

Pediatric and Adolescent Migraine

Ten things to know



Sad to say, but in the “nation of migraine” child and adolescent migraineurs too often are relegated to the status of second class citizens. For years, medical conferences involving headache have devoted little time to pediatric and adolescent migraine, and the medical literature similarly focuses primarily on the adult migraine population. Clinical research studies intended to evaluate new therapies for migraine typically exclude the pediatric and adolescent population, and, not surprisingly, few of the therapies

available for migraine prevention and acute migraine treatment have FDA approval for that population.

This is regrettable. As is emphasized in this article, migraine is quite common in children and adolescents, and migraine’s impact on their quality of life - their school performance, their social development, their day-to-day happiness - represents a major public health problem.

In Washington, DC we are fortunate to have immediately at hand one of

the nation’s outstanding hospitals for children, Children’s National, and fortunate for the child and adolescent migraine population of our region there is within the Children’s National Health System a superb headache center devoted to meeting their particular needs.

What follows here is an introduction to pediatric and adolescent migraine authored by Dr. Raquel Langdon on behalf of that center’s gifted “headache team”.

1. Pediatric Migraine is Common

Many adults and parents may not realize that migraine headache can also occur in children and teens. In fact, the prevalence of migraine has been reported to rise from about 3% in children ages 3-7 years up to as high as 28% in those age 15-25 years (interestingly, prior to puberty males tend to be more affected by migraine, whereas after puberty there occurs and persists the familiar female preponderance). Unfortunately, despite the high frequency of migraine in children, the disorder often remains undiagnosed and inadequately treated.

2. Pediatric Migraine is NOT Adult Migraine

Children who experience migraine may not exhibit the “classic” migraine headache symptoms seen in adults. For example, children with migraine may describe a headache of shorter duration (as short as 30 minutes). The headache is often bilateral and frontal in location. Headache severity and other symptoms of migraine in children often can best be evaluated by their impact on behavior and daily activities. While children may not be able to express that they have

light sensitivity or noise sensitivity accompanying their headaches, they may avoid activities like watching TV, playing with overly bright computer/video games, or ask for the volume of music to be turned down. These types of observations can serve as helpful clues that a child may be experiencing a migraine type headache. The ability to accurately identify migraine in children is important. Without an accurate diagnosis, there can be no specific management strategy.

3. Migraine May Present Quite Differently Early in Childhood

Migraine may become symptomatic quite early in life, but the symptoms may be very different from those of adult migraine. Did you know that an infant's colic may be an early manifestation of migraine? "Colic" is defined as excessive crying in otherwise healthy, normal infants, and recent research suggests a link between infantile colic and the subsequent development of migraine. Mothers with migraine are twice as likely to have an infant with colic (not a great situation for new mothers already coping with migraine!). Similar to the colic:migraine link, there are several periodic syndromes occurring early in childhood that have been found to be associated with migraine. These syndromes include benign paroxysmal torticollis, benign positional vertigo of childhood (BPVC), abdominal migraine, and cyclic vomiting syndrome (see table). Children with these conditions often have a family history of migraine, and ultimately may go on to develop migraine headaches later in childhood or as adults.

4. How is Pediatric Migraine Evaluated?

Children and teens who are experiencing frequent and disabling headaches may benefit from establishing care with a pediatric headache specialist. The headache specialist will record a detailed history of the headache and pain symptoms, focusing on how and to what degree the headache disorder affects the child's life and daily functioning. The specialist may ask the parent to complete a headache symptom

Periodic Syndromes of Childhood	Clinical Features
Benign Paroxysmal Torticollis	<ul style="list-style-type: none"> • Recurrent episodes of head tilt to one side, which remit spontaneously • Onset in infants within the first year • Associated with pallor, malaise, irritability, vomiting, or ataxia • Symptom free between attacks
Benign Positional Vertigo of Childhood (BPVC)	<ul style="list-style-type: none"> • Vertigo occurring without warning, maximal at onset, with spontaneous resolution and without loss of consciousness • Typical onset age 2-5 years • Associated with nystagmus, ataxia, vomiting, pallor, fearfulness • Normal neuro exam, audiometric, and vestibular functions between attacks
Abdominal Migraine	<ul style="list-style-type: none"> • Moderate or severe intensity abdominal pain that is midline, periumbilical, or poorly localized • Dull or sore pain quality • Duration 2-72h • Associated with vasomotor symptoms, nausea, vomiting • Symptom free between attacks
Cyclic Vomiting Syndrome	<ul style="list-style-type: none"> • Recurrent episodic attacks of intense nausea/vomiting • Average age of onset 5 years • Duration >1h to 10 days, attacks occur >1 week apart • Occur in a predictable pattern, stereotyped • Associated with pallor, lethargy • Symptom free between attacks

questionnaire or utilize a pediatric migraine disability assessment scale such as the PedMIDAS to help assist with objectively measuring migraine's impact on the child's quality of life. In young children who may have difficulty describing their migraine headache pain and associated symptoms, studies have shown that use of headache drawings can help (the child is asked to draw a picture of "me having a headache"). The pediatric headache specialist will review the child's birth history, developmental milestones, medical history, and family history and then perform a comprehensive neurologic examination. Through this process of history taking and examination, the specialist can accurately diagnose a child's specific headache disorder and screen for any concerning features ("red flags") that might warrant neuroimaging or other further testing. That said, healthy children with normal neurologic examinations and without "red flag" symptoms generally do NOT require a brain scan or any other advanced testing.

What they do require is adequate treatment.

5. Comprehensive Treatment Plans Are Essential for Children with Migraine

Once migraine has been diagnosed, all children and teens should have a comprehensive but easily understood management plan providing guidance as to what they should do if they experience a headache. Having a clearly written treatment plan can assist them in more effectively managing their migraine symptoms during daily activities at home or at school.

The Pediatric Migraine Action Plan (PedMAP) is an example of such a plan and can be [downloaded](#).

6. Healthy Daily Lifestyle Habits Are the Foundation for Managing Headaches in Children

There are many strategies available to help manage childhood migraine more effectively, but the foundation of any strategy involves adopting healthy daily habits known to assist in minimizing the migraine burden. These include:

- **Practice good sleep hygiene:** the [National Sleep Foundation guidelines](#) are a great resource for appropriate sleep duration in children based on age. It is also important for children to follow a consistent sleep schedule both during the week and on weekends/holidays. Read on for some helpful tips for good sleep hygiene!
- **Maintain adequate hydration:** a child's daily fluid goal is based on weight (a general rule of thumb is to drink your weight in fluids daily).
- **Eat healthfully:** aim for 3 well-balanced and regularly-spaced meals, with snacks in between to prevent prolonged states of fasting which may trigger or exacerbate headache pain.
- **Avoid migraine triggers:** some (but not all) children may have identifiable triggers which can precipitate a migraine attack. Examples of migraine triggers may include stimuli as varied as weather changes, strong odors (eg, perfumes or scented markers), or certain foods (egs., caffeine, artificial sweeteners, nitrates).
- **Exercise:** ideally, children and adolescents should engage in aerobic exercise (enough to increase heart rate and build a sweat) at least four times per week for 60 minutes. Regular exercise is also a great way to help manage the stress and anxiety commonly experienced by children and adolescents with migraine.

These are evidence-based guidelines and not just well-intended but fuzzy "good tips for good health". In the placebo-controlled Childhood and Adolescent Migraine Prevention (CHAMP) study, over 60% of young migraineurs who drank at least 64 ounces of non-caffeinated fluids per day, achieved 8-10 hours of

sleep per night according to a regular sleep schedule, ate 3 healthy meals per day, and exercised at least four times per week for 60 minutes per session experienced a significant decline in migraine burden.

7. Sleep Disturbance Can Contribute to Migraine in Children

Disruptions in sleep may both trigger acute migraine episodes and lend to an increase in overall migraine burden. Migraine itself may contribute to disrupted sleep: children and adolescents with a history of migraine sleep for fewer hours and have a lower quality of sleep than non-migraineurs. They are also more likely to awaken early and have daytime fatigue when compared to their peers.

Teens are especially vulnerable to sleep deprivation. In a large cross-sectional observational study of US high school students with migraine published in 2019, only 12-13% of students achieved at least 8 hours of sleep on an average school night.

A summary of good sleep hygiene practices

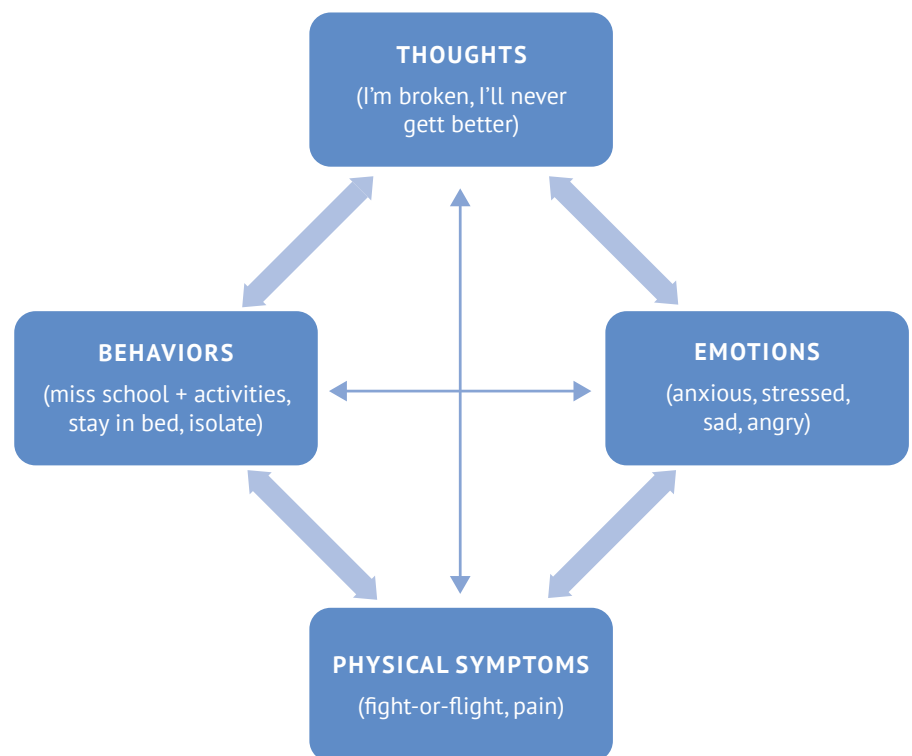
for children and teens with migraine is outlined below:

Sleep Hygiene Tips for Youth with Migraine:

- Keeping a regular sleep schedule is important for your health
- Stick with a set bedtime and wake-up time during the week and on weekends/holidays. Do not vary this time by more than 2 hours (try to avoid too much or too little sleep!)
- Avoid daytime napping, as this may disrupt your nighttime sleep schedule
- Avoid caffeine use
- Avoid screen use within 30-60 minutes of bedtime
- Avoid eating/drinking large quantities within 1 hour of bedtime
- Use your bed for bedtime and sleeping only (i.e., no playing, reading, schoolwork, cell phone, TV, screen use, or other awake activities in bed)

8. Pain-focused Cognitive Behavioral Therapy (CBT) Can Help Pediatric Migraine

Research has shown that pain-focused cognitive behavioral therapy (PF-CBT)



is an effective tool to help children manage migraine.

PF-CBT is a scientifically supported treatment for chronic pain, chronic illness, injury, anxiety, and depression. PF-CBT encompasses a holistic approach to managing pain and illness by helping to treat the situation (or stressors) that cause pain, and by teaching youth skills and techniques to help cope with pain after it starts.

CBT focuses on the relationship between the following:

- Thoughts: what you think about and how it relates to pain
- Feelings: emotions + physical symptoms
- Behaviors: how you act or respond to pain

For example, the thought, “I’m always going to be in pain, I’ll never get better” might cause emotions of sadness, hopelessness, and fear. Emotions can then influence how we feel physically. For example, stomach “butterflies,” nausea,

Sympathize... but nurture a positive attitude

and headaches may be common physical symptoms of stress and anxiety. Stress and anxiety, which many children experience with being sick or living with pain, may then cause and worsen physical symptoms, like migraine. These thoughts, negative emotions, and physical symptoms may make it harder for children to engage in healthy habits such as staying active, socially connected, or even attending school, which can also impact the experience of pain over the long-term. To participate in PF-CBT, a child meets with a behavioral therapist with specialized

training in pain medicine. In meeting with a behavioral therapist, a child and family learn a variety of individualized techniques such as relaxation, meditation, biofeedback, and mindfulness training that allows them to decrease nervous system activation during painful episodes to help reduce headache, pain, and disability.

9. Migraine May Impact a Child’s Experience at School

Migraine can adversely affect academic performance, and unfortunately the school environment itself can make preventing and managing migraine episodes more challenging. The brighter lighting in classrooms or prolonged exposure to the computer screen may cause or worsen headache pain. Noise levels may be higher than what children are used to at home. Children with migraine need to maintain regular sleep, hydration, snacking, and meal schedules to help control their migraine, and to do this may be more difficult while in school. Psychosocial stress at school may trigger or aggravate migraine.

Children who experience any chronic pain, including migraine, have been shown to have increased rates of school absenteeism. Having a comprehensive migraine management plan in place (see #5 above) can reduce absenteeism.

10. Helpful Tips and Resources for Pediatric Migraine

The Do’s and Don’ts List for Managing Pediatric Migraine at Home:

- **DO** try to have a snack and hydrate with water or a sports drink at the onset of a headache
- To prevent medication overuse, **DON’T** use over-the-counter pain medications for headache >3 days/week
- **DO** still try to participate in daily activities and events despite headache pain when you can; this helps your brain learn not to respond to amplified pain signals
- **DO** try to distract yourself when you have a headache; engaging in a quiet, relaxing activity that you enjoy can

help take your mind off headache and pain symptoms

- **DON’T** ask your child about pain and avoid frequent check-ins on pain symptoms; this will focus your child’s mind more on the headache pain and can worsen the symptoms over time

Where to turn for high quality, evidence-based information and resources related to pediatric migraine:

Migraine Diary/Tracking App:

- migrainebuddy.com/

Hydration Tracking Apps:

- Waterlogged
- Plant Nanny
- iDrated
- Tummyfish
- WaterLlama

Websites:


- headachereliefguide.com/learn.php
- americanheadachesociety.org/
- americanmigrainefoundation.org/

Books:

For youth:

- The Chronic Pain & Illness Workbook for Teens, by R. Zoffness (also for children)
- Be the Boss of Your Pain: Self-Care for Kids, by Kajander & Culbert
- Imagine a Rainbow: A Child’s Guide for Soothing Pain, by B. Miles
- GrrrOUCH!: Pain is Like a Grouchy Bear, by C. Morgan

For parents:

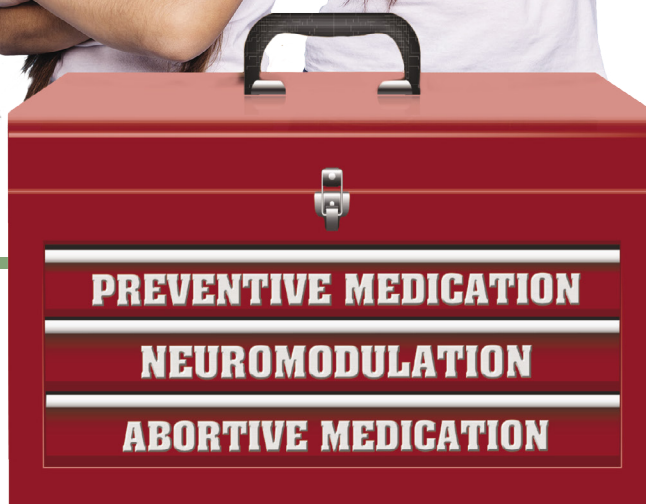
- When Your Child Hurts, by Rachel Coakley
- Pain in Children & Young Adults: The Journey Back to Normal, by Zeltzer & Zeltzer
- Conquering Your Child’s Chronic Pain, by L. Zeltzer
- Managing Your Child’s Chronic Pain, by Palermo & Law
- A Child in Pain: How to Help, What to do, by L. Kuttner 

**FDA Cleared
for use in patients 12 years
of age or older**

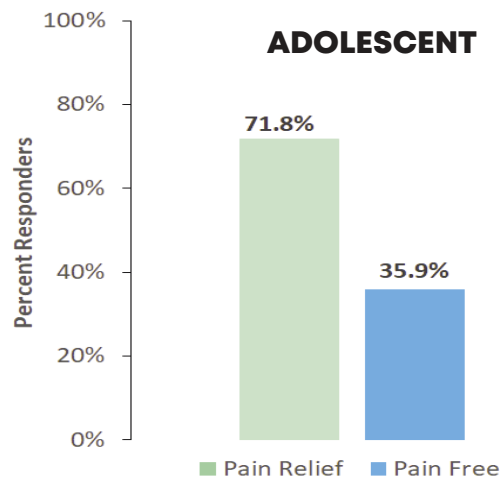
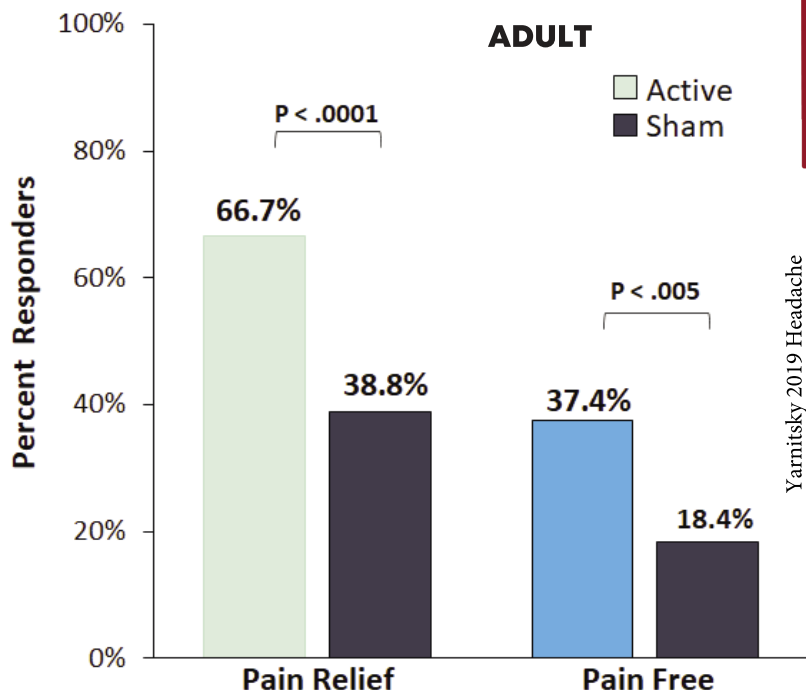
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INDICATION FOR USE: Nerivio is indicated for acute treatment of migraine with or without aura in patients 12 years of age or older. It is a prescription use, self-administered device for use in the home environment at the onset of migraine headache or aura.

IMPORTANT SAFETY INFORMATION: Nerivio should not be used by people with congestive heart failure, severe cardiac or cerebrovascular disease, or uncontrolled epilepsy. Nerivio should not be used by anyone with active implantable medical devices (e.g. pacemaker, hearing aid implant). It should only be applied on the upper arm over dry, healthy skin with normal physical sensation and without any metallic implants or in proximity to cancerous lesions. Nerivio has not been evaluated in pregnancy or those under the age of 12. For full use instructions and safety information, please see the Nerivio User Manual.

Hershey 2020 Headache

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