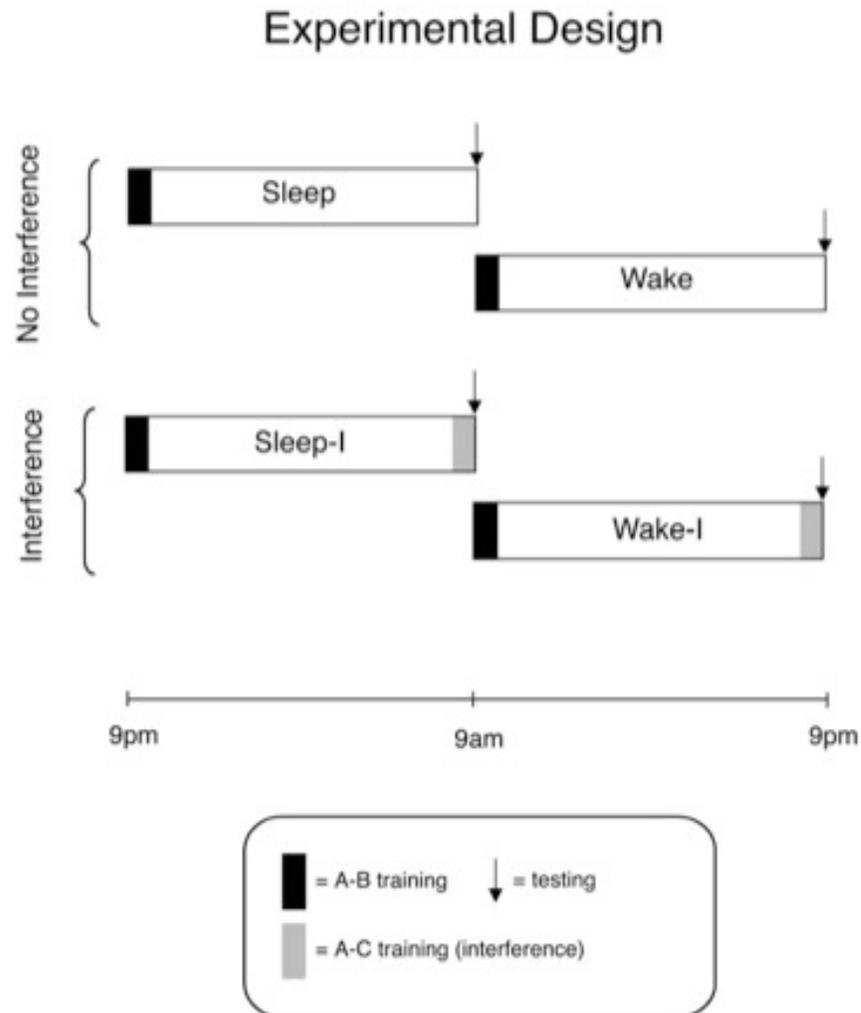
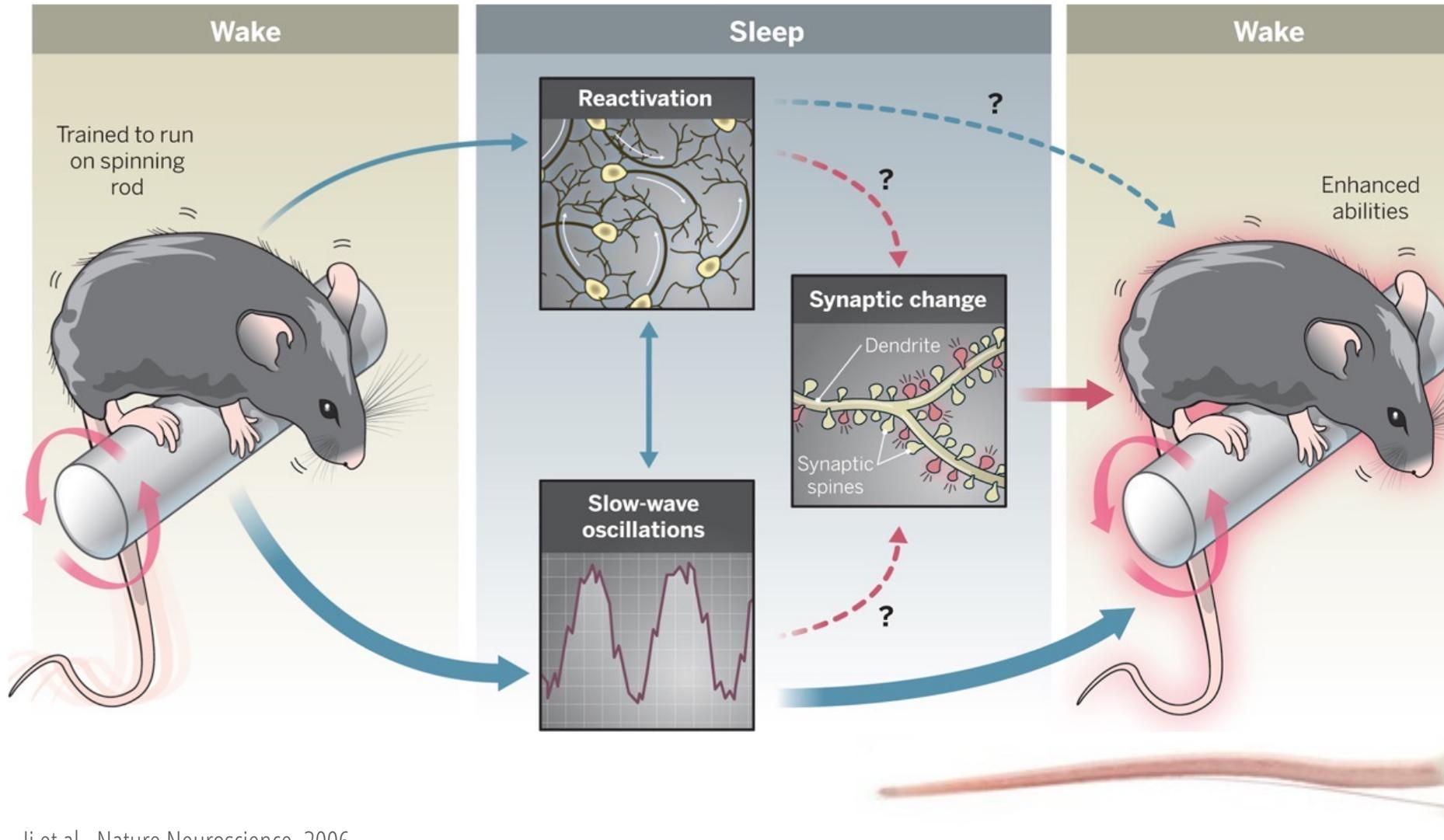


Fig. 4. Forest plot of studies investigating the relationship between sleepiness and school performance.

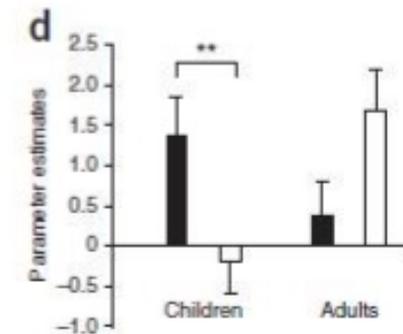
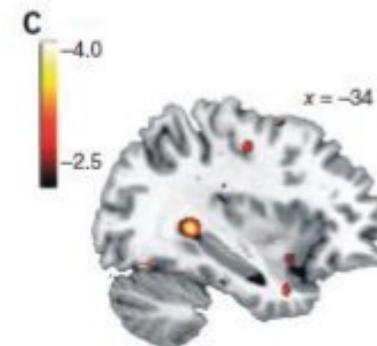
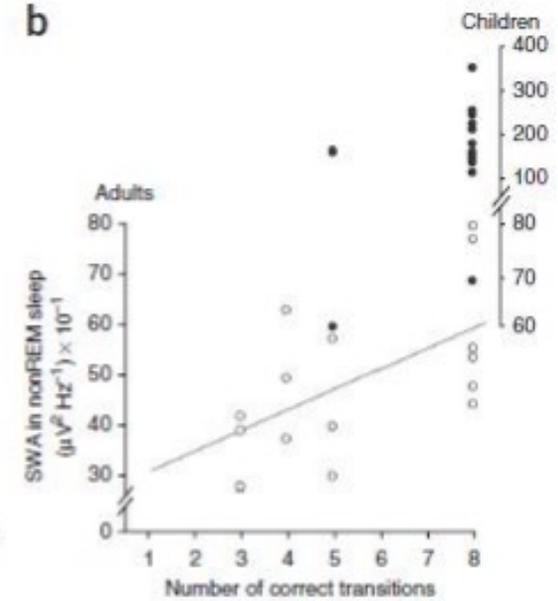
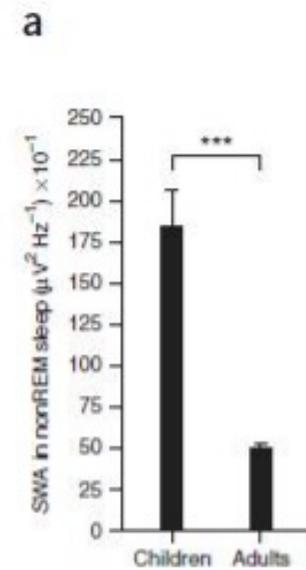
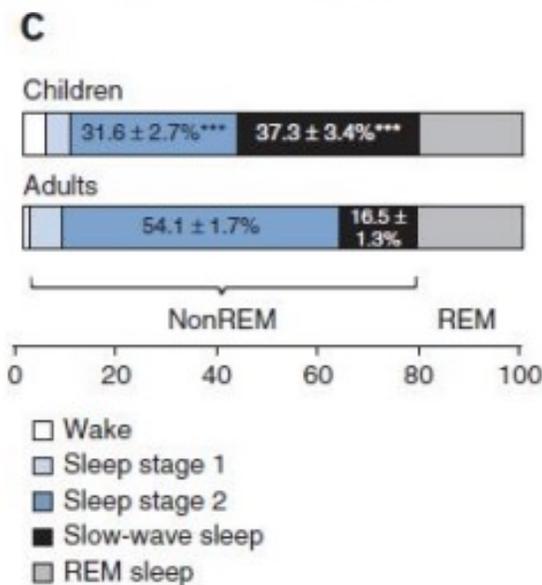
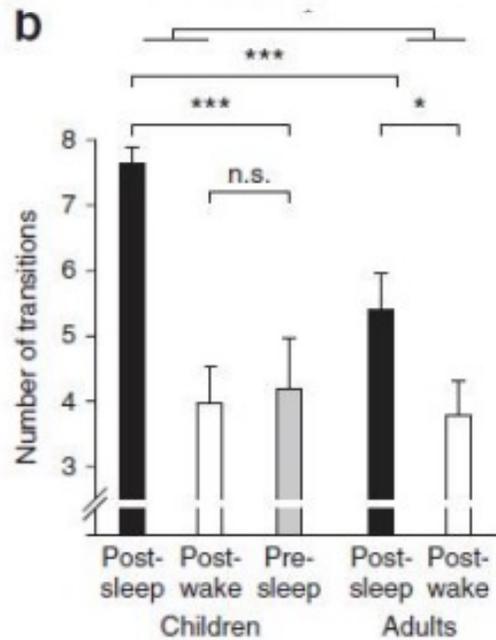
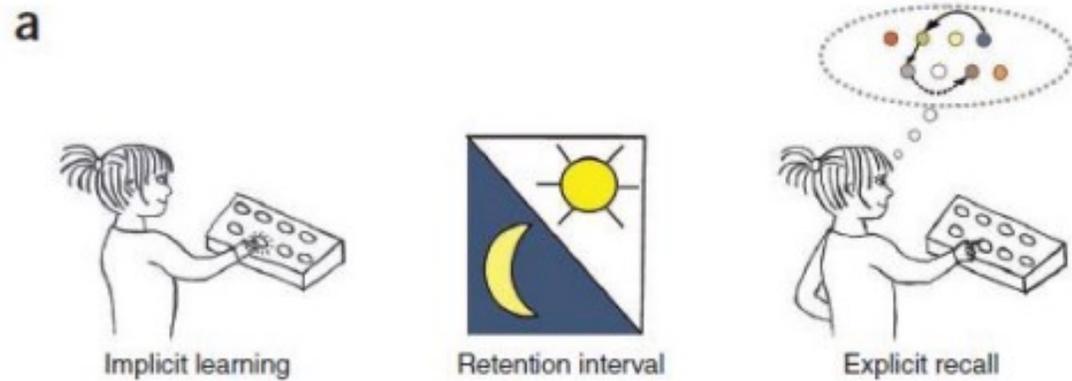
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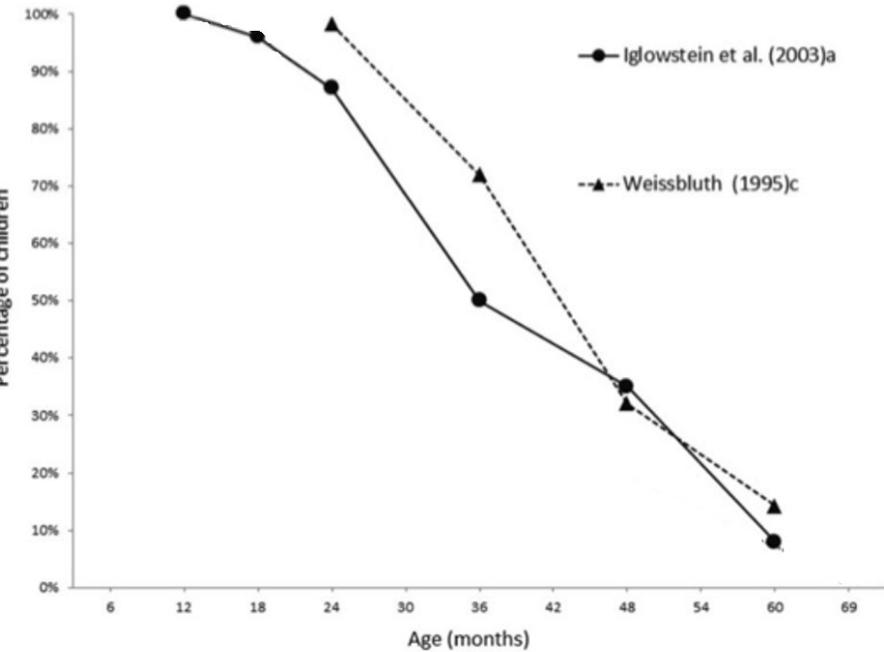
10 à 13h

Une sieste

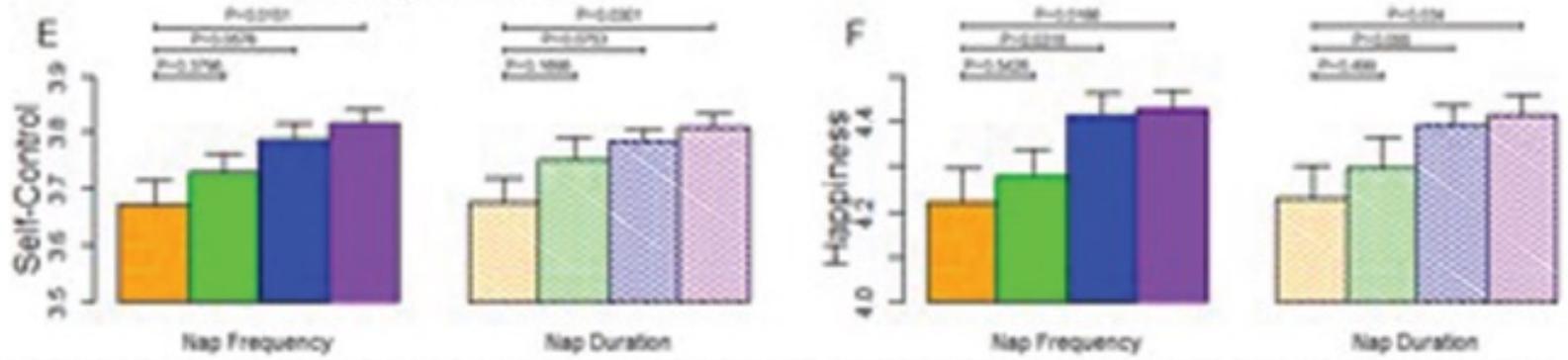
	Less than 3 years (N = 38)	3 years (N = 275)	4 years (N = 326)	5 years (N = 235)
Sleep duration (hours)				
during weekdays	9.68 (1)	9.61 (1)	9.78 (0.9)	9.89 (1.1)
during the weekend	10.2 (1.1)	10 (1.2)	10.1 (1.1)	10.2 (1.1)
Nap at home during weekends and school breaks	92.1% (all days: 86.8%)	93.5% (all days: 79.6%)	60.7% (all days: 33.2%)	42.3% (all days: 15.8%)
Nap duration				
Less than 1 hour	5.7%	3.2%	11.3%	31.1%
Between 1 and 2 hours	60.0%	62.3%	69.6%	54.4%
More than 2 hours	34.3%	34.5%	19.1%	14.4%



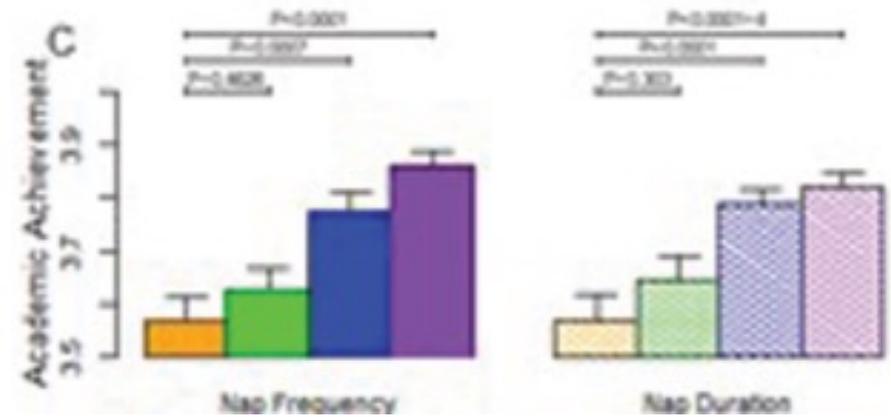
ET LA SIESTE?



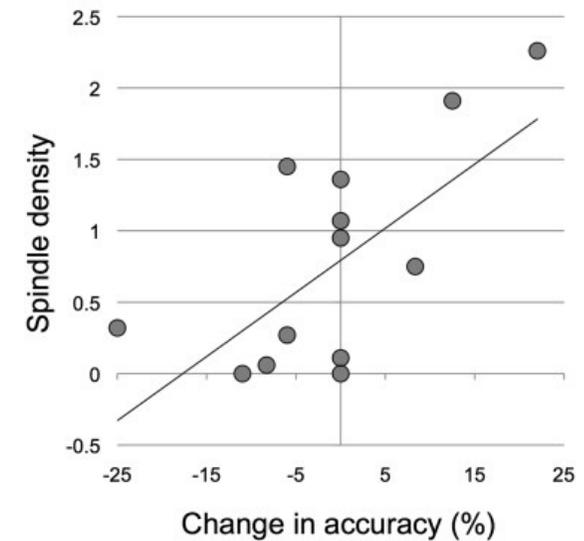
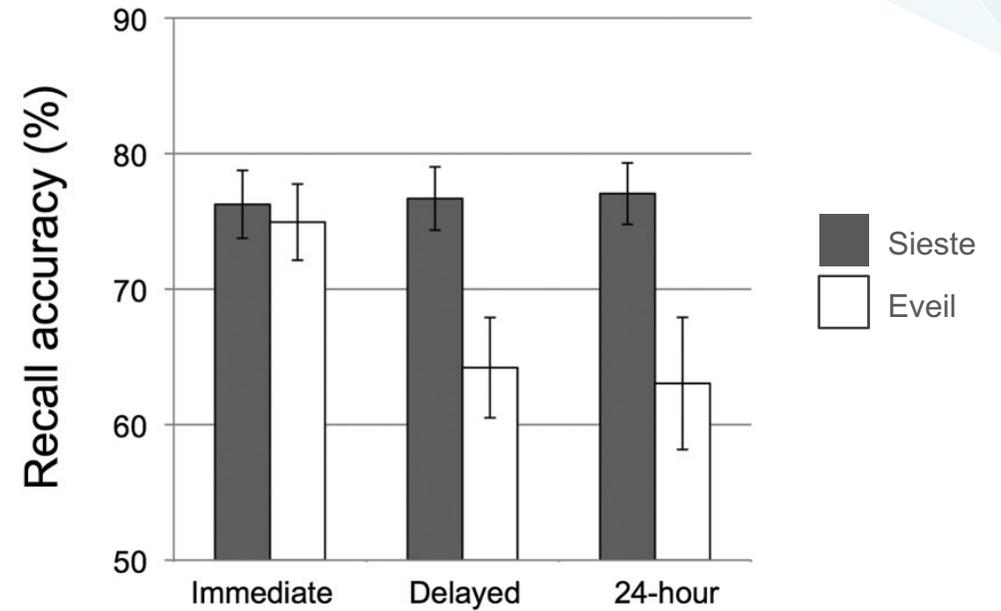
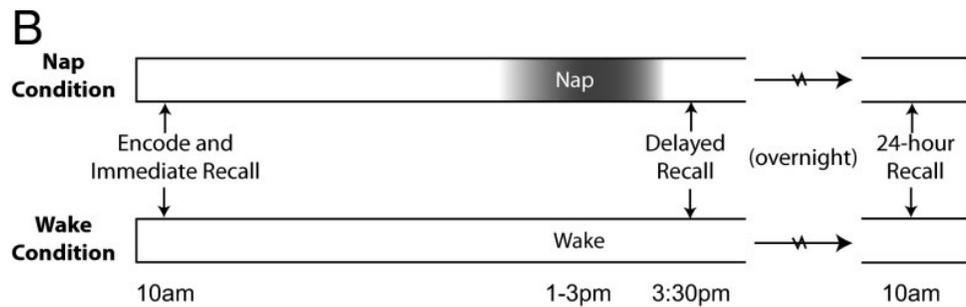
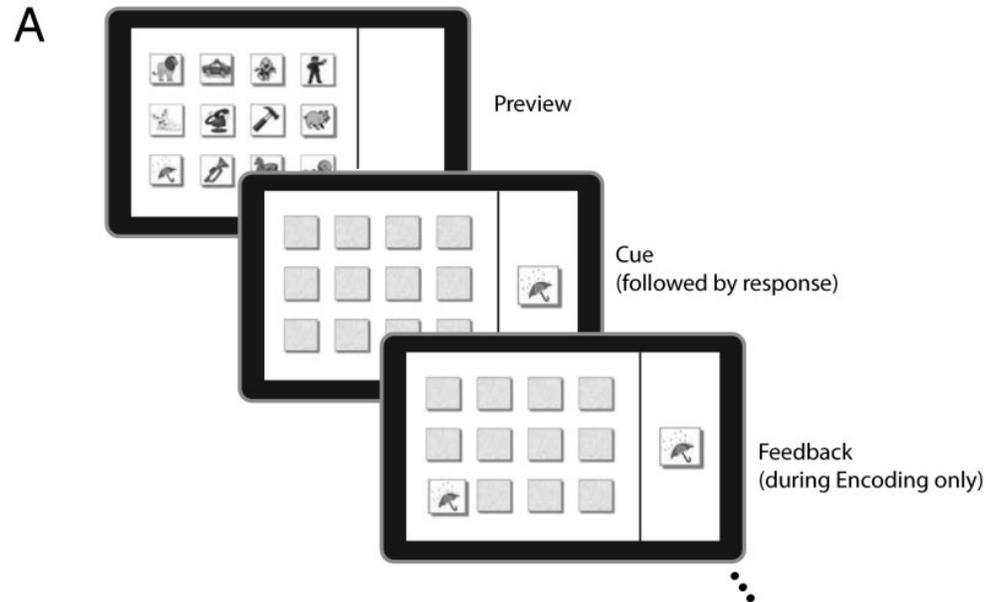
Psychological Well-Being



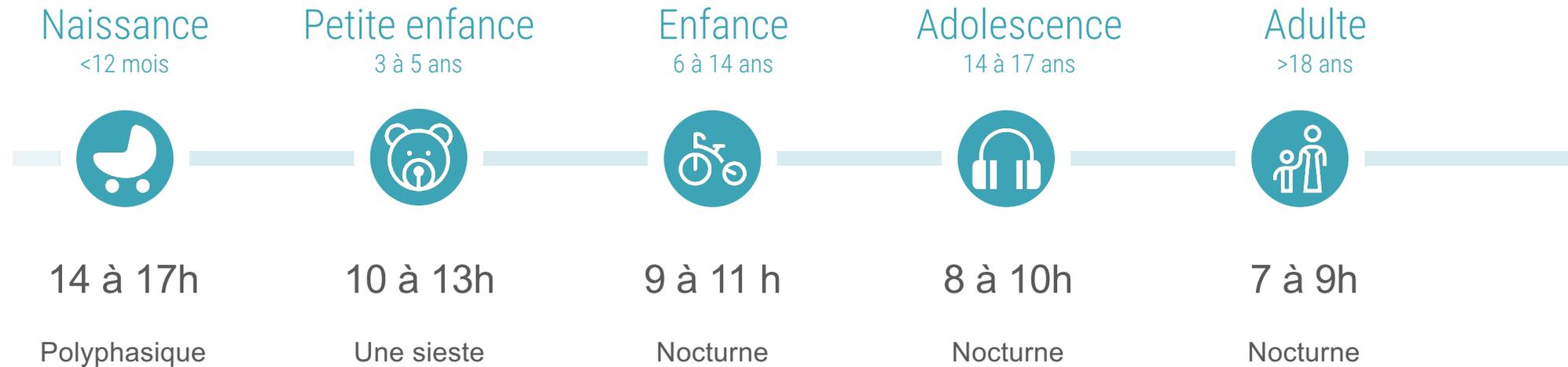
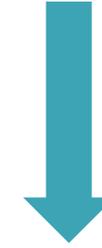
- Nap Frequency
 - never per week
 - 1-2 per week
 - 3-4 per week
 - 5-7 per week
- Nap Duration
 - 0 min
 - 1-30 min
 - 31-60 min
 - >60 min



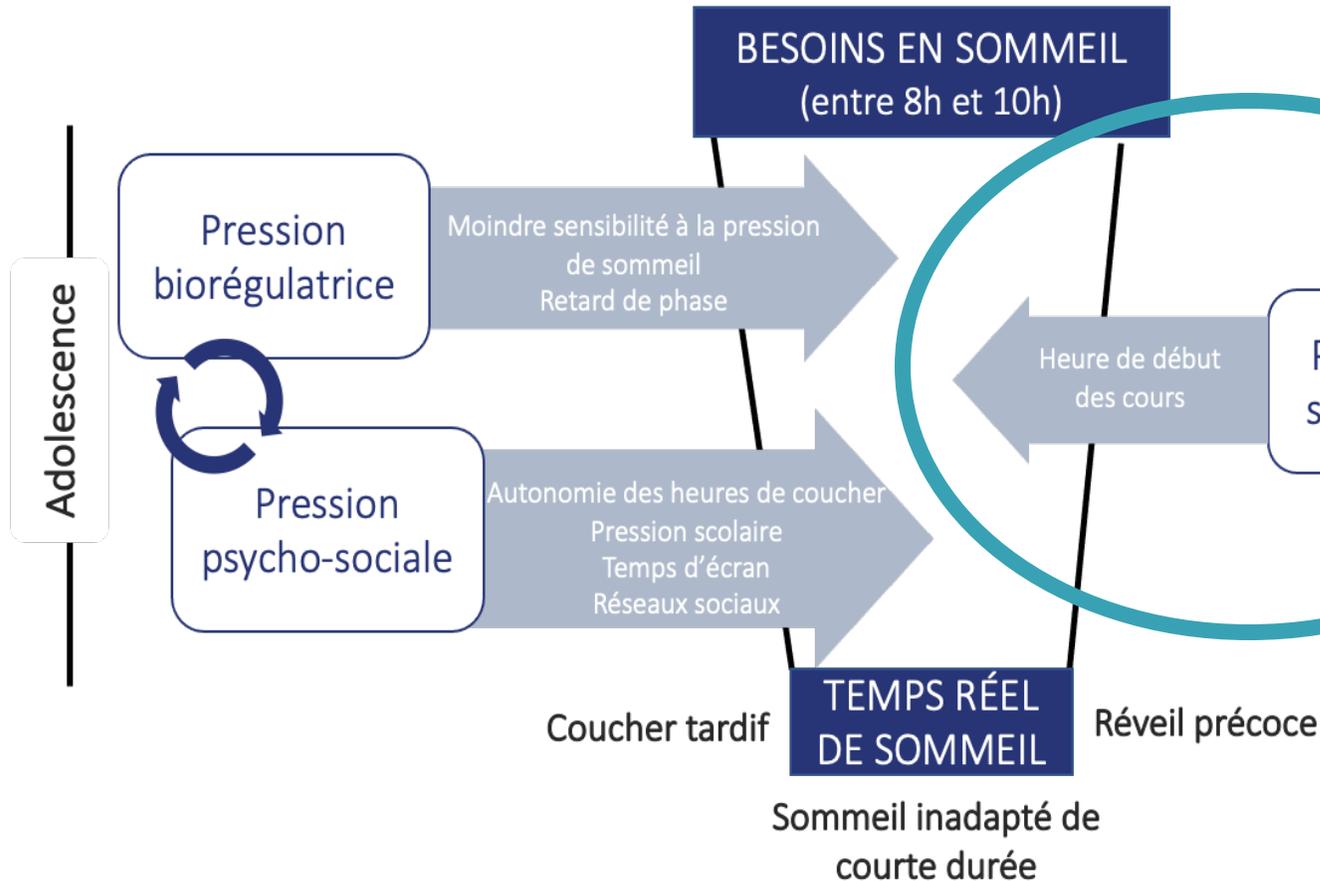
ET LA SIESTE?



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ET LES ADO?



➤ Accident de la circulation
Un accident de la route sur 10 est provoqué par un déficit attentionnel du conducteur et 50% de ces accidents impliquent un jeune conducteur (Blazejewski, et al., 2012, Pizza et al., 2010)

➤ Accidents corporels
Les athlètes dormant moins de 8 h par nuit multiplient par 1,7 leur risque de blessure (Milweski et al., 2014), et le manque de sommeil augmente le nb de chute (Kim, 2016)

➤ Consommation d'excitants et stupéfiants
Chaque heure de sommeil en moins augmente le risque de consommation de tabac, alcool et marijuana de 23% (Winsler 2015)

ET LES ADO?

Is 8:30 a.m. Still Too Early to Start School? A 10:00 a.m. School Start Time Improves Health and Performance of Students Aged 13–16

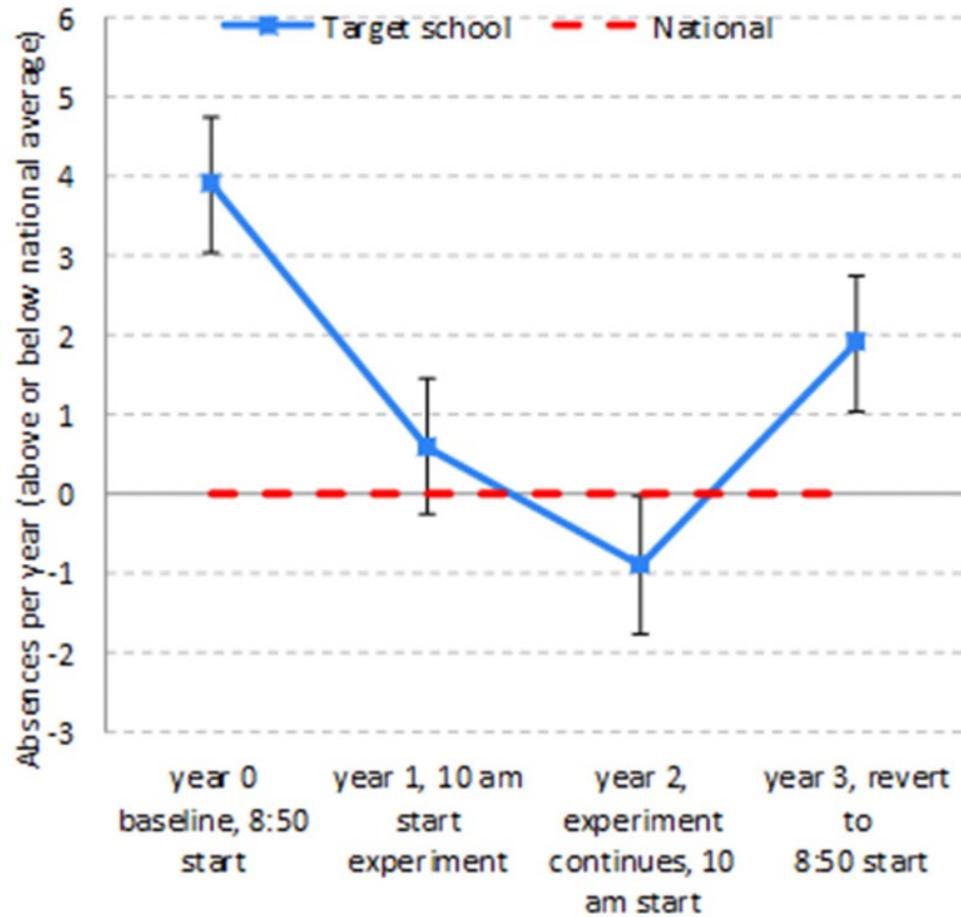


FIGURE 1 | Absences due to illness, differences from national average.

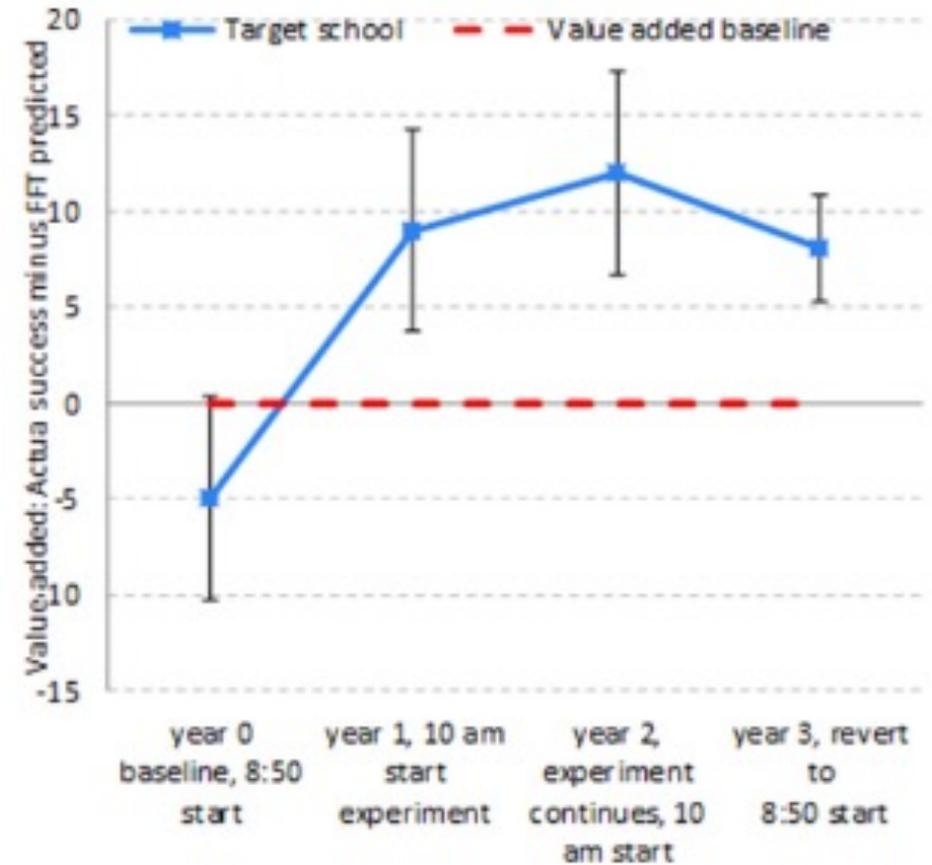


FIGURE 2 | Academic success: value added by target school.



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