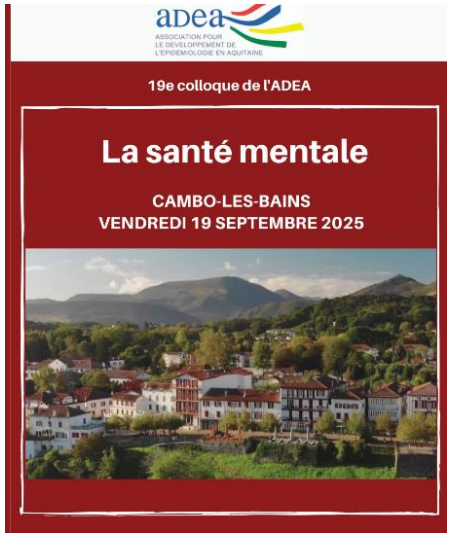


Troubles du sommeil
Troubles du neurodéveloppement

Stéphanie Bioulac

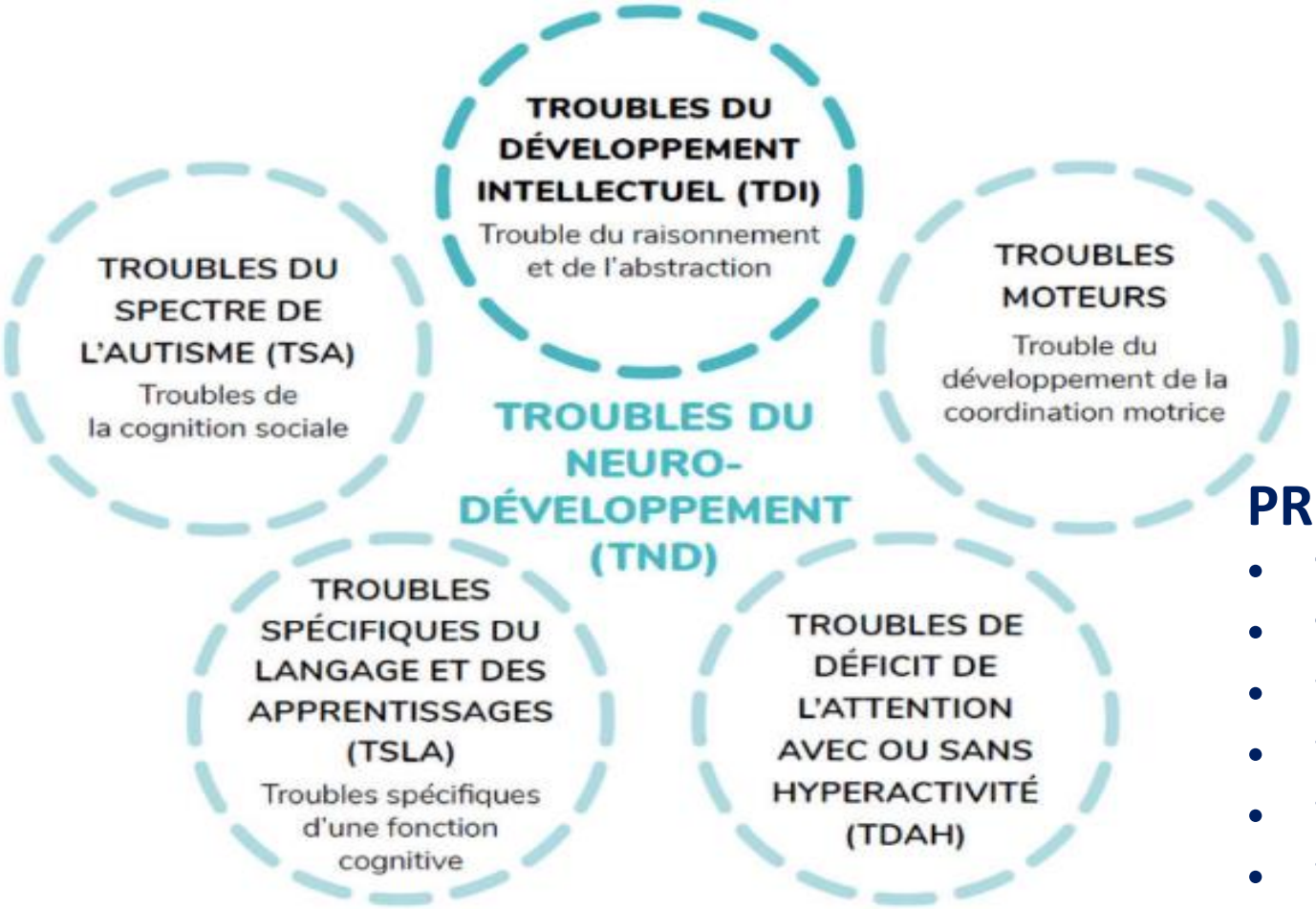
Service de Psychiatrie Universitaire de l'Enfant et l'Adolescent,
Hôpital Couple Enfant, CHU Grenoble Alpes
Université Grenoble Alpes, UMR CNRS 5105 LPNC

CHU GRENOBLE ALPES

UGA Université Grenoble Alpes

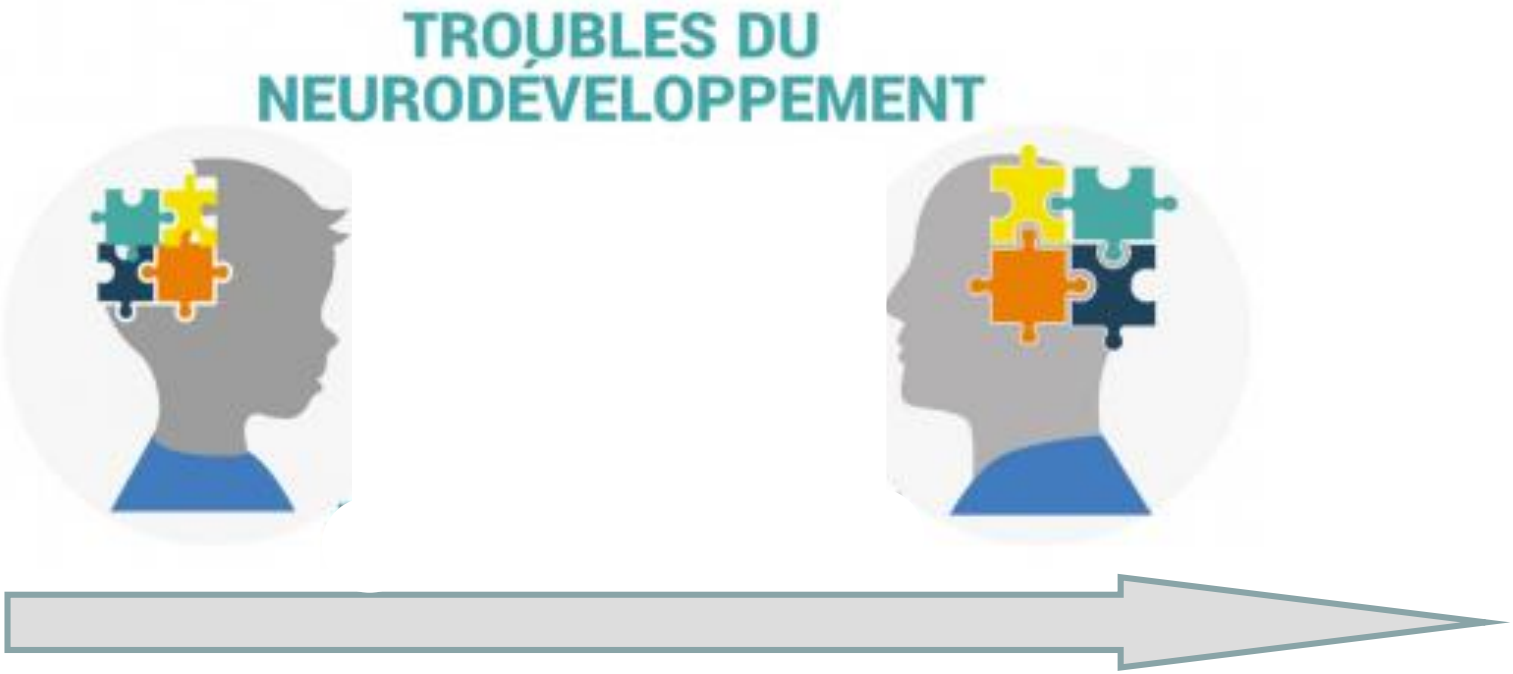
LPNC Laboratoire de Psychologie et NeuroCognition

Principaux Troubles du NeuroDéveloppement – TND (DSM-5/CIM11)



PREVALENCE : 8-10%

- **TDAH: 5%**
- **TSA: 1%**
- TDI: 2%
- Tr Spe App: 5-15%
- Tr Comm: 2%
- Tr Moteurs: 3-4%



Liens bidirectionnels

Troubles du sommeil aggravent les TND et vice - versa

PEDIATRIC SLEEP AND DAYTIME FUNCTIONS

Associations Between Sleep Duration Patterns and Behavioral/Cognitive Functioning at School Entry

Évelyne Touchette, MPs[1,2]; Dominique Petit, PhD[1]; Jean R. Séguin, PhD[3-5]; Michel Boivin, PhD[6,7]; Richard E. Tremblay, PhD[2-5,8]; Jacques Y. Montplaisir, MD, CRCP(c), PhD[1,5]

2007

1492 sujets nés entre 1997-1998 Canada

Durée de sommeil
Questionnaires

2.5 ans — 6 ans

Données cognitives

PPVT-R — 5 ans

Block design subtest performance — 6 ans

Données comportementales

HA-IMP, Inattention — 6 ans

Associations Between Sleep Duration Patterns and Behavioral/Cognitive Functioning at School Entry

Évelyne Touchette, MPs[1,2]; Dominique Petit, PhD[1]; Jean R. Séguin, PhD[3-5]; Michel Boivin, PhD[6,7]; Richard E. Tremblay, PhD[2-5,8]; Jacques Y. Montplaisir, MD, CRCP(c), PhD[1,5]

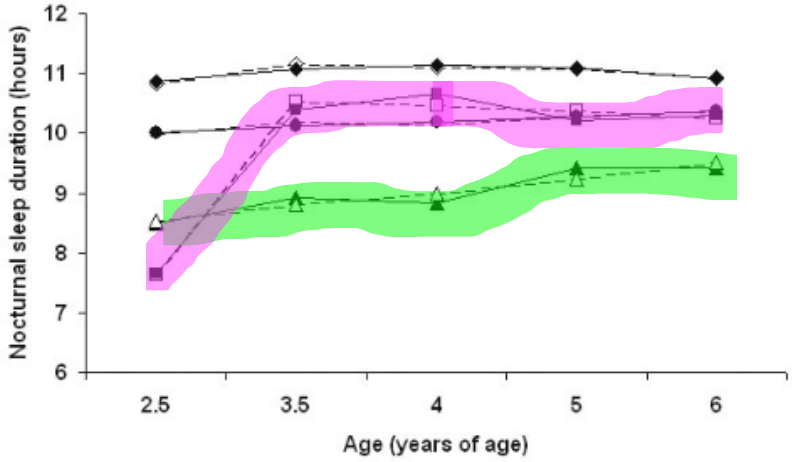


Figure 1—Patterns of sleep duration at 2.5, 3.5, 4, 5 and 6 years of age: : short persistent sleepers (n=109; 6.0%), : short increasing sleepers (n=88; 4.8%), : 10-hour persistent sleepers (n=920; 50.3%), and : 11-hour persistent sleepers (n=712; 38.9%). Predicted (dashed lines) versus observed (solid lines) trajectories. Data courtesy of the Quebec Institute of Statistics.

4 patterns sommeil

- Court dormeur persistant< 10h avant 6 ans
- Court dormeur puis augmente vers 41 mois
- 10h/ nuit
- 11h/Nuit

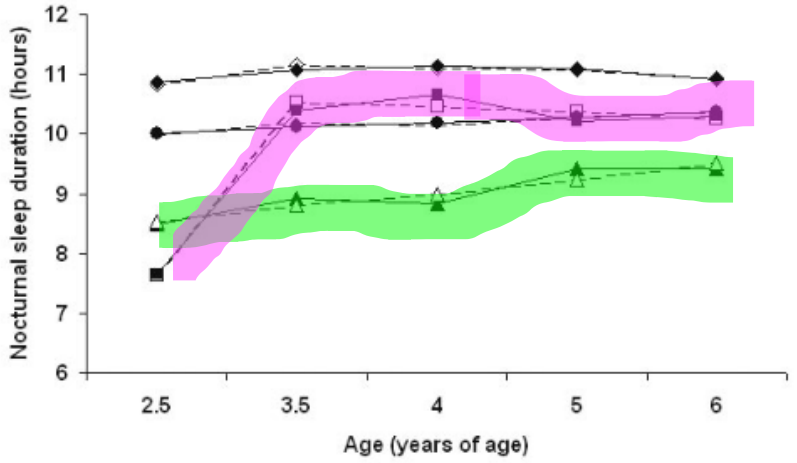


Figure 1—Patterns of sleep duration at 2.5, 3.5, 4, 5 and 6 years of age: : short persistent sleepers (n=109; 6.0%), : short increasing sleepers (n=88; 4.8%), : 10-hour persistent sleepers (n=920; 50.3%), and : 11-hour persistent sleepers (n=712; 38.9%). Predicted (dashed lines) versus observed (solid lines) trajectories. Data courtesy of the Quebec Institute of Statistics.

- Court dormeur persistant< 10h avant 6 ans
- Court dormeur puis augmente vers 41 mois

Associations entre court temps de sommeil

- Comportements externalisés
  - Scores élevés de Hyperactivité/ Impulsivité (p=.001)
- Faibles performances cognitives
  - PPVT-R p=.002
  - Block design subtest performance p=.004

PEDIATRIC SLEEP AND DAYTIME FUNCTIONS

Associations Between Sleep Duration Patterns and Behavioral/Cognitive Functioning at School Entry

Évelyne Touchette, MPs[1,2]; Dominique Petit, PhD[1]; Jean R. Séguin, PhD[3-5]; Michel Boivin, PhD[6,7]; Richard E. Tremblay, PhD[2-5,8]; Jacques Y. Montplaisir, MD, CRCP(c), PhD[1,5]

Court temps de sommeil notamment avant 41 mois associés

- Comportements externalisés
- Faibles performances cognitives

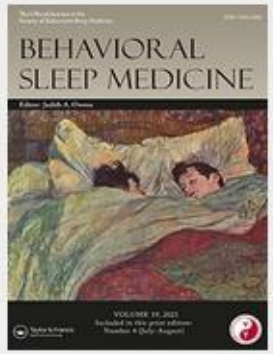
Importance de dormir 10h/nuit dès la petite enfance

Articles

Night-sleep Duration Trajectories and Behavior in Preschoolers: Results from a Prospective Birth Cohort Study

Eve Reynaud, Anne Forhan, Barbara Heude, Marie-Aline Charles & **Sabine Plancoulaine**

Pages 445-457 | Published online: 04 Jun 2020



- Cohorte de naissance EDEN
- 1021 enfants

2 ans 3ans 5-6 ans

Evaluation comportementale parents: SDQ

Dimensions: Tr émotionnels, Tr du comportement, Hyperactivité, Relation avec les pairs, Comportements prosociaux

Trajectoires de sommeil

- SS: short-sleep duration trajectory
- MLS: medium-low-sleep duration trajectory
- MHS: medium-high-sleep duration trajectory
- LS: long-sleep duration trajectory
- CS: changing-sleep duration trajectory

Problèmes d'hyperactivité et d'inattention

- Chez les garcons:
  - Trajectoire courte durée de sommeil
    (OR 2.69 [1.18–6.16], *p* = .03)
  - Trajectoire moyenne à faible durée de sommeil
    (OR 1.95 [1.25–3.03], *p* = .003

- Chez la fille:
  - Trajectoire instabilité de durée de sommeil
    (OR 2.79 [1.09– 7.17], *p* = .03)

ORIGINAL RESEARCH | JANUARY 2, 2018

Prospective Associations Between Infant Sleep at 12 Months and Autism Spectrum Disorder Screening Scores at 24 Months in a Community-Based Birth Cohort

A. K. Danny Nguyen, MSc; Laura E. Murphy, EdD; Mehmet Kocak, PhD; Frances A. Tylavsky, DrPH; Linda S. Pagani, PhD

J Clin Psychiatry 2018;79(1):16m11127

Cohorte naissance

2006-2011

1096 enfants

12 mois

Sommeil

24 mois

Symptômes TSA

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Cohorte naissance
2006-2011
1096 enfants

12 mois

Sommeil
Sommeil nocturne
Sommeil diurne
Réveils nocturnes
Latence d'Endor.

24 mois

Symptômes TSA
M-CHAT

ORIGINAL RESEARCH | JANUARY 2, 2018

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J Clin Psychiatry 2018;79(1):16m11127

Cohorte naissance
2006-2011
1096 enfants

12 mois — **Sommeil**

24 mois — **Symptômes TSA**

Nombre RN 1 an : associé à symptômes précoces/ à risque TSA 2 ans

(B = 0.097, P = .021; 95% CI, 0.014 to 0.180)

TDS persistant à 1 an ⇄ Population vulnérable/ à risque développement TSA

Trouble du Spectre de l'Autisme

Déficits persistants

- communication
- interactions sociales
- contextes variés

- Déficit **réciprocité** sociale/ émotionnelle
- Déficit des comportements non verbaux
- Déficit compréhension des relations

Caractère restreint et répétitif

- comportements
- intérêts
- activités

- Mouvements répétitif/stéréotypés
- Intolérance changement, routines
- Intérêts restreints/fixes, intensité, but
- Hyper ou hypo sensibilités stimuli sensoriels

Troubles du sommeil et TSA

- TDS sont les troubles **les plus fréquemment** associés au TSA:
  - 50 % à 80%
- TDS se manifestent **précocement** et **persistent**

Couturier et al, 2005; Krakowiak et al, 2018

Troubles du sommeil et TSA

- TDS sont les troubles les plus fréquemment associés au TSA:
  - 50 % à 80%
- **Principales préoccupations parentales** pour lesquelles MG, pédiatres, pédopsychiatres sont consultés
- Principaux TDS
  - Insomnie
  - Rythme veille/ sommeil irrégulier

Durée réduite du temps total de sommeil

Couturier et al, 2005; Krakowiak et al, 2018

Impact des TDS chez TSA

Répercussions des TDS sur la famille

Répercussions des TDS pour le sujet

Levin et al, 2016; Polimeni et al, 2007

Impact des TDS chez TSA

Répercussions des TDS sur la famille

- Qualité de vie
- Dynamique familiale incluant la fratrie
- Vie professionnelle
- Stress parental

Répercussions des TDS pour le sujet

- Capacités cognitives: attention, apprentissages, mémoire,..
- Qualité de vie
- Augmentation des tr comportement conduites auto/ hétéro-agressives…

Levin et al, 2016; Polimeni et al, 2007

Impact des TDS chez TSA

Répercussions des TDS sur la famille

- Qualité de vie
- Dynamique familiale incluant la fratrie
- Vie professionnelle
- Stress parental

Répercussions des TDS pour le sujet

- Capacités cognitives: attention, apprentissages, mémoire,..
- Qualité de vie
- Augmentation des tr comportement conduites auto/ hétéro-agressives…

Majorant difficultés de la famille…

Levin et al, 2016; Polimeni et al, 2007

Troubles du sommeil et TSA

TDS → **Intensité de la symptomatologie autistique**

- Intensité tr de la communication verbale et non verbale
- Difficultés dans interactions sociales

- *TDS moins sévères chez sujets TSA de haut fonctionnement*

Malow et al, 2006; Kotagal et al 2012; Kharthikeyanet al, 2020

TROUBLES DU NEURODÉVELOPPEMENT

ENFANT

ADULTE

Très précocement liens entre sommeil et symptômes d' hyperactivité et d'inattention

TDAH
Trouble Multidimensionnel

- Expression Comportementale
- Expression Cognitive
- Expression Emotionnelle

Impulsivité

Bavardage

Irritabilité

Colère

Besoin de répéter

Agitation

Hypersensibilité

Perd - Oublie

Fautes d'étourderies

Bougeotte

TDAH
Trouble Multidimensionnel - Neurodéveloppement

Expression Comportementale

Expression Cognitive

Expression Emotionnelle

Modification de la clinique

Retard de phase

Insomnie

Réveils nocturnes

Syndrome Jambes Sans Repos

Parasomnies

Troubles Respiratoires Obstructifs Sommeil

25%-55% des sujets avec TDAH présentent des TDS

Cortese et al, 2013; Hvolby et al, 2015

Medical Hypotheses 79 (2012) 147–153

Contents lists available at SciVerse ScienceDirect

Medical Hypotheses

journal homepage: www.elsevier.com/locate/mehy

The sleep phenotypes of attention deficit hyperactivity disorder: The role of arousal during sleep and implications for treatment

Silvia Miano *, Pasquale Parisi, Maria Pia Villa

Neuroscience, Mental Health and Sense Organs Department, Chair of Pediatrics, Sleep Disorder Centre, "La Sapienza" University, II Faculty, Medicine, Rome, Italy

- Hypoarousal state « primary ADHD »: « narcolepsy like »
- Delayed sleep onset insomnia
- Sleep disordered breathing
- RLS/ PLM
- Sleep epilepsy/EEG interictal epilepform discharges

Difficultés d'endormissement

TDAH

- Expression du TDAH
  - Non compliance, comorbidité avec TOP (trouble oppositionnel avec provocation)
- Chronotype du soir → Retard de Phase
- Syndrome des jambes sans repos
- Comorbidité avec autres tr psychiatriques, notamment une angoisse de séparation
- Question du traitement psychostimulant

Phénotype associé à SJSR/ MPJ

SJSR/MPJ → Prévalence élevée chez TDAH

Golan et al, 2004, Chervin et al 2002

TDAH → Prévalence élevée SJSR

Pullent et al 2011; Chervin et al 2002

TDAH-SJSR → Physiopathologie commune dopaminergique / fer

Konofal et al, 2005

TDAH et Somnolence

Approche développementale

Sujets TDAH ⟷ Symptômes narcolepsie

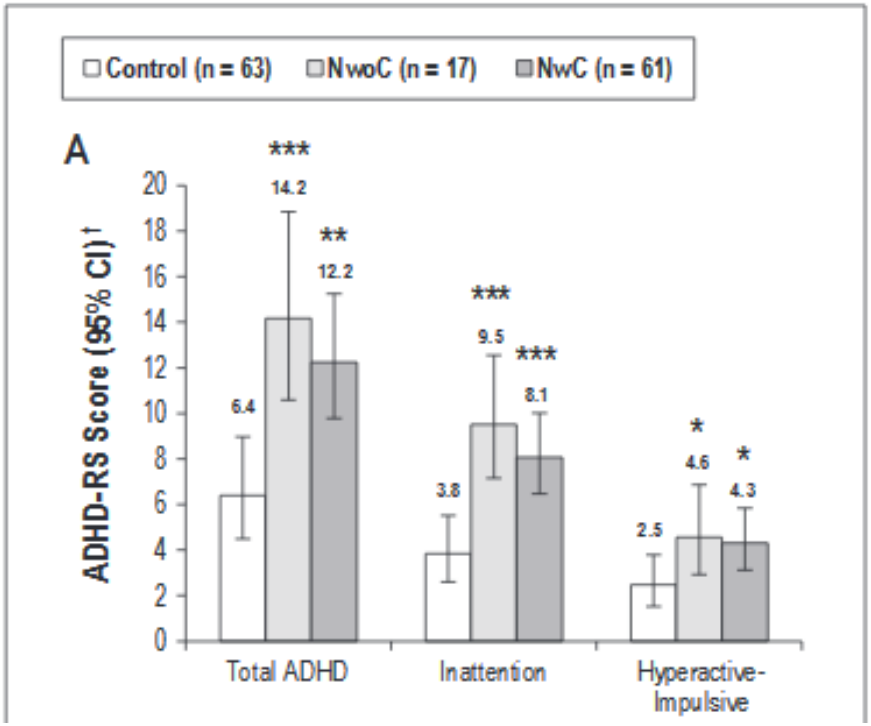
Sujets narcolepsie ⟷ Symptômes TDAH

Phénotype « narcolepsy like »

Cortese et al, 2006; Lecendreux et al 2015

Sujets narcolepsie

Symptômes TDAH



108 sujets NC /67sujets témoins

Symptômes de TDAH

4.8% sujets controles

35.3% patients NwoC (P <0.001)

19.7% patients with NwC (P < 0.01)

Lecendreux et al 2015

Published in final edited form as:
J Child Psychol Psychiatry. 2019 September ; 60(9): 1021–1031. doi:10.1111/jcpp.13061.

Sleep and Daytime Sleepiness in Adolescents with and without ADHD: Differences across Ratings, Daily Diary, and Actigraphy

Stephen P. Becker[1,2], **Joshua M. Langberg**[3], **Hana-May Eadeh**[4], **Paul A. Isaacson**[1], **Elizaveta Bourchtein**[3]

162 sujets TDAH **140 sujets Non TDAH**

Moy age: 13 ans

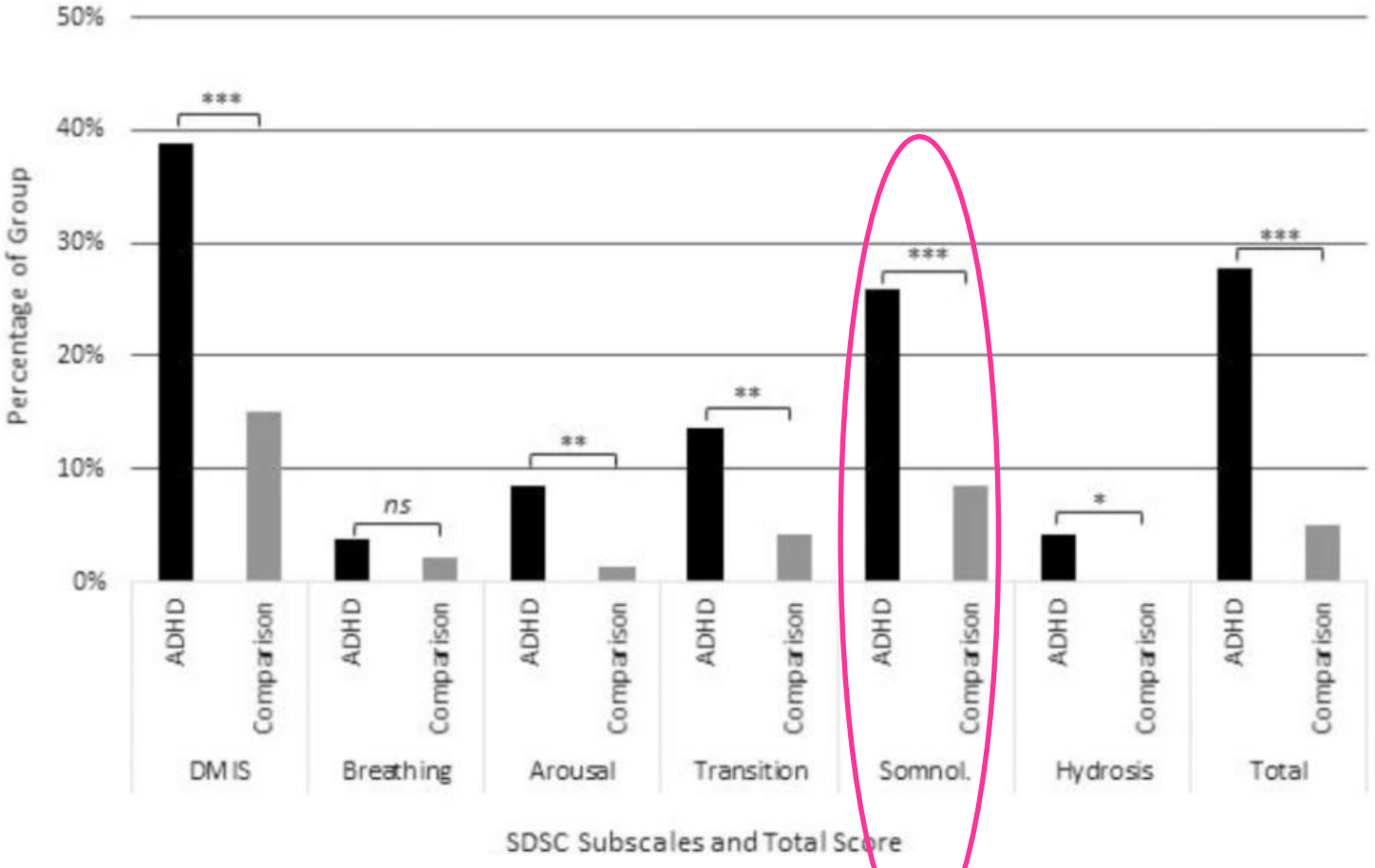


Figure 1.
Percent of adolescents with and without ADHD with clinical elevations on the Sleep Disturbance Scale for Children (SDSC)

Differences in global sleep ratings between adolescents with and without ADHD

	ADHD	Comparison	Group Differences		
	M±*SD*	*M*±*SD*	*t*	*p*	*d*
Adolescent SHS ratings					
Sleep/wake problems	18.23±6.08	15.87±4.77	3.77	<.001	.43
Daytime sleepiness	13.02±4.09	11.72±2.89	3.23	.001	.37
Parent SDSC ratings					
Initiate/maintain sleep	66.73±14.31	56.94±11.27	6.65	<.001	.76
Sleep breathing disorders	49.76±8.00	49.66±6.50	0.12	.90	.01
Disorders of arousal	51.49±9.41	49.38±5.36	2.43	.02	.28
Sleep-wake transition	53.58±13.57	48.52±9.04	3.86	<.001	.44
Somnolence (sleepiness)	61.93±16.46	54.46±11.62	4.60	<.001	.52
Hyperhydrosis	49.25±8.80	46.37±4.09	3.73	<.001	.42
Total sleep disturbance	61.71±13.50	52.79±9.29	6.76	<.001	.77
Teacher TDSQ ratings					
Daytime sleepiness	1.19±0.34	1.11±0.20	2.24	.03	.27

Note. ADHD=attention-deficit/hyperactivity disorder. SDSC=Sleep Disturbance Scale for Children. SHS=Sleep Habits Survey. TDSQ=Teacher Daytime Sleepiness Questionnaire.

Sujets hypersomniaques

Sujets TDAH

100 sujets hypersomniaques

↓

61% symptômes de TDAH

↓

25% TDAH diagnostic

100 TDAH adultes

↓

47% SDE

↓

22% hypersomnies

Lopez et al 2019

Phénotype TDAH associé trouble respiratoire du sommeil

TDAH  **SAOS**

Bidirectionnels/ réciproques

Chevauchement des symptômes cliniques de TDAH et SAOS

J Child Psychol Psychiatry. 2021 Jul 26;10.1111/jcpp.13491. doi: 10.1111/jcpp.13491.
Online ahead of print.

Behavioral, neurocognitive, polysomnographic and cardiometabolic profiles associated with obstructive sleep apnea in adolescents with ADHD

Kristina Puzino [1], Elizaveta Bourchtein [1], Susan L Calhoun [1], Fan He [2], Alexandros N Vgontzas [1], Duanping Liao [2], Edward O Bixler [1], Julio Fernandez-Mendoza [1]

LE plus longue
TTS plus court

421 adolescents
16.9 ans

TDAH seul	SAOS-seul	TDAH et SAOS	Contrôles
54	115	44	208

J Child Psychol Psychiatry. 2021 Jul 26;10.1111/jcpp.13491. doi: 10.1111/jcpp.13491.
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Behavioral, neurocognitive, polysomnographic and cardiometabolic profiles associated with obstructive sleep apnea in adolescents with ADHD

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421 adolescents
16.9 ans

TDAH seul	SAOS-seul	TDAH et SAOS	Contrôles
54	115	44	208

Biomarqueurs inflammatoires et cardio-métaboliques:
Surpoids, obésité- adiposité viscérale- syndrome métabolique-inflammation

…Et Chronotype Vespéral
Syndrome de retard de phase…

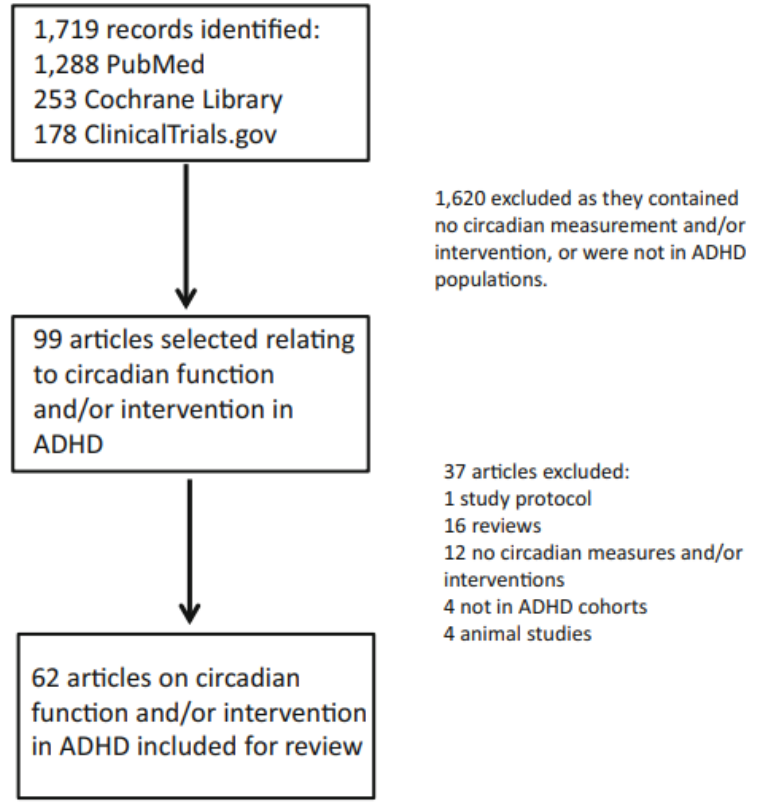


Fig. 1 Graphic representation of the study selection process

62 articles
25 études adultes
37 enfants et adolescents

4462 sujets TDAH

Chronotype du soir
SdRP

- Difficultés d'endormissement
- DLMO

Coogan et al, 2017

Received: 21 June 2019 | Revised: 2 October 2019 | Accepted: 2 October 2019
DOI: 10.1111/jsr.12936

REGULAR RESEARCH PAPER

Journal of Sleep Research

Evening circadian preference is associated with sleep problems and daytime sleepiness in adolescents with ADHD

Stephen P. Becker[1,2] | Delna K. Kapadia[3] | Chaya E. M. Fershtman[4] | Emma Sciberras[5,6,7]

80 TDAH (69% M)
13-17ans

Evaluation
parents et enfants

Chronotype du soir associé:

- TDS
- Somnolence diurne excessive

brain sciences

MDPI

Review

Efficacy and Safety of Melatonin Treatment in Children with Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder—A Review of the Literature

Beata Rzepka-Migut [1] **and Justyna Paprocka** [2,*]

[1] Department of Pediatric Neurology and Pediatrics, St. Queen Jadwiga's Regional Clinical Hospital No 2, 35-301 Rzeszów, Poland; beata-rzepka@o2.pl

[2] Department of Pediatric Neurology, Faculty of Medical Science in Katowice, Medical University of Silesia, 40-752 Katowice, Poland

* Correspondence: justyna.paprocka@interia.pl

Received: 7 February 2020; Accepted: 19 March 2020; Published: 7 April 2020

check for updates

Table 2. Melatonin level assessment in the group of patients with attention-deficit/hyperactivity disorder (ADHD).

References	Number of Patients	Material	Results
Van der Heijden KB et al., 2005 [53]	87 patients with ADHD-SOI 33 patients with ADHD-noSOI	saliva	ADHD patients with concomitant chronic idiopathic insomnia at the onset of sleep presented significantly delayed DLMO and sleep phase relative to the ADHD-noSOI group.
Van Veen MM et al., 2010 [54]	34 patients with ADHD 38 controls	saliva	1. Melatonin production in the ADHD group began 83 min later than the control group. 2. Patients with ADHD showed less effective sleep and longer sleep delay.
Baird AL et al., 2012 [56]	13 patients with ADHD 19 controls	saliva	1. In the group of patients with ADHD disturbed rhythm of melatonin relative to the control group was observed.
Bijlenga D et al., 2013 [55]	12 patients with ADHD 12 controls	saliva	1. In the group of people with ADHD, DLMO was delayed by about 1.5 h relative to the control group. 2. An average one hour longer interval between the onset of DLMO and onset of sleep was observed in subjects with ADHD relative to the control group.
Büber A et al., 2016 [57]	27 patients with ADHD 28 controls	urine	Patients with ADHD had significantly higher levels of total 24-h urinary excretion of 6-OH MS than controls.

(ADHD-SOI)—ADHD-related sleep-onset insomnia, (ADHD-noSOI)—ADHD without sleep-onset insomnia.

→ Sécrétion Mél retardée 83min

→ Rythme sécrétion Mél modifié

→ DLMO:+1.5h

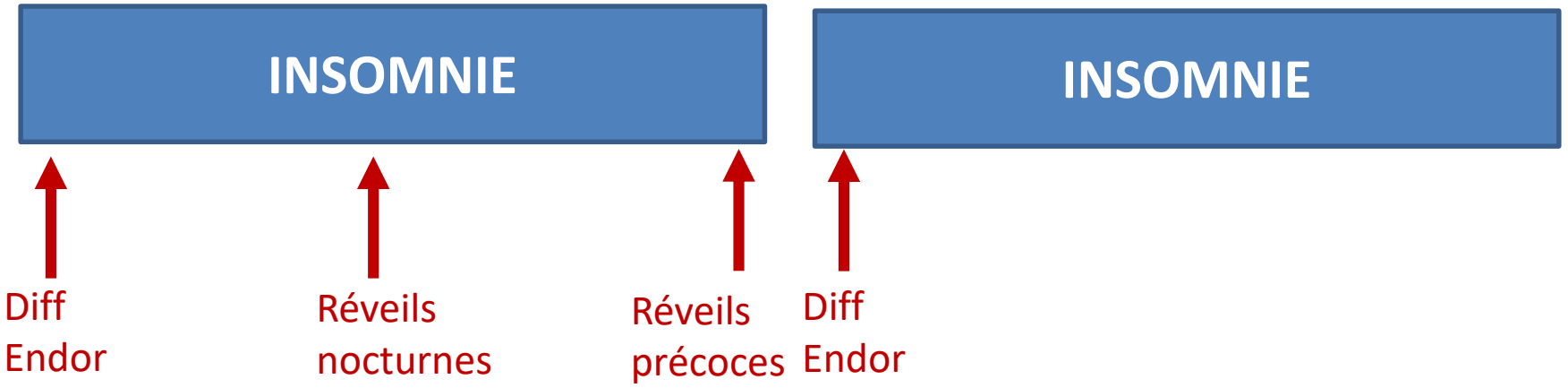
→ Taux élevé 6 Hydroxy-Melatonin-Sulfate

En terme de traitement

Intérêt de la MELATONINE

Mélatonine

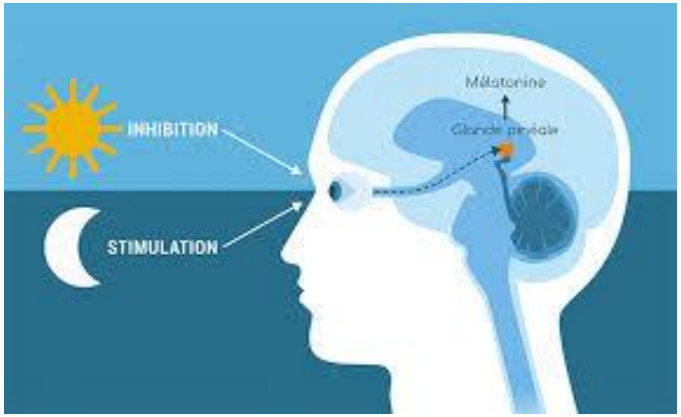
- Sujets TSA
- Sujets TDAH

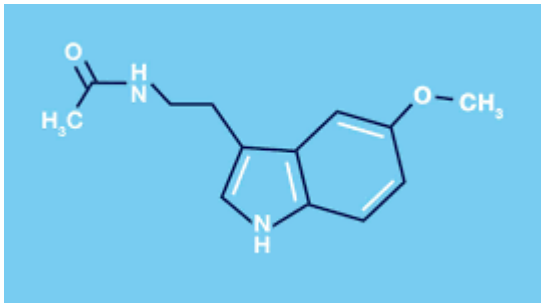


Défaut de synthèse de MEL

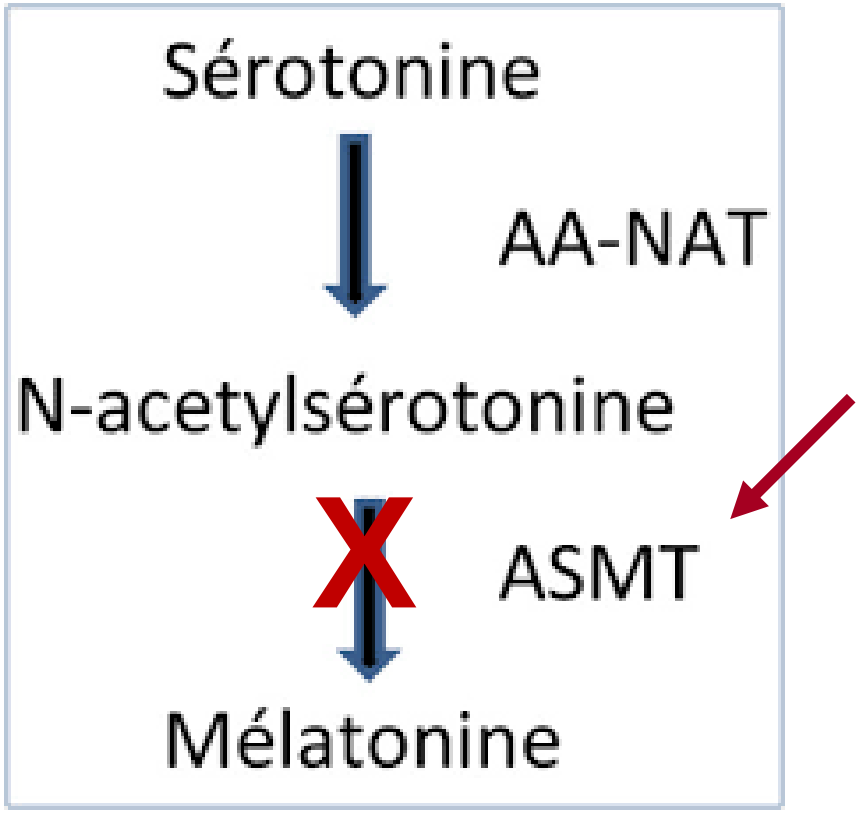
Décalage de synthèse de MEL

Chez le patient avec TSA





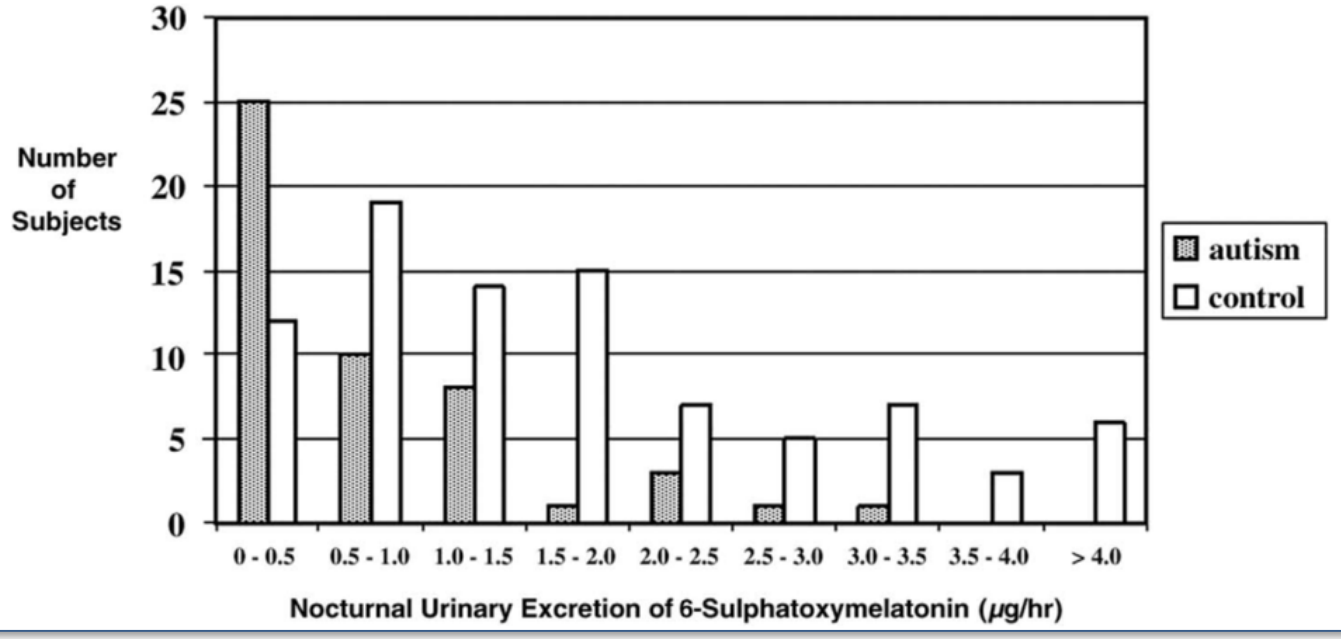
N-acétyl-5- méthoxytryptamine, 1958



NAT: N-Acetyl-Transferarase
NAS: N-Acetyl-Sérotonine
ASMT: Acétyl-Sérotonin-Méthyl-Transférase

Mélatonine chez les sujets TSA

63% des enfants <1/2 du taux de melatonine des contrôles



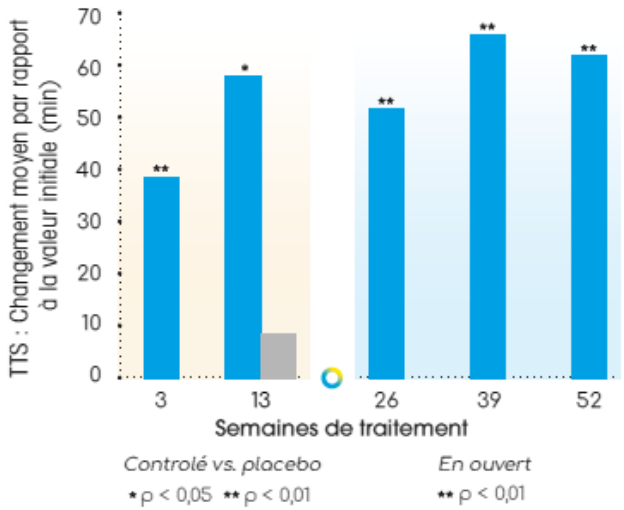
Tordjman et al., 2005; Pagan et al., 2017

Efficacité Mélatonine LP

Slenyto®
Placebo

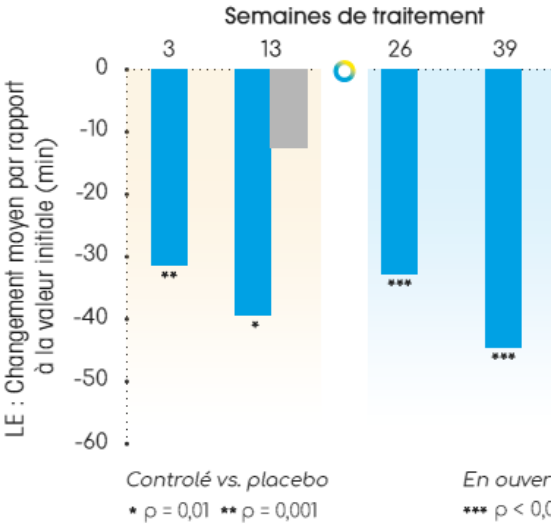
Augmente le Temps Total de Sommeil (TTS)

+ 57.5 min vs + 9.1 min



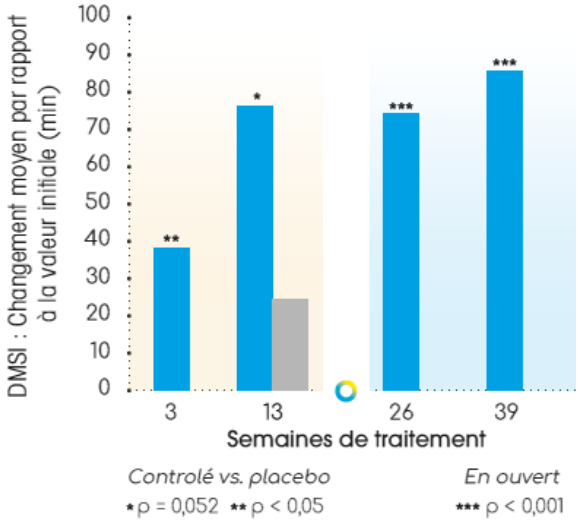
Améliore la latence d'endormissement (LE)

- 39.6 min vs - 12.5 min



Améliore le maintien du sommeil

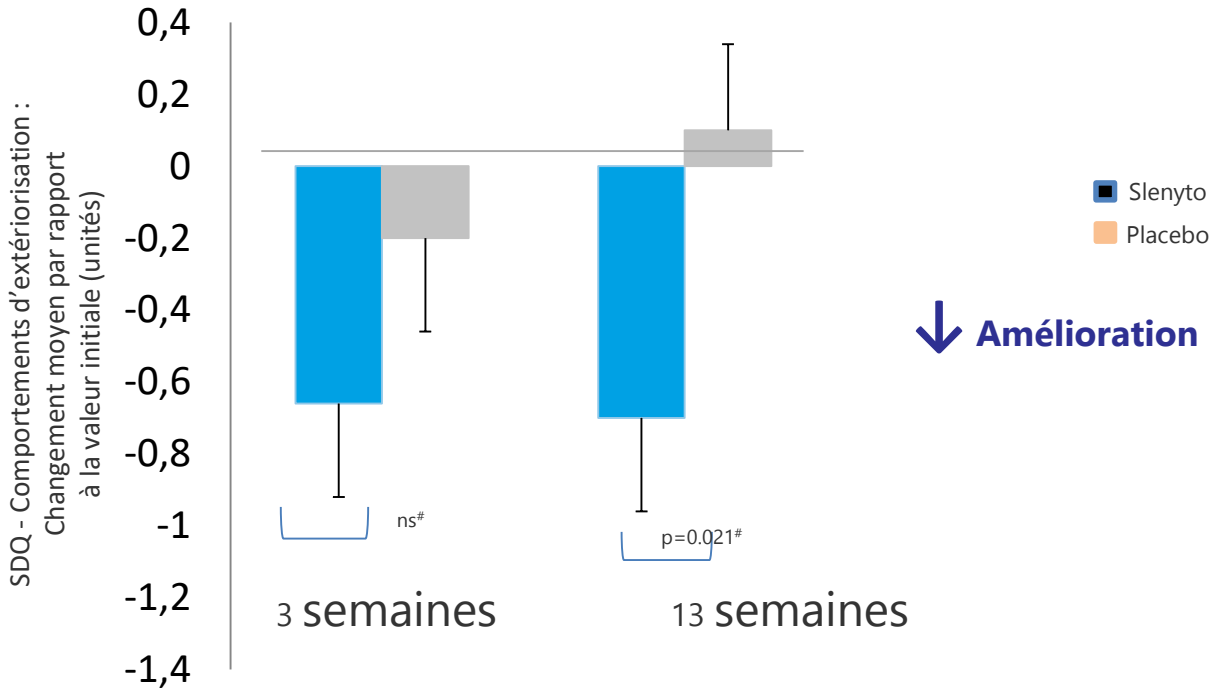
LSE: + 77.9 min vs + 25.4 min



Gingras et al, 2018

Diapositive empruntée à C Schroder

Diminution des comportements externalisés

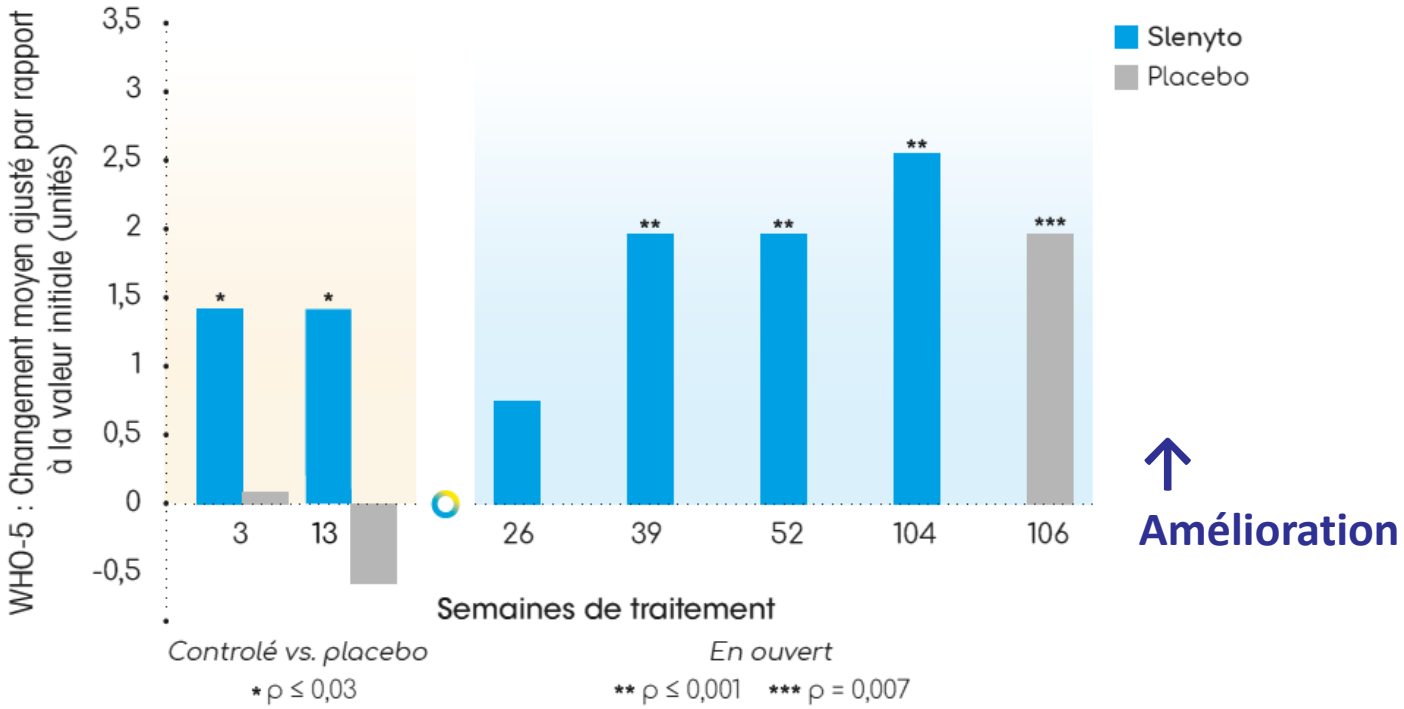


Gingras et al, 2018

Diapositive empruntée à C Schroder

Amélioration de la qualité de vie des parents

WHO-5



Gingras et al, 2018

Diapositive empruntée à C Schroder

Neuropsychiatric Disease and Treatment

2019

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/dndt20

Effects of melatonin in children with attention-deficit/hyperactivity disorder with sleep disorders after methylphenidate treatment

Gabriele Masi, Pamela Fantozzi, Arianna Villafranca, Annalisa Tacchi, Federica Ricci, Laura Ruglioni, Emanuela Inguaggiato, Chiara Pfanner & Samuele Cortese

74 enfants - âge: 11.6 ans

MPH: posologie moyenne: 33.5 mg

T0 T + 4 sem

Latence d’endormissement

Après 4 semaines de TTT Mélatonine: 1.85 mg/j

Echelle Lickert CGI	3.41 (0.7)	2.13 (1.05)	p<0.001

Amélioration quelque soit

- Age
- Genre
- Comorbidités

Vers des données plus écologiques …

Travaux

- Données subjectives
  - Questionnaires parents

- Données objectives
  - Population spécifique des TND
    - Difficultés quand ne sont pas à domicile
    - Enregistrement de moins de 5h

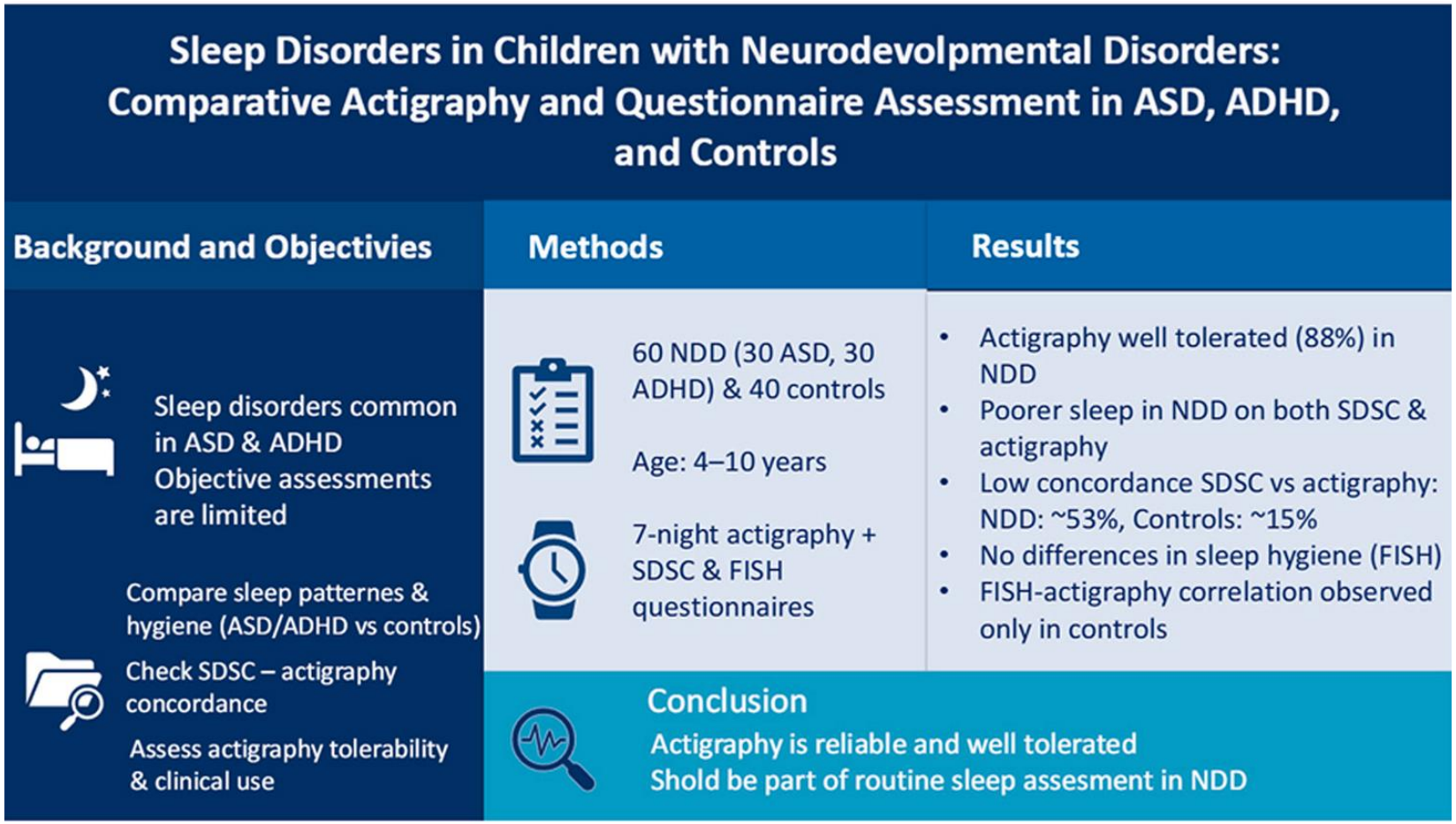
  - Variable traitement
  - Variable cormorbidité

Liang et al, 2023

Sleep Medicine
Volume 136, December 2025, 106794

Sleep disorders in children with neurodevelopmental disorders: Comparative actigraphy and questionnaire assessment in ASD, ADHD, and controls

Sara Pinghini [a], Lucio Giordano [a], Francesca Banditelli [b], Rossana Bucci [c], Anna Eusebi [c], Elena Filippini [c], Michela Gritti [c], Paola Mattei [c], Davide Nocita [d], Elisa Maria Fazzi [c d], Giuseppe Milito [a]



Sleep Disturbance Scale for Children : SDSC
Family Inventory of Sleep Habits : FISH

Children with NDDs showed

- significantly higher SDSC scores vs controls ($p < 0.001$)
- poorer actigraphic sleep parameters
  - lower sleep efficiency (82.0 % vs 87.3 %, $p < 0.001$)
  - longer wake after sleep onset (78.8 vs 52.7 min, $p < 0.001$)
- Concordance between actigraphy and SDSC was limited (≈53 % in NDD; 15 % in TD)

Sleep and Breathing (2025) 29:168
https://doi.org/10.1007/s11325-025-03333-z

PEDIATRICS • ORIGINAL ARTICLE

Parent-reported experiences of in-laboratory polysomnography in children with neurodevelopmental disorders: A cross-sectional multi-centre study

Ajay Kevat[1,2] · Dhruv Alwadhi[2] · Andrew Collaro[1,2] · Anne Bernard[3] · Moya Vandeleur[4,5] · Karen Waters[6,7] · Jasneek Chawla[1,2]

Abstract

Purpose In-laboratory polysomnography (PSG) is the gold standard test for diagnosing certain paediatric sleep conditions. Children with neurodevelopmental disorders (NDD) often have difficulty tolerating PSG, but parent and patient experiences of PSG for children with NDD have not been thoroughly explored. The study aim was to evaluate the parent-reported experience of in-laboratory PSG undertaken in children with NDD and to identify factors predictive of poorer experience.

Methods In this cross-sectional multicentre study, parents of 143 children with NDD who underwent in-laboratory PSG completed a customised survey to provide feedback on parent and child worry levels, subjective tolerance and overall experience of PSG, and hypothetical preference between in-laboratory PSG versus an in-home mat-based sleep test. ANOVA, Chi-squared and Kruskal–Wallis tests were used to determine participant factors associated with these outcomes.

Results On average, parents rated their child's worry level with respect to undergoing PSG as 'moderate,' but their own worry levels lower. Autism spectrum / neuromuscular disorder diagnoses were risk factors for both higher worry score and reporting that sleep during PSG was non-representative of usual sleep at home. Parental preference was for in-home (mat-based) testing, with 57% indicating a preference for this if it wereavailable vs. 7% preferring in-laboratory testing.

Conclusion Parent/carer reports regarding in-laboratory PSG experiences for their children with NDD suggest the test is associated with child worry and concerns that the sleep is not-representative of usual sleep at home. Consumer preference favours in-home sleep study testing over current in-laboratory diagnostic testing.

Clinical trial registration This study is part of a larger trial ACTRN12622001544763.

Pour Conclure…

- **Le sommeil** …un marqueur pour phénotyper les patients avec TND
  - Marqueur de vulnérabilité
  - Sujets à risque
  - Rôle du sommeil dans l'intensité des troubles Le sommeil

- Travaux de recherche: Mesures plus écologiques

Merci de votre attention