DELUKE
ORTHODONTIC COACHING

1

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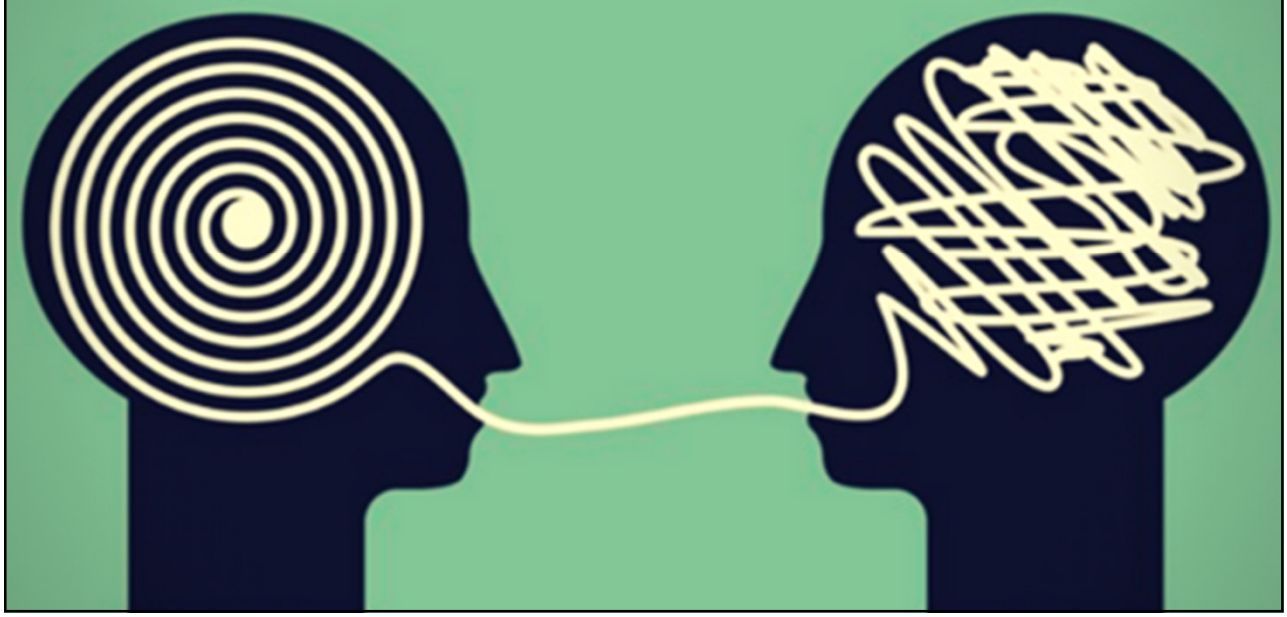
Disclosure:

Neither I nor members of my immediate family have any financial relationships with any other commercial entities that may be relevant to this presentation.

3

4

Common Misunderstandings



5

Common Misunderstanding

6

SPECIAL ARTICLE June 2025 • Vol 167 • Issue 6 AJO-DO

Mouth breathing and orthodontic intervention: Does the evidence support keeping our mouths shut?

Sanjivan Kandasamy
St Louis, Mo, and Nedlands and Midland, Western Australia, Australia

"You can't reliably determine if mouth breathing is a thing."

"A causal relationship between respiratory behavior and dentofacial growth cannot be drawn."

"There is a common misconception linking mouth breathing as a causative factor to ADHD."

"Some clinicians are using a widely relatable concept such as mouth breathing and oversensitizing the general public about its unsubstantiated detrimental consequences, especially to young children."

"Humans only need to slightly open their mouths to breathe orally without any extreme posturing."

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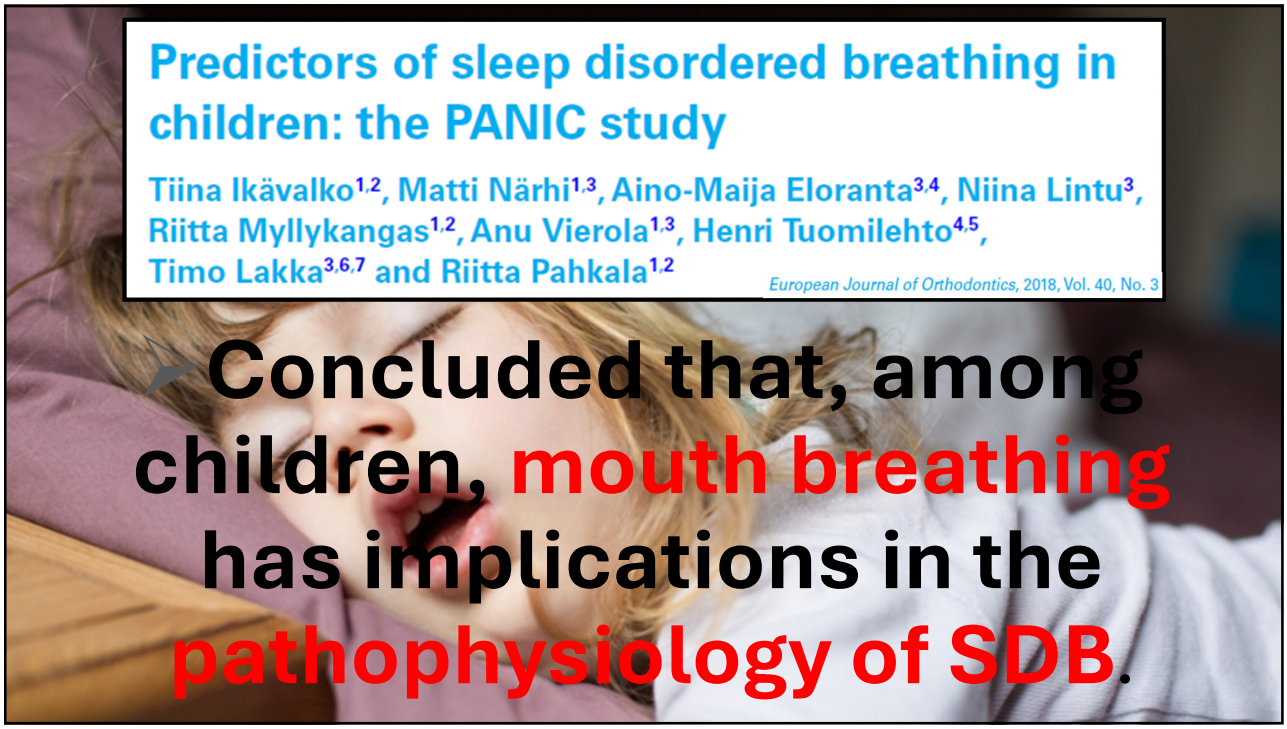
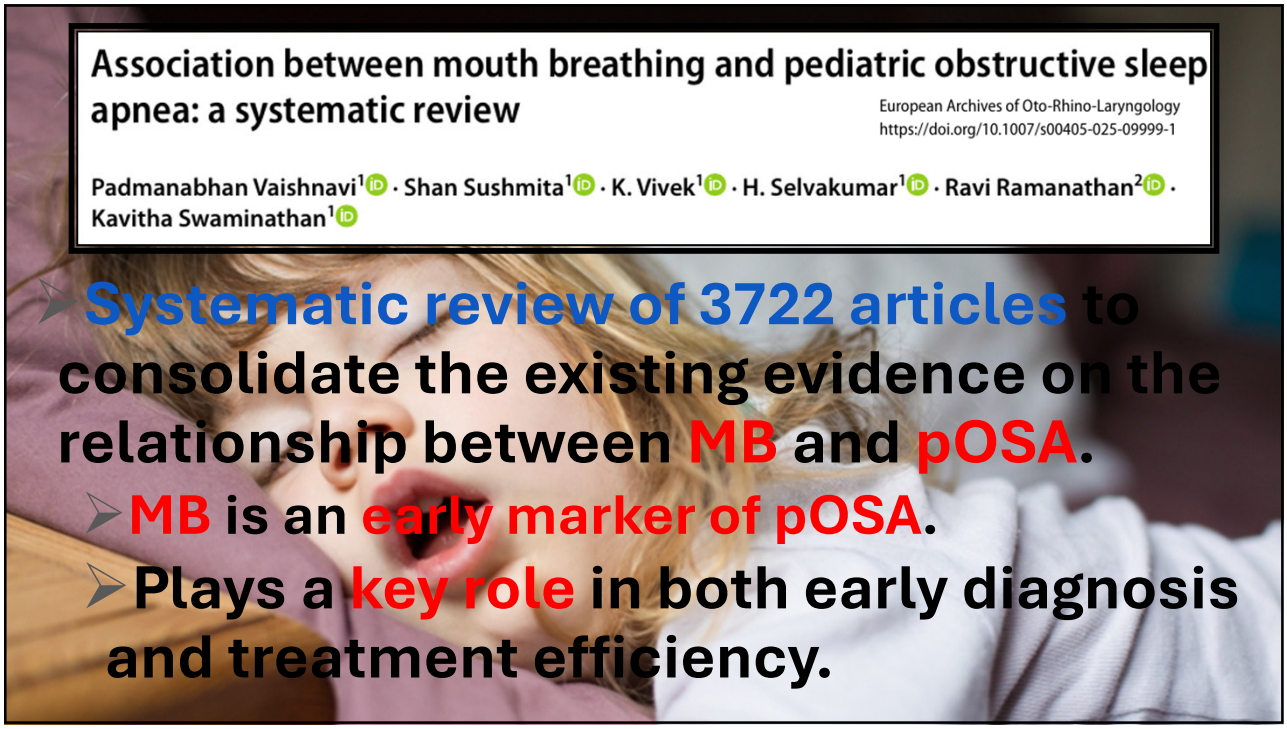
Children
SHOULD NOT
chronically mouth breathe.

10


Predictors of sleep disordered breathing in children: the PANIC study
Tiina Ikävalko[1,2], Matti Närhi[1,3], Aino-Maija Eloranta[3,4], Niina Lintu[3], Riitta Myllykangas[1,2], Anu Vierola[1,3], Henri Tuomilehto[4,5], Timo Lakka[3,6,7] and Riitta Pahkala[1,2]
European Journal of Orthodontics, 2018, Vol. 40, No. 3
Concluded that, among children, mouth breathing has implications in the pathophysiology of SDB.

11


Association between mouth breathing and pediatric obstructive sleep apnea: a systematic review
European Archives of Oto-Rhino-Laryngology
https://doi.org/10.1007/s00405-025-09999-1
Padmanabhan Vaishnavi[1] · Shan Sushmita[1] · K. Vivek[1] · H. Selvakumar[1] · Ravi Ramanathan[2] · Kavitha Swaminathan[1]
Systematic review of 3722 articles to consolidate the existing evidence on the relationship between MB and pOSA.
MB is an early marker of pOSA.
Plays a key role in both early diagnosis and treatment efficiency.

12

The Mechanics of Mouth-Breathing and Its Role in Nasal and Sleep Disorders

Howard D. Stupak
Department of Otolaryngology, Head and Neck Surgery, Albert Einstein College of Medicine, New York, USA

Eur J Rhinol Allergy 2023; 6(1): 21-27

An apneic/hypopneic event may be a 3-step process:

1. Mouth breathing **unlocks the oral mouth-closure clamp** that restrains the tongue in the mouth.
2. **Prolapse** of the now-released tongue and soft palate into pharynx.
3. **Build-up of negative pressure** within the pharynx distal to the site of obstruction.

13

RESEARCH ARTICLE

Sleep Difficulties and Symptoms of Attention-deficit Hyperactivity Disorder in Children with Mouth Breathing

Ritesh Kalaskar[1], Priyanka Bhaje[2], Ashita Kalaskar[3], Abhijeet Faye[4]

International Journal of Clinical Pediatric Dentistry (2021): 10.5005/jp-journals-10005-1987

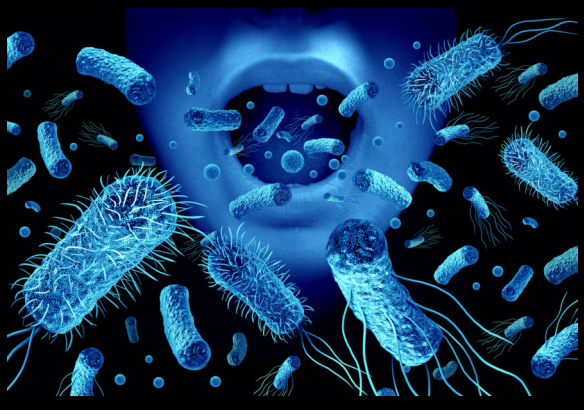
- **Found that behavioral symptoms similar to those found in ADHD are frequently present in mouth breathers.**
- **Concluded:**
  - ***"Children with ADHD should always be assessed for the presence of mouth breathing, as early identification and correction of mouth breathing may help in preventing unnecessary exposure to medication for treating ADHD."***

14

Alterations in Oral–Nasal–Pharyngeal Microbiota and Salivary Proteins in Mouth-Breathing Children

Frontiers in Microbiology
October 2020 | Volume 11 | Article 575550

Cancan Fan[1,2], Lihong Guo[1,2], Haijing Gu[1,2], Yongbiao Huo[1,2] and Huancai Lin[1,2]**



- MB pts had higher levels of pathogenic bacteria, and lower levels of protective bacteria.

15

The Irreversible Consequences of Pediatric Airway Disease

Dr. Mike DeLuke

Dr. David Gozal

Is it better to breathe your nose?

16


The Irreversible Consequences of Pediatric Airway Disease
THE DOC PODCAST
WITH DR. MIKE DELUKE DDS, MDS
Dr. Mike DeLuke
Dr. David Gozal
Is it better to breathe your nose?

17


CLINICAL REVIEW
Sleep Medicine Reviews 24 (2015) 46–56
Pediatric sleep-disordered breathing: New evidence on its development
Christian Guilleminault*, Farah Akhtar
Stanford University Sleep Medicine Division, Stanford Outpatient Medical Center, Redwood City, CA, USA
sleepmedicine REVIEWS
To prevent the development of OSA, we need to understand the impact of mouth breathing and snoring on the craniofacial growth & development of the face.
Ultimately, the goal is to provide normal and continuous nasal breathing while awake & asleep.

18

- We should absolutely be concerned about chronic MB in children.

19

Common Misunderstanding

- A child needs to have an AHI ≥ 1 and a diagnosis of OSA to address their airway disease.

20

(Amended 3-15-19)

American Association of Orthodontists

White Paper: Obstructive Sleep Apnea and Orthodontics


SPECIAL ARTICLE AJO-DO

Sleep-disordered breathing and orthodontics: An American Association of Orthodontists white paper update

Juan Martin Palomo,[a] Julia Cohen-Levy,[b] Carlos Flores-Mir,[c,d] Rooz Khosravi,[e] Mitchell Levine,[f] Michael Pickard,[g] Jackie Hittner,[h] John Callahan,[i] and Steven M. Siegel[i,j]
Cleveland, Ohio, and Quebec and Alberta, Canada, and Seattle, Wash, and Chapel Hill, NC, and Moscow, Idaho, and Saint Louis, Mo, and Baltimore, Md

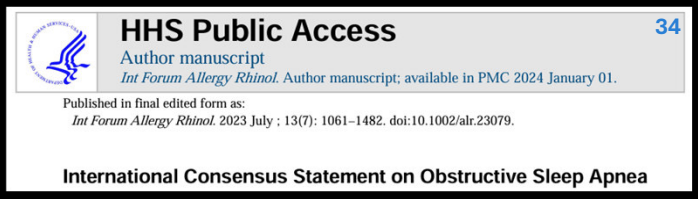
21


SPECIAL ARTICLE AJO-DO

Sleep-disordered breathing and orthodontics: An American Association of Orthodontists white paper update

Juan Martin Palomo,[a] Julia Cohen-Levy,[b] Carlos Flores-Mir,[c,d] Rooz Khosravi,[e] Mitchell Levine,[f] Michael Pickard,[g] Jackie Hittner,[h] John Callahan,[i] and Steven M. Siegel[i,j]
Cleveland, Ohio, and Quebec and Alberta, Canada, and Seattle, Wash, and Chapel Hill, NC, and Moscow, Idaho, and Saint Louis, Mo, and Baltimore, Md

"...polysomnography, combined with clinical symptoms, remains the gold standard for diagnosing OSA."[34]

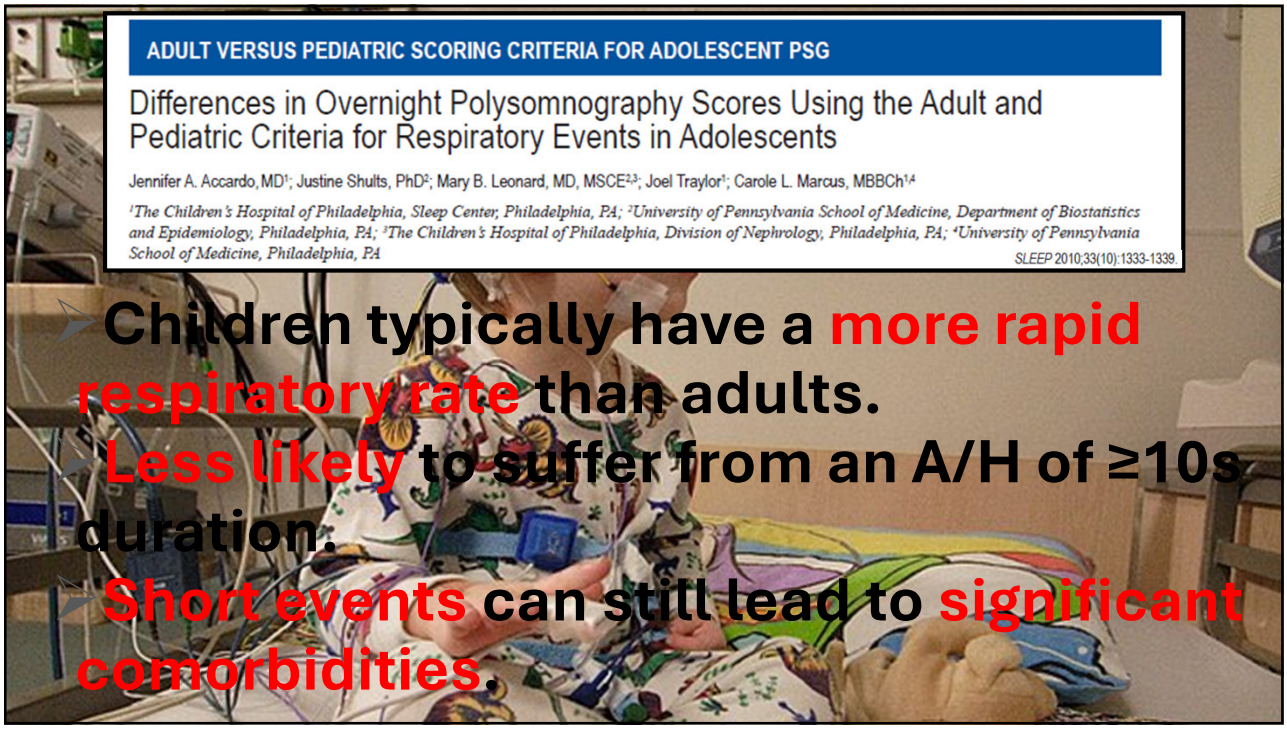

HHS Public Access 34
Author manuscript
Int Forum Allergy Rhinol. Author manuscript; available in PMC 2024 January 01.

Published in final edited form as:
Int Forum Allergy Rhinol. 2023 July ; 13(7): 1061–1482. doi:10.1002/alr.23079.

International Consensus Statement on Obstructive Sleep Apnea

- **The quote referenced was referring to adult OSA.**
- **This manuscript goes on to say that, for children, *"While AHI was the starting point and is the best studied metric of OSA, it falls short as a unifying metric that captures both OSA severity and outcome prognostication."***
- **Adds that, *"When a diagnosis of OSA based on PSG is not possible, a diagnosis of SDB is often made based on clinical evaluation alone."***

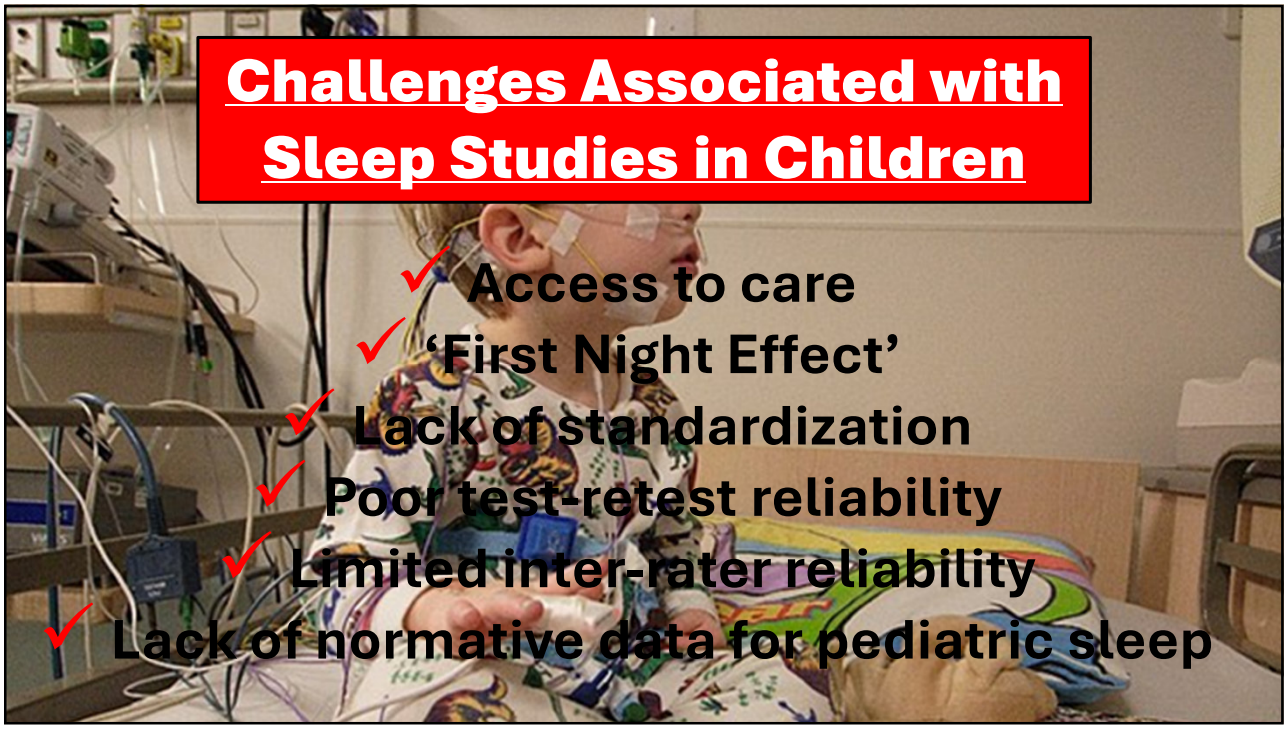
22


ADULT VERSUS PEDIATRIC SCORING CRITERIA FOR ADOLESCENT PSG
Differences in Overnight Polysomnography Scores Using the Adult and Pediatric Criteria for Respiratory Events in Adolescents
Jennifer A. Accardo, MD[1]; Justine Shults, PhD[2]; Mary B. Leonard, MD, MSCE[2,3]; Joel Traylor[1]; Carole L. Marcus, MBBCh[1,4]
[1]The Children's Hospital of Philadelphia, Sleep Center, Philadelphia, PA; [2]University of Pennsylvania School of Medicine, Department of Biostatistics and Epidemiology, Philadelphia, PA; [3]The Children's Hospital of Philadelphia, Division of Nephrology, Philadelphia, PA; [4]University of Pennsylvania School of Medicine, Philadelphia, PA
SLEEP 2010;33(10):1333-1339
Children typically have a more rapid respiratory rate than adults.
Less likely to suffer from an A/H of ≥10s duration.
Short events can still lead to significant comorbidities.

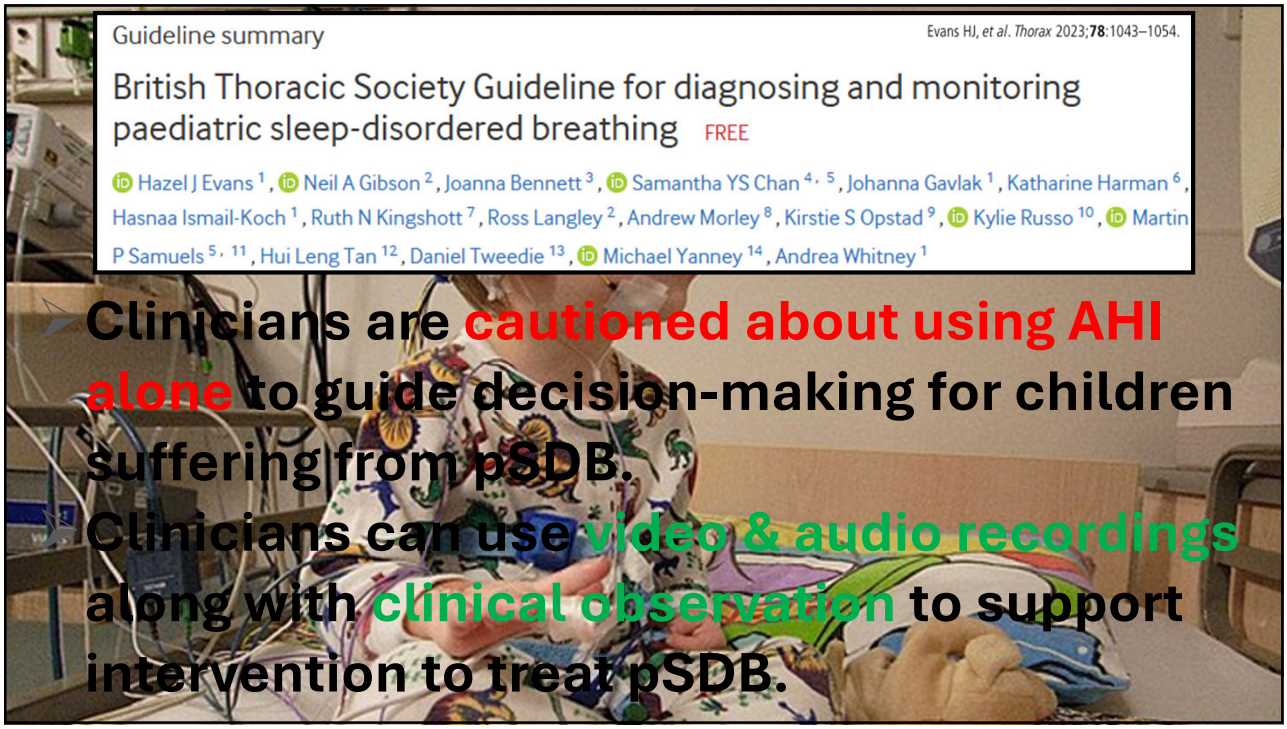
23


CLINICAL REVIEW
Sleep Medicine Reviews 24 (2015) 46–56
Pediatric sleep-disordered breathing: New evidence on its development
Christian Guilleminault*, Farah Akhtar
Stanford University Sleep Medicine Division, Stanford Outpatient Medical Center, Redwood City, CA, USA
sleepmedicine REVIEWS
"Even if a diagnostic PSG is done, a poor understanding of abnormal breathing patterns during sleep in children may lead to an underscoring of respiratory events."

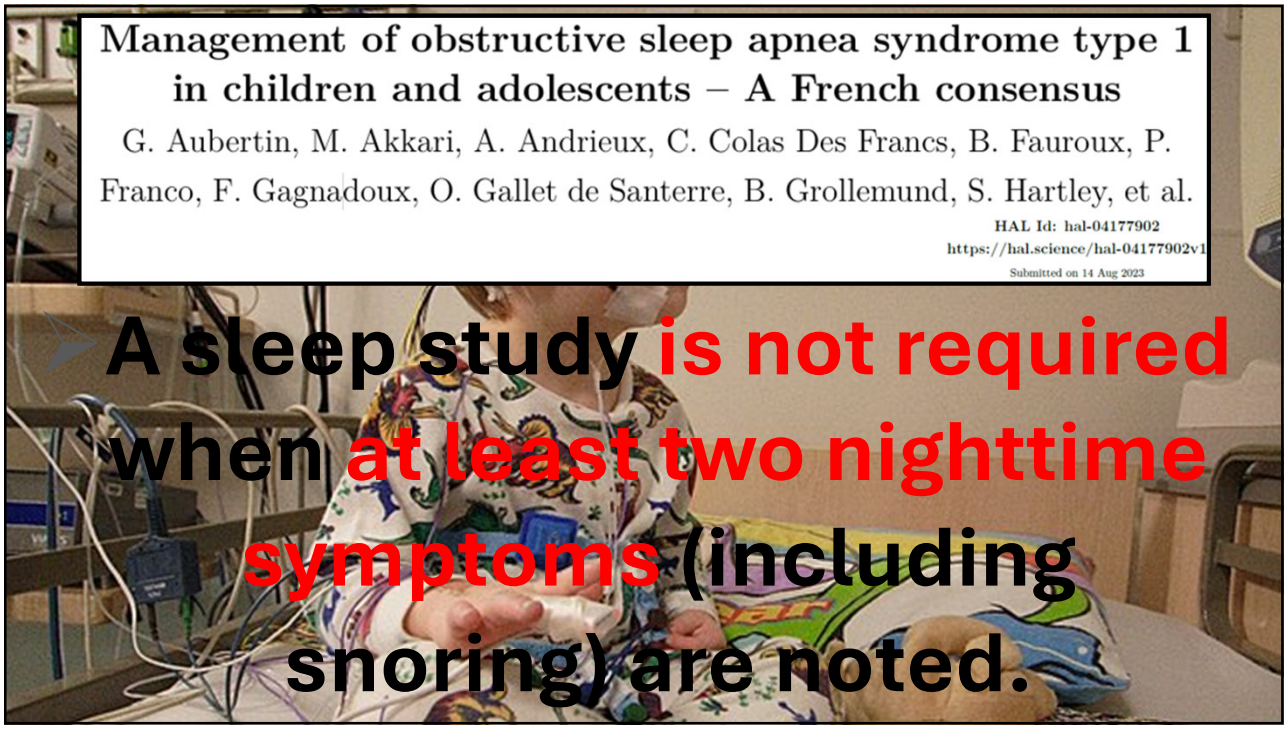
24


Challenges Associated with Sleep Studies in Children
✓ Access to care
✓ 'First Night Effect'
✓ Lack of standardization
✓ Poor test-retest reliability
✓ Limited inter-rater reliability
✓ Lack of normative data for pediatric sleep

25


Guideline summary
Evans HJ, et al. Thorax 2023;78:1043–1054.
British Thoracic Society Guideline for diagnosing and monitoring paediatric sleep-disordered breathing FREE
Hazel J Evans [1], Neil A Gibson [2], Joanna Bennett [3], Samantha YS Chan [4, 5], Johanna Gavlak [1], Katharine Harman [6], Hasnaa Ismail-Koch [1], Ruth N Kingshott [7], Ross Langley [2], Andrew Morley [8], Kirstie S Opstad [9], Kylie Russo [10], Martin P Samuels [5, 11], Hui Leng Tan [12], Daniel Tweedie [13], Michael Yanney [14], Andrea Whitney [1]
Clinicians are cautioned about using AHI alone to guide decision-making for children suffering from pSDB.
Clinicians can use video & audio recordings along with clinical observation to support intervention to treat pSDB.

26


Management of obstructive sleep apnea syndrome type 1 in children and adolescents – A French consensus
G. Aubertin, M. Akkari, A. Andrieux, C. Colas Des Francs, B. Fauroux, P. Franco, F. Gagnadoux, O. Gallet de Santerre, B. Grollemund, S. Hartley, et al.
HAL Id: hal-04177902
https://hal.science/hal-04177902v1
Submitted on 14 Aug 2023
A sleep study is not required when at least two nighttime symptoms (including snoring) are noted.

27

28

What was his AHI?

0

29

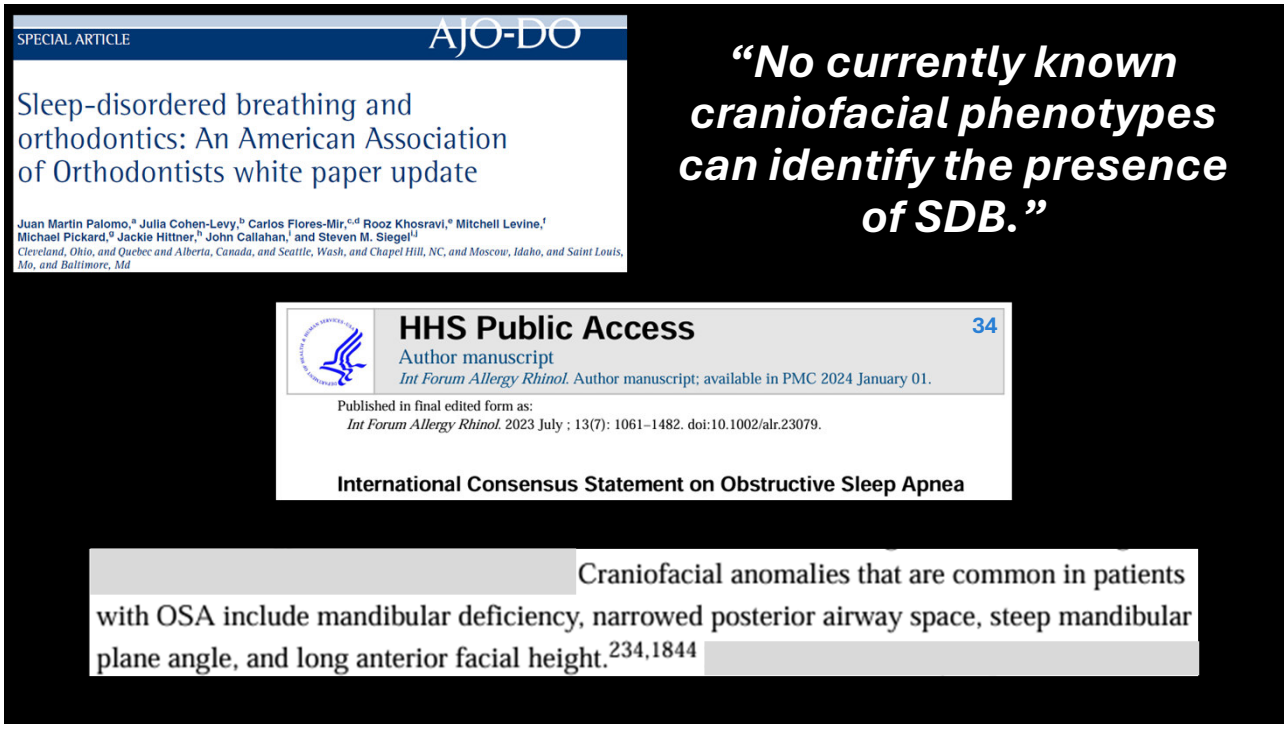
Fact

- **A child does not need to have an AHI ≥ 1 and a diagnosis of OSA to address their airway disease.**

30


Common Misunderstanding
•MB does not have a negative impact on craniofacial G&D, and no currently known craniofacial phenotypes can identify the presence of pSDB.

31


SPECIAL ARTICLE
AJO-DO
Sleep-disordered breathing and orthodontics: An American Association of Orthodontists white paper update
Juan Martin Palomo,[a] Julia Cohen-Levy,[b] Carlos Flores-Mir,[c,d] Rooz Khosravi,[e] Mitchell Levine,[f] Michael Pickard,[g] Jackie Hittner,[h] John Callahan,[i] and Steven M. Siegel[i,j]
Cleveland, Ohio, and Quebec and Alberta, Canada, and Seattle, Wash, and Chapel Hill, NC, and Moscow, Idaho, and Saint Louis, Mo, and Baltimore, Md
"No currently known craniofacial phenotypes can identify the presence of SDB."
HHS Public Access
34
Author manuscript
Int Forum Allergy Rhinol. Author manuscript; available in PMC 2024 January 01.
Published in final edited form as:
Int Forum Allergy Rhinol. 2023 July ; 13(7): 1061–1482. doi:10.1002/alr.23079.
International Consensus Statement on Obstructive Sleep Apnea
Craniofacial anomalies that are common in patients with OSA include mandibular deficiency, narrowed posterior airway space, steep mandibular plane angle, and long anterior facial height.[234,1844]

32

"Of all the causes of malocclusion, mouth breathing is the most potent, constant, and most varied in its results."

-Edward Angle (1907)

33

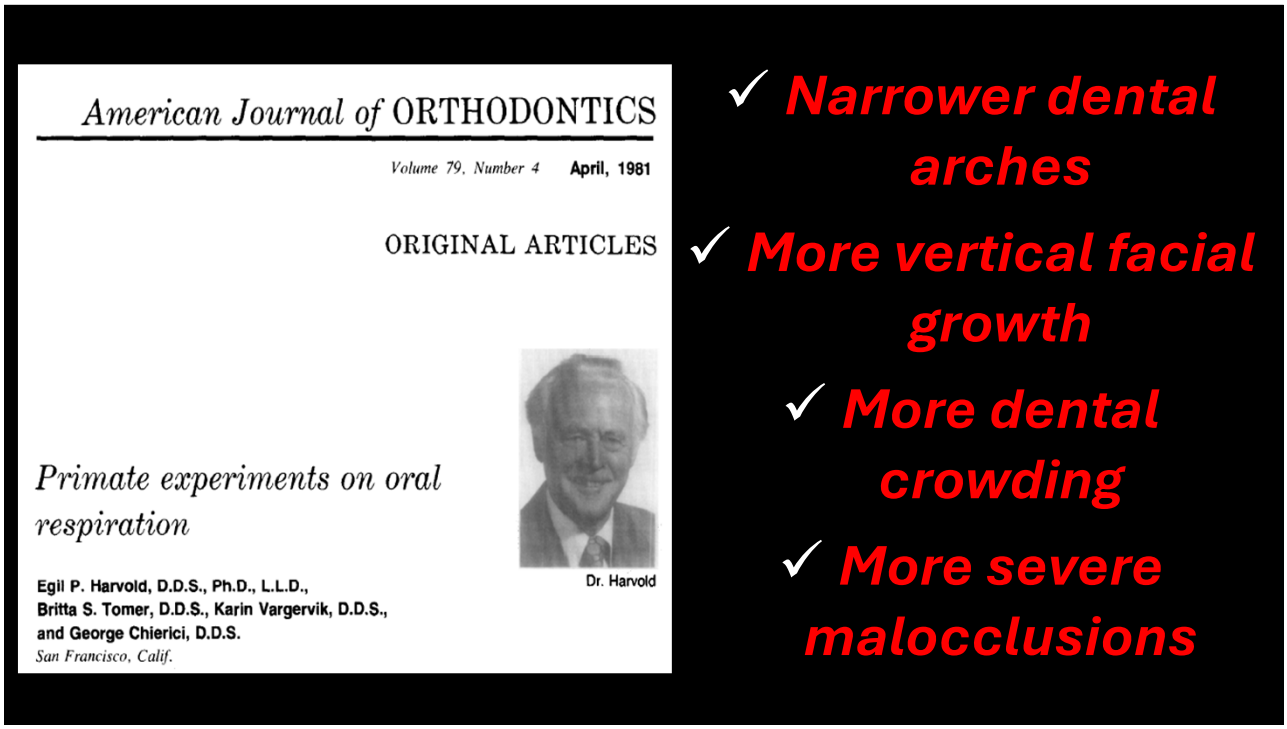
The impact of mouth breathing on dentofacial development: A concise review

Front. Public Health 10:929165.
doi: 10.3389/fpubh.2022.929165

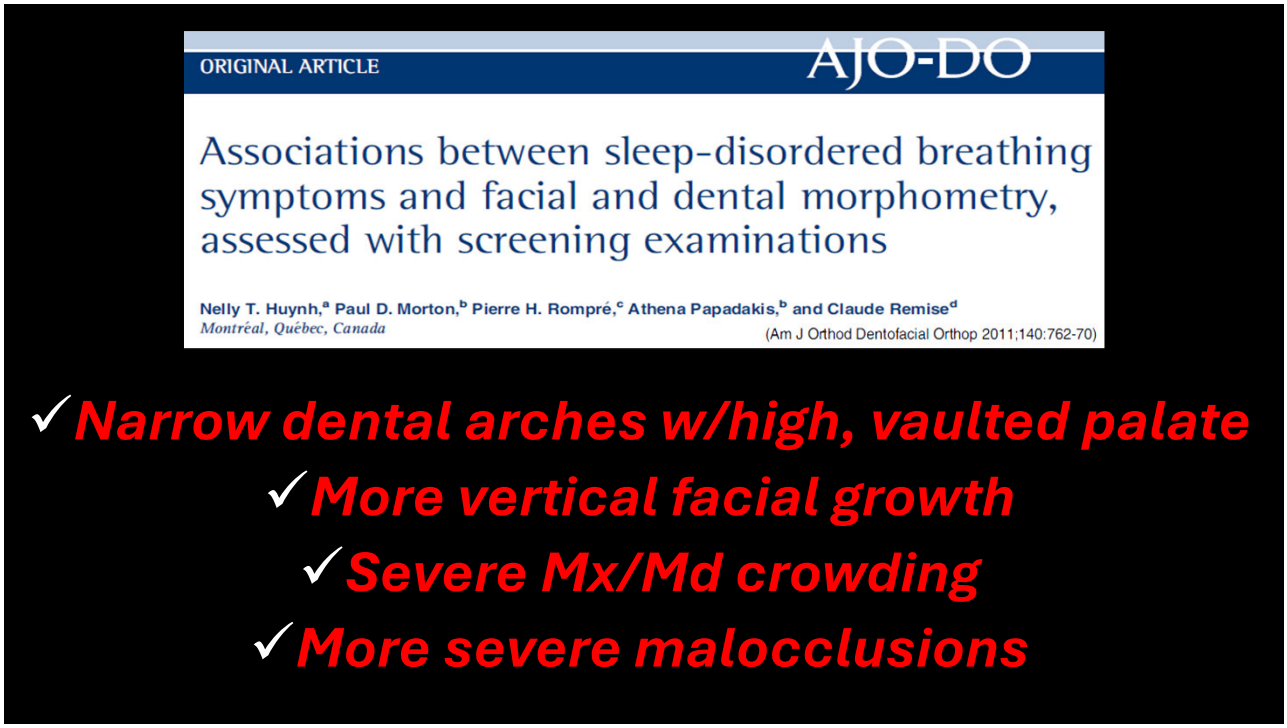
Lizhuo Lin[1,2†], Tingting Zhao[1,2,3†], Danchen Qin[1,2], Fang Hua[2,3,4,5*] and Hong He[1,2,3*]

- **Mouth breathing is one of the most common and deleterious habits in children.**
- **Uncorrected MB can result in abnormal dental and maxillofacial development.**

34


American Journal of ORTHODONTICS
Volume 79, Number 4 April, 1981
ORIGINAL ARTICLES
Primate experiments on oral respiration
Egil P. Harvold, D.D.S., Ph.D., L.L.D.,
Britta S. Tomer, D.D.S., Karin Vargervik, D.D.S.,
and George Chierici, D.D.S.
San Francisco, Calif.
Dr. Harvold
✓ Narrower dental arches
✓ More vertical facial growth
✓ More dental crowding
✓ More severe malocclusions

35


ORIGINAL ARTICLE
AJO-DO
Associations between sleep-disordered breathing symptoms and facial and dental morphometry, assessed with screening examinations
Nelly T. Huynh,[a] Paul D. Morton,[b] Pierre H. Rompré,[c] Athena Papadakis,[b] and Claude Remise[d]
Montréal, Québec, Canada
(Am J Orthod Dentofacial Orthop 2011;140:762-70)
✓Narrow dental arches w/high, vaulted palate
✓More vertical facial growth
✓Severe Mx/Md crowding
✓More severe malocclusions

36

Upper airway obstruction and craniofacial morphology

JEROLD J. PRINCIPATO, MD, Bethesda, Maryland

(OTOLARYNGOL HEAD NECK SURG 1991;104:881.)

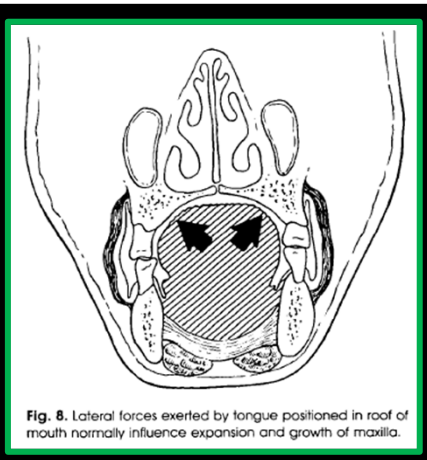


Fig. 8. Lateral forces exerted by tongue positioned in roof of mouth normally influence expansion and growth of maxilla.

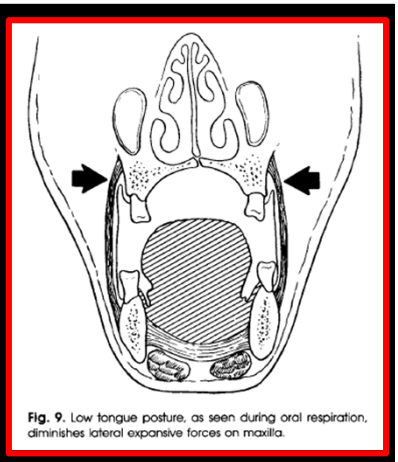


Fig. 9. Low tongue posture, as seen during oral respiration, diminishes lateral expansive forces on maxilla.

- Natural growth & expansion of the Mx is influenced by tongue forces exerted both at rest and during swallowing.
- When the mouth is open, diminished expansion force exerted by the tongue.
- Results in unopposed lingually directed constricting forces being exerted on the buccal segments by the taught buccinator and masseter muscles.

[Enlow DH. Handbook of facial growth. 2nd ed. Philadelphia:WB Saunders Company, 1982.]

37

38

Establishment of nasal breathing should be the ultimate goal to secure adequate craniofacial and airway development in children☆,☆☆

Carlos Torre[a] e Christian Guilleminault[b,*]

J Pediatr (Rio J). 2018;94(2):101–103

By 6 yrs of age, ~ 60% of the adult face has already developed.

Chronic mouth breathing during a child's active craniofacial developmental period can result in anatomical alterations that negatively affect the airway.

Therefore, the establishment of proper nasal breathing early in life is *essential* to maximize growth of the skeletal complex and upper airway.

39

CLINICAL REVIEW
Sleep Medicine Reviews 40 (2018) 203–214

From oral facial dysfunction to dysmorphism and the onset of pediatric OSA

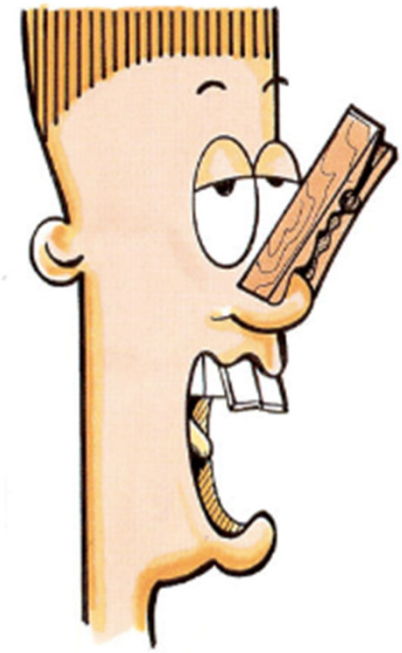
Christian Guilleminault [a, b, *], Yu-Shu Huang [a, b]

[a] Stanford University Sleep Medicine Division, CA, USA
[b] Pediatric Sleep Laboratory Division of Child Psychiatry Chang Gung Memorial Hospital and Medical College, Linkou, Taiwan

Children mouth breathe → **Develop facial dysmorphism**

40

Leads to OSA



41

- **MB does negatively impact craniofacial G&D, and multiple craniofacial phenotypes exist which can help identify the presence of pSDB.**

42

Common Misunderstanding

- Most children with SDB will outgrow it, so there's no point in intervening.

43


SPECIAL ARTICLE

AJO-DO

Sleep-disordered breathing and orthodontics: An American Association of Orthodontists white paper update

Juan Martin Palomo,[a] Julia Cohen-Levy,[b] Carlos Flores-Mir,[c,d] Rooz Khosravi,[e] Mitchell Levine,[f] Michael Pickard,[g] Jackie Hittner,[h] John Callahan,[i] and Steven M. Siegel[i,j]
Cleveland, Ohio, and Quebec and Alberta, Canada, and Seattle, Wash, and Chapel Hill, NC, and Moscow, Idaho, and Saint Louis, Mo, and Baltimore, Md

"...prepubertal OSA tends to resolve naturally during the transition to adolescence. Primary snoring and mild SDB do not appear to be strongly associated with progression to more severe SDB; in other words, there is a tendency towards spontaneous remission of SDB from preschool years to adolescence."[17,18]

44

Natural history of sleep disordered breathing in prepubertal children transitioning to adolescence 17

Eur Respir J. 2016 May ; 47(5): 1402–1409.

Edward O. Bixler[1], Julio Fernandez-Mendoza[1], Duanping Liao[2], Susan Calhoun[1], Sol M. Rodriguez-Colon[2], Jordan Gaines[1], Fan He[2], Alexandros N. Vgontzas[1]

[1]Dept of Psychiatry, Penn State University, College of Medicine, Hershey, PA, USA.

[2]Dept of Public Health Sciences, Penn State University, College of Medicine, Hershey, PA, USA.

- The strongest claim for remission is based on N=6.
- Made the OSA scoring rule more stringent w/age.
  - Defined apnea as ≥ 5s if <16 y.o., but ≥10s if ≥16 y.o.
- Found that in up to 30.3% of snorers w/mild SDB, their SDB will persist or worsen over time.

45

Published in final edited form as: 18
J Pediatr. 2010 July ; 157(1): 57–61. doi:10.1016/j.jpeds.2010.01.033.

Incidence and Remission of Sleep Disordered Breathing and Related Symptoms in 6-17 Year Old Children-the Tucson Children's Assessment of Sleep Apnea Study (TuCASA)

James L. Goodwin, PhD[1,2,3], Monica M. Vasquez, MPH[2,3], Graciela E. Silva, PhD, MPH[4], and Stuart F. Quan, MD[1,2,3,5]

- The paper's own discussion contradicts the claim that children outgrow SDB:

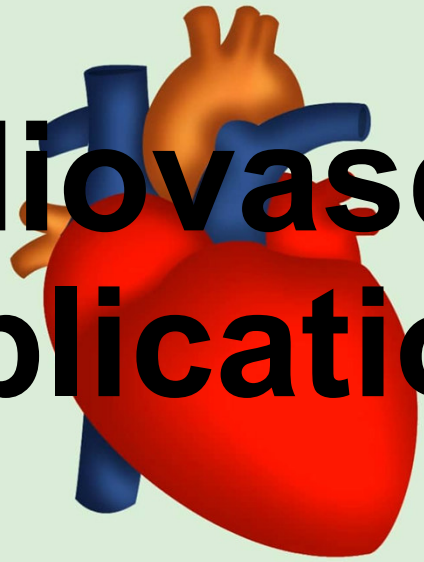
> Moreover, SDB in preadolescents may not spontaneously remit and a significant number will develop SDB when they are adolescents.

46

Even if they DO outgrow it, what damage will be done in the interim?

47

Cardiovascular Implications



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PRESCHOOL CHILDREN WITH OSA AND ELEVATED BLOOD PRESSURE

http://dx.doi.org/10.5665/sleep.2890

Preschool Children with Obstructive Sleep Apnea: The Beginnings of Elevated Blood Pressure?

Lauren C. Nisbet, BMedSc[1]; Stephanie R. Yiallourou, PhD[1]; Sarah N. Biggs, PhD[1]; Gillian M. Nixon, MBChB, MD, FRACP[1,2]; Margot J. Davey, MBBS, FRACP[1,2]; John A. Trinder, PhD[3]; Lisa M. Walter, PhD[1]; Rosemary S. C. Horne, PhD[1]

[1]The Ritchie Centre, Monash Institute of Medical Research, Monash University, Melbourne, Victoria, Australia; [2]Melbourne Children's Sleep Centre, Monash Children's Programme, Monash Medical Centre, Melbourne, Victoria, Australia; [3]Discipline of Psychological Sciences, University of Melbourne, Melbourne, Victoria, Australia

SLEEP, Vol. 36, No. 8, 2013

- **Children who suffer from pSDB maintain a higher baseline blood pressure when sleeping.**
- **This may be the first step toward development of daytime BP abnormalities.**
- **This could result in hypertension in adulthood.**

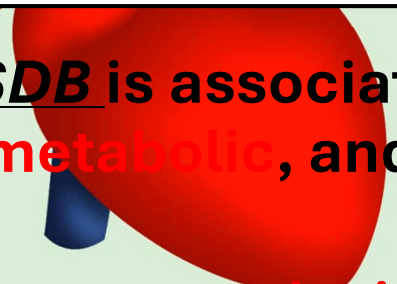
49

AHA SCIENTIFIC STATEMENT

J Am Heart Assoc. 2021;10:e022427. DOI: 10.1161/JAHA.121.022427

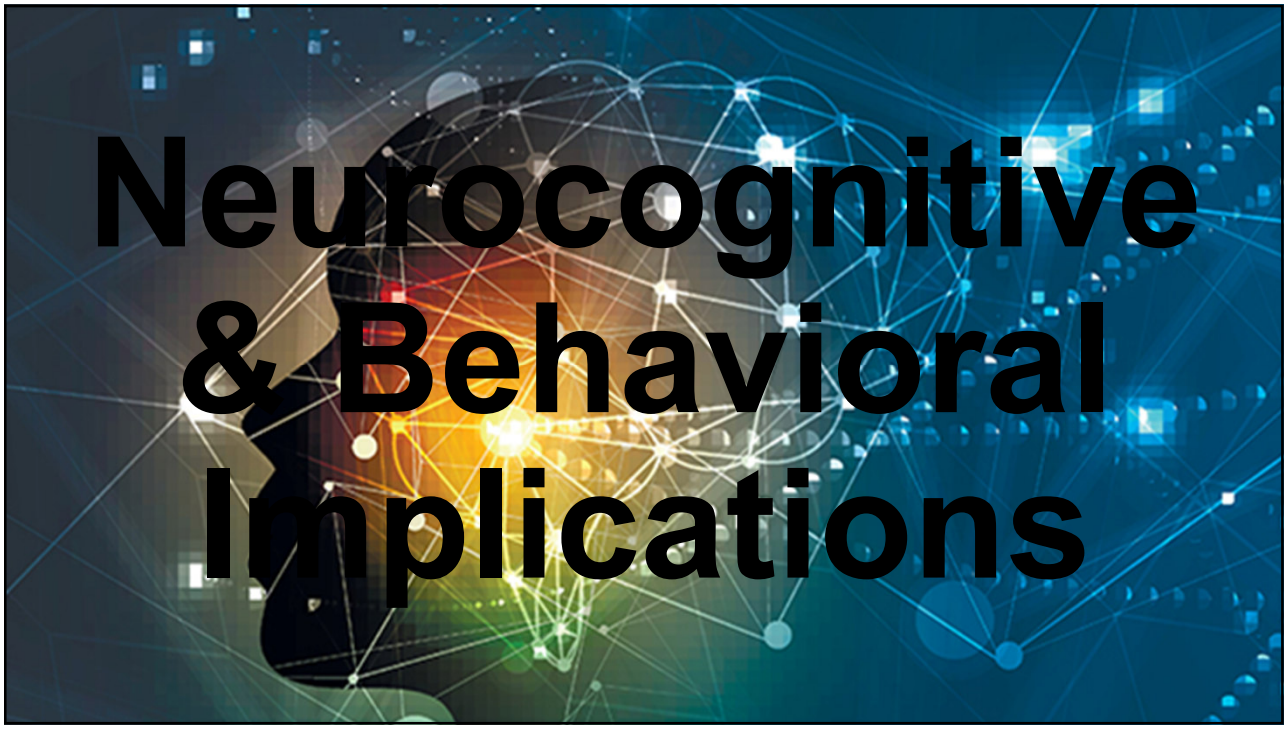
Sleep-Disordered Breathing and Cardiovascular Disease in Children and Adolescents

A Scientific Statement From the American Heart Association



- **Even *mild pSDB* is associated with adverse CV, metabolic, and autonomic effects.**
- **These effects can persist into adulthood.**

50



51

Bonuck et al. (2012, Pediatrics)

- Early-life SDB had strong, persistent, and statistically significant detrimental effects on childhood behavior.

Hunter, Gozal et al. (2016, American Journal of Resp & Crit Care Medicine)

- Snoring alone has a significant impact on neurocognitive development.

52

Isaiah et al. (2021, Nature Communications)

- **Found that children who snored or even gasped during sleep had smaller volumes of grey matter in their frontal lobes.**

Menzies et al. (2022, Sleep Medicine Reviews)

- **Breathing disturbances from snoring to OSA were linked to deficits across all aspects of neurocognitive function, including:**
  - ***Intelligence, attention, memory, language, & visual spatial skills***

53

Attention-Deficit/Hyperactivity Disorder Traits in Childhood and Physical Health in Midlife

Joshua Stott, PhD; Elizabeth O'Nions, PhD; Lucy Corrigan, BSc; Joanne Cotton, PhD; Warren James Donnellan, PhD; Danielle Nimmons, PhD; Henry Shelford, MSc; Céline El Baou, MSc; Gavin R. Stewart, PhD; Rachael W. Cheung, PhD; Roopal Desai, PhD; Douglas G. J. McKechnie, MBBS; Aphrodite Eshetu, MSc; Rob Saunders, PhD; Jae Won Suh, PhD; William Mandy, PhD; Darya Gaysina, PhD; Philip Asherson, PhD; Jessica Agnew-Blais, PhD; Amber John, PhD

JAMA Network Open. 2026;9(1):e2554802. doi:10.1001/jamanetworkopen.2025.54802

- **Found that high ADHD traits in childhood were associated with poorer physical health outcomes in midlife.**
- **Addressing modifiable risk factors in children with ADHD may help mitigate long-term health disparities.**

54

Even if a child **DOES outgrow** the pSDB…

55

the **damage** done while we wait may be **irreparable**.

56

57

Fact

- Many children w/SDB will not outgrow it, and those who do can still suffer from its comorbidities. Therefore, we should absolutely intervene early.

58

Common Misunderstanding

- CBCT imaging has no diagnostic value for SDB risk assessment.

59

SPECIAL ARTICLE AJO-DO

Sleep-disordered breathing and orthodontics: An American Association of Orthodontists white paper update

Juan Martin Palomo,[a] Julia Cohen-Levy,[b] Carlos Flores-Mir,[c,d] Rooz Khosravi,[e] Mitchell Levine,[f] Michael Pickard,[g] Jackie Hittner,[h] John Callahan,[i] and Steven M. Siegel[i,j]
Cleveland, Ohio, and Quebec and Alberta, Canada, and Seattle, Wash, and Chapel Hill, NC, and Moscow, Idaho, and Saint Louis, Mo, and Baltimore, Md

"In summary, imaging of the upper airway using CBCT or lateral cephalograms has no diagnostic value for SDB risk assessment or diagnosis." [34]

HHS Public Access 34
Author manuscript
Int Forum Allergy Rhinol. Author manuscript; available in PMC 2024 January 01.

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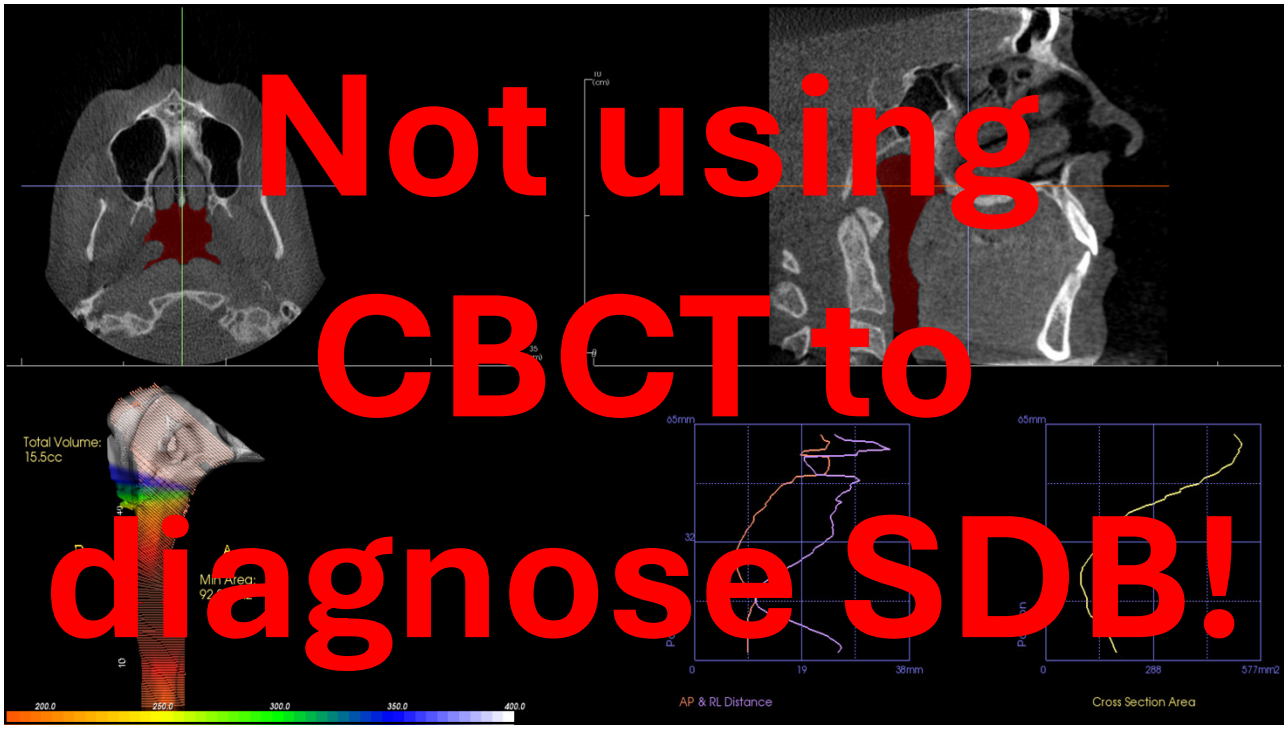
Int Forum Allergy Rhinol. 2023 July ; 13(7): 1061–1482. doi:10.1002/alr.23079.

International Consensus Statement on Obstructive Sleep Apnea

Similar to cephalogram, CBCT can be of value as an adjunct in the anatomic evaluation of OSA

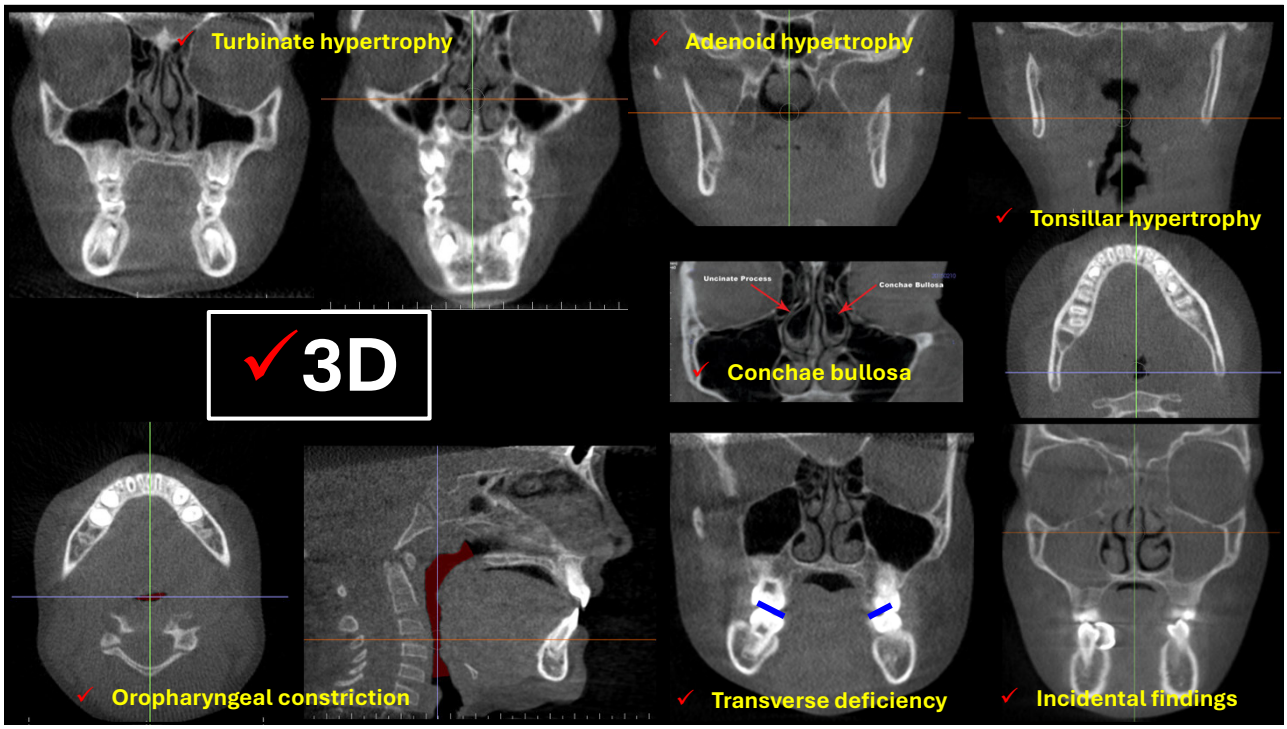
60


Not using CBCT to diagnose SDB!
Total Volume: 15.5cc
AP & RL Distance
Cross Section Area

61


Using it to detect the S&S of airway dysfunction.
Total Volume: 15.5cc
92.0mm2
AP & RL Distance
Cross Section Area

62



63

Imaging Science in Dentistry 2024; 54: 147-57
https://doi.org/10.5624/isd.20230249

Correlation between cone-beam computed tomographic findings and the apnea-hypopnea index in obstructive sleep apnea patients: A cross-sectional study

Marco Isaac[1,2], Dina Mohamed ElBeshlawy[2,3], Ahmed Elsobki[4], Dina Fahim Ahmed[2], Sarah Mohammed Kenawy[2,*]

- CBCT provides an extremely accurate assessment of craniofacial and upper airway anatomy.
- Cannot use it to diagnose OSA (or SDB, for that matter)
- BUT, it is an essential tool for evaluating various anatomical features, such as:
  - *Volume, surface area, cross-sectional area, angles, and shapes*
- These features are critical for determining the *origin*, *severity*, and *prognosis* of the disorder.

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•CBCT imaging can absolutely aid in the detection of the signs and symptoms of pSDB.

65

Common Misunderstanding

•Dentists should refer children to the sleep physician for a formal diagnosis of pSDB before performing any treatment.

66


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- ***"When there is suspicion of possible SDB, the orthodontist should refer the patient to the physician for a definitive diagnosis before any intervention."***

67

There is a
lack of pediatric sleep physicians
in most communities.

68

Do we really think it's the responsibility of the MD to tell the dentist they need to normalize craniofacial G&D?

69

How is a medical diagnosis of pSDB going to change my Tx plan?

70

It's not!

71

I'm going to treat the patient *the same way* regardless of a diagnosis of SDB.

72

I'm not treating SDB...

73

I'm normalizing anatomy!

74

- **A formal diagnosis of pSDB is not needed for a dentist to begin normalizing aberrant craniofacial G&D.**

75

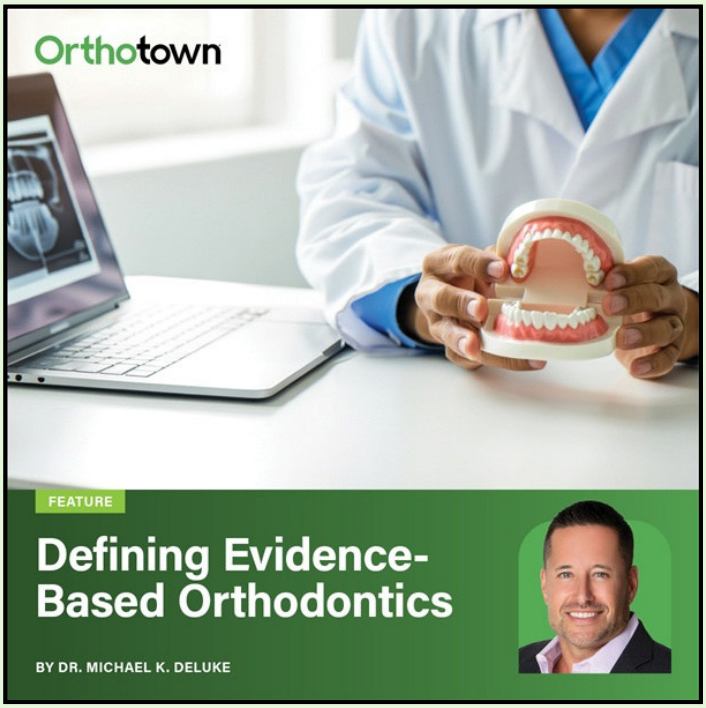
Common Misunderstanding

- **Early, interceptive orthodontic and dentofacial orthopedic treatment is not "evidence-based."**

76

What is Evidence-Based Medicine (Orthodontics)?

77



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Evidence based medicine: what it is and what it isn't

It's about integrating individual clinical expertise and the best external evidence

Sackett, Rosenberg, Gray, Haynes, Richardson BMJ VOLUME 312 13 JANUARY 1996

- EBM is NOT restricted to *randomized trials* and *meta-analyses*.
- If no RCT has been carried out for our patient's predicament, we must follow the trail to the next best external evidence and work from there.
- Without clinical expertise, practice risks becoming tyrannized by evidence.
- For even excellent external evidence may be inapplicable to or inappropriate for an *individual patient*.
- It requires a bottom-up approach that integrates…

79

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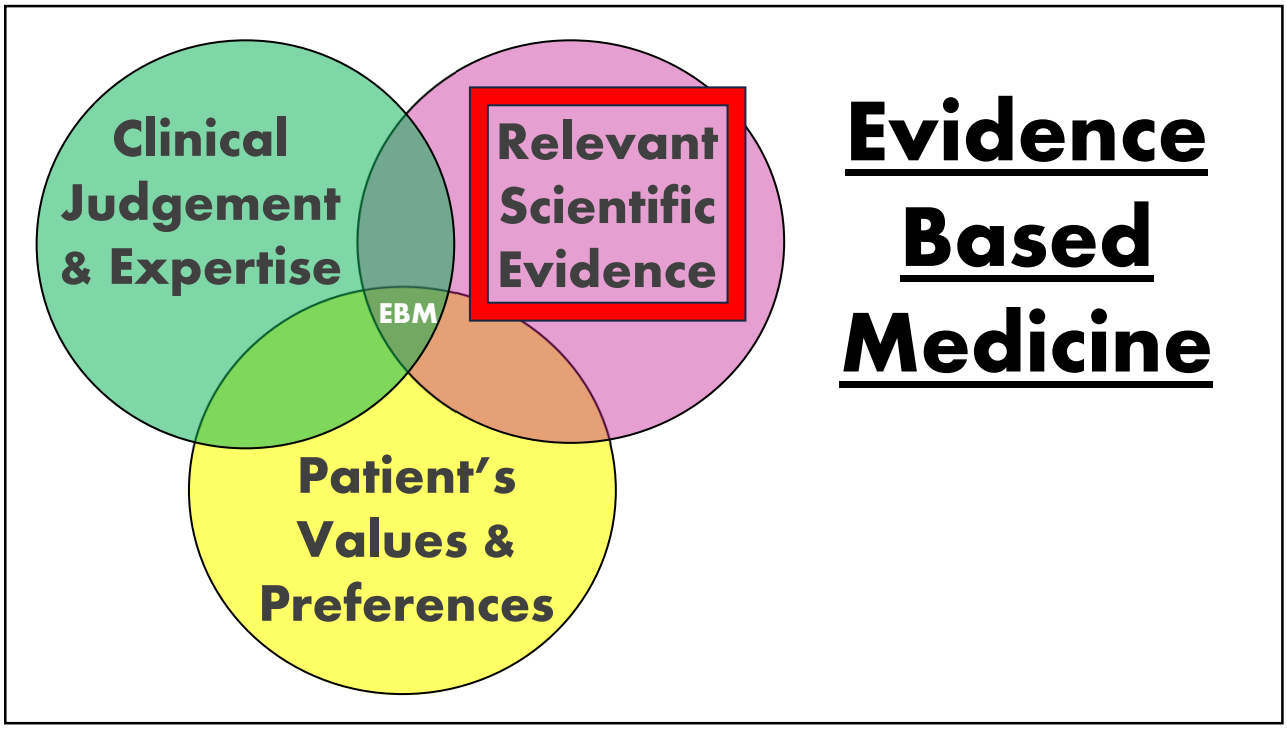
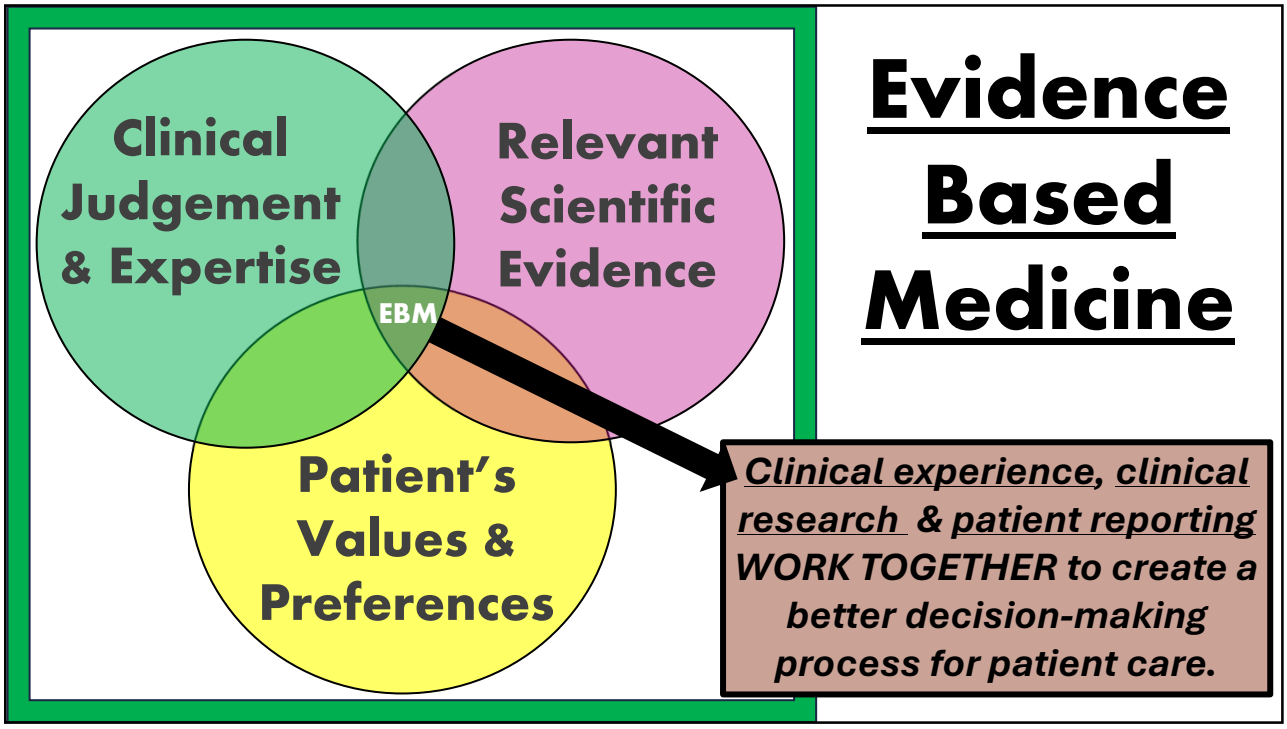
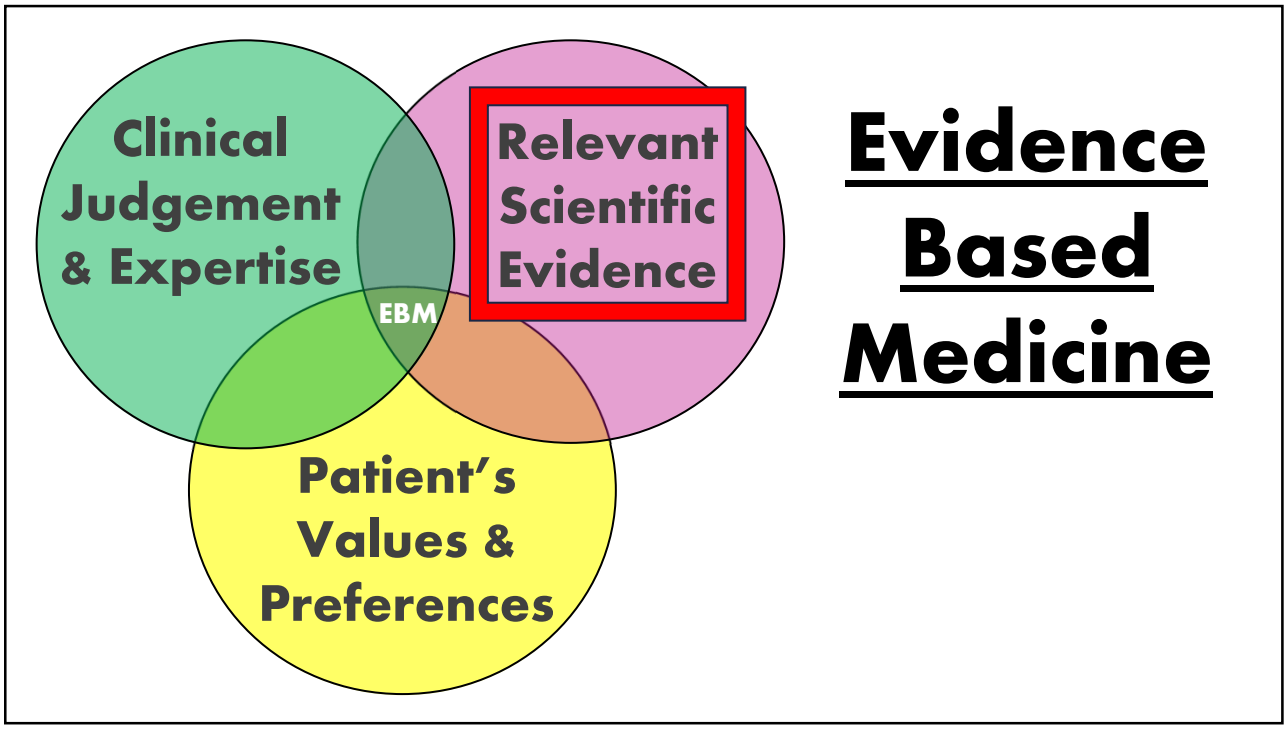

Clinical Judgement & Expertise
Relevant Scientific Evidence
EBM
Patient's Values & Preferences
Evidence Based Medicine

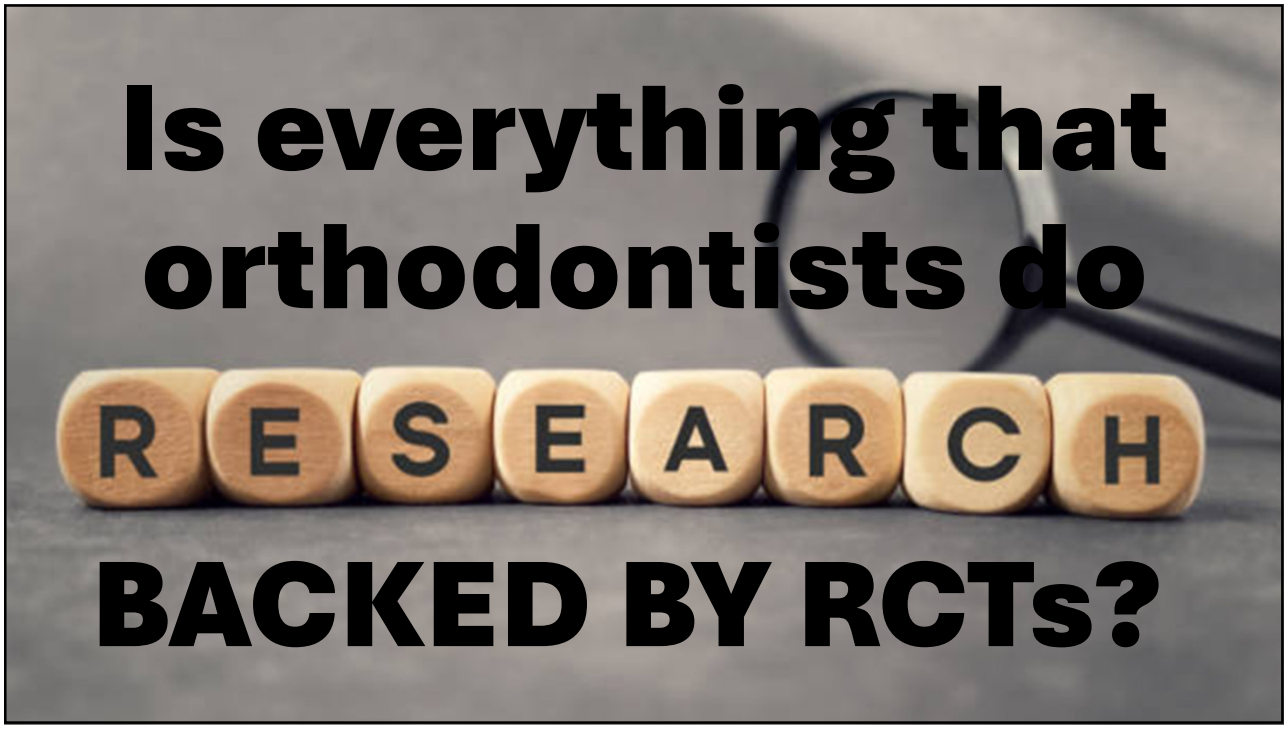
81


Clinical Judgement & Expertise
Relevant Scientific Evidence
EBM
Patient's Values & Preferences
Evidence Based Medicine
Clinical experience, clinical research & patient reporting WORK TOGETHER to create a better decision-making process for patient care.

82


Clinical Judgement & Expertise
Relevant Scientific Evidence
EBM
Patient's Values & Preferences
Evidence Based Medicine

83


Is everything that orthodontists do
RESEARCH
BACKED BY RCTs?

84

- Establishment of Class I occlusion?
- Cephalometric measurements?
- Age to initiate treatment?
- Interproximal reduction (IPR)?
- Bracket Rx?
- Self-ligating brackets?
- Archwire size/sequence?
- Clear aligners pre-2015?

85

86

Most of what orthodontists do daily is not supported by high-quality RCTs or meta-analyses.

87

Why is early, airway-focused treatment held to a different standard?

88

- **Early, interceptive orthodontic and dentofacial orthopedic treatment is absolutely evidence-based.**

89

Common Misunderstanding

- **Orthodontic extraction of premolar teeth has no impact on airway.**

90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"Evidence on the effect of extractions on oral cavity dimensions is mixed, with no evidence to support a causal relationship between extractions and the development of SDB." [52]

Extraction of premolars in orthodontic treatment does not negatively affect upper airway volume and minimum cross-sectional area: a systematic review with meta-analysis [52]

European Journal of Orthodontics, 2025, **47**, cjaf012
https://doi.org/10.1093/ejo/cjaf012

Spyridon N. Papageorgiou[1,*], Maria Zyli[2], Alexandra K. Papadopoulou[2,3]

- **This article uses CBCT imaging to evaluate pharyngeal airway volume and cross-sectional area.**
- **The AJODO authors say, *"Imaging of the upper airway using CBCT or lateral cephalograms has no diagnostic value for SDB risk assessment or diagnosis."***

91


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"After a review of extensive epidemiologic assessments, it is concluded that no substantive evidence supports a causal relationship between orthodontic extractions and airway obstruction." [53]

Evidence Supports No Relationship between Obstructive Sleep Apnea and Premolar Extraction: An Electronic Health Records Review [53]

Ann J. Larsen, DDS, MS[1]; D. Brad Rindal, DDS[2]; John P. Hatch, PhD[1]; Sheryl Kane, BS[2]; Stephen E. Asche, MA[2]; Chris Carvalho, BS[3]; John Rugh, PhD[1]

Journal of Clinical Sleep Medicine, Vol. 11, No. 12, 2015

- **Many cite this article as proof that extraction of PMs for orthodontic purposes does NOT impact airway.**

92

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Journal of Clinical Sleep Medicine, Vol. 11, No. 12, 2015

- **Looked at a sample of 5,584 patients**
- **Conclusion:**
  - ***"The absence of four premolars (one from each quadrant), and therefore a presumed indicator of past extraction orthodontic treatment, is not supported as a significant factor in the cause of OSA."***

93

53

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94

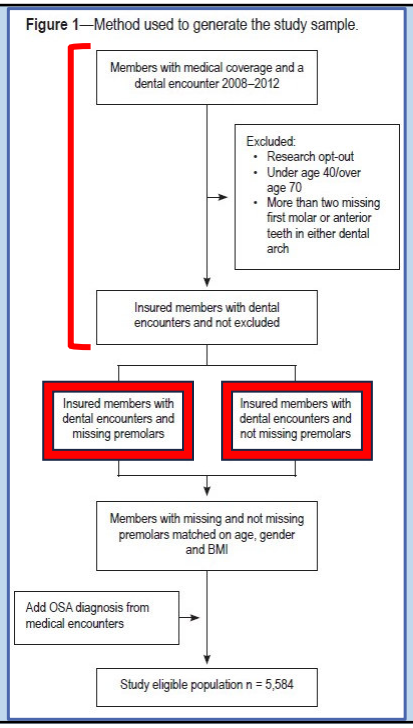
Larsen Article

It's a retrospective study, not a RCT.

History of previous orthodontic treatment was NOT part of the inclusion criteria!

No confirmation that missing PMs was due to orthodontic treatment!

No evaluation of imaging, mechanics, incisor retraction, tongue space changes, etc. between the two groups of subjects.



95

96

97

Extractions don't CAUSE the airway problem...

98

...they
IGNORE IT

99

The etiology of crowding is almost never "big teeth."

100

It's small jaws!

101

- **Orthodontic extraction of premolar teeth treats the symptom and ignores the underlying etiology.**

102

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104

105

106

Dentofacial Orthopedics

We can help normalize craniofacial G&D at an early age!

107

108


THANK YOU!

109


THE DOC PODCAST
WITH
DR. MIKE DELUKE
DDS,MDS
YouTube
@TheOrthoCoach

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Official Learner+ Champion
SEC 2026 Sleep Education Consortium
Sleep Education Consortium (SEC) partners with Learner+, a clinician-centric reflective learning platform that rewards CME/CE credits to busy clinicians anytime and anywhere learning happens. Learn more about how you can reflect to unlock credits below. View CME Credit Info
REFLECT NOW
https://champions.learner.plus/sec/
Mouth breathing in children while asleep
What inspired you to reflect?
Pick the context and a clinically relevant concept or phrase that inspired you to reflect.
Reflective Learning Moment
Mouth breathing in children while asleep
Step 1 of 4
Next

111