Top Ten Ways You Can Help Manage Pediatric and Adolescent Headache

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Disclosure:
Support from Impax Zolmitriptan clinical trial.
Support from Amgen Aimovig clinical trial.

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Objectives

- Discuss evidence based strategies for management in pediatric and adolescent primary headache disorders
- Provide steps primary care physicians can take to co-manage headache
- Discuss recommendations for referral to the Headache Program at Children's National

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Headache is Common

Migraine without aura – 20-28% of adolescents

- ICHD-II definition
- Neurol Clin. 2009; 27: 481–501

Chronic daily headache - 2-4% of adolescents

- Defined as >15 headaches per month > 3months
- Arch Pediatr. 2008 Dec;15(12):1805-14

Chronic migraine - 1% of adolescents

- Defined as >15 migraines per month > 3months
- Headache. 2011 May;51(5):693-706.

Medication overuse headache - 1.75% of adolescents

- Defined as >15 headaches per month in setting of abortive medication use > 15 days per month > 3months
- Headache. 2011 May;51(5):693-706.

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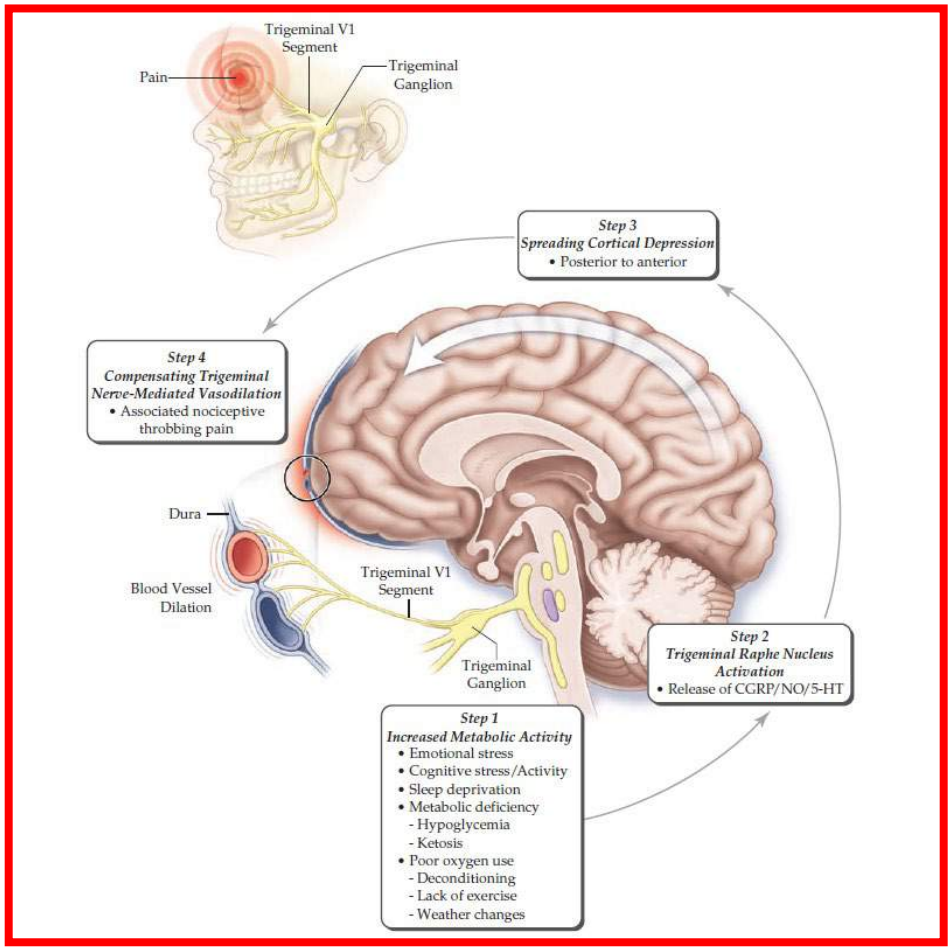
Top Ten Ways to Prevent and Treat Headache

1. Hydration
2. Exercise and Desensitize
3. Sleep
4. Eat
5. Prevent Headaches
6. Use Rescue Medications Appropriately
7. Utilize Cognitive Behavioral Therapy
8. Provide Education, Assurance, and More Education
9. Help Parents with Coping and Coaching
10. Daily School Attendance

Pathophysiology of Migraine – The Theory of the Starving Brain

DiSabella M, Langdon R. Pediatric Headache Disorders. Scientific American Neurology. April 2017



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Rule #1 - Hydrate

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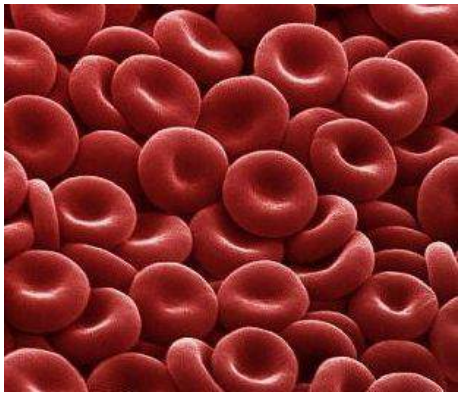
Hydration

- Goal hydration
  - Typically 60-100 oz fluids per day
  - Weight in pounds = Number of ounces (max 100oz/day)
  - Avoid caffeine and artificial sweeteners

- Etiology
  - Blood volume, cardiac output
  - “Fire hose” analogy
  - Energy crisis

- Headache associated with dehydration:
  - Ramadan fasting (Awada and al Jumah, 1999)
  - Alcohol hangover (Wiese et al., 2000)
  - Altitude sickness (Coote, 1995)
  - Heat illness (Eichner, 1998)



- Multiple randomized, placebo-controlled trials suggesting improvement in quality of life, headache frequency, and headache severity
  - European Journal of Neurology 2005, 12: 715–718
  - Family Practice 2012; 29:370–375
  - N Engl J Med 2017; 376:115-124

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Rule #2 – Exercise and Desensitize

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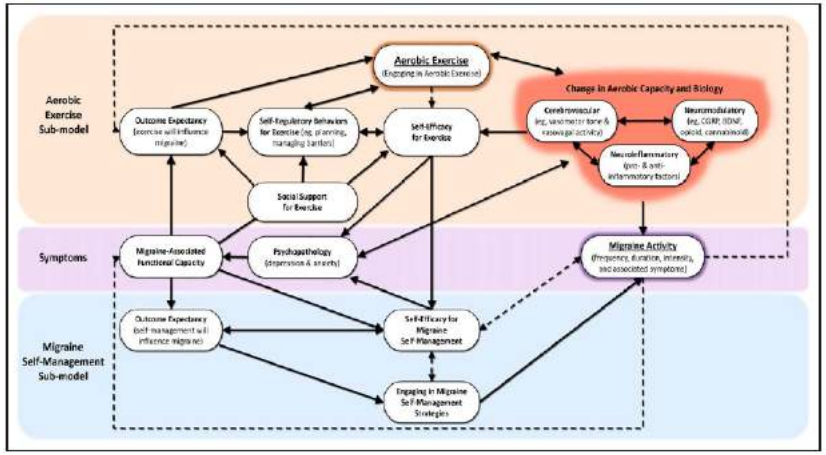
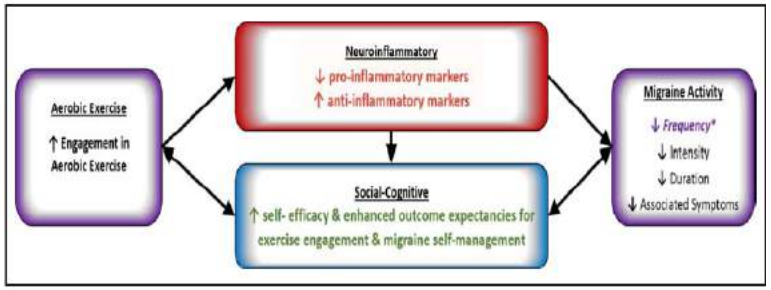
Aerobic Exercise for Reducing Migraine Burden: Mechanisms, Markers, and Models of Change Processes

Headache 2015

- Aerobic activity improves cardiac output, reduces inflammatory pathways, alters dopamine and serotonin, improves psychologic well-being and self-efficacy
- Desensitizes pain circuits, reduces allodynia
- Goal of 5-7 days per week of 30-60mins aerobic, cardiac activity
  - Breathe so fast you can't say a full sentence
  - High intensity interval training promising results, fun to do





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PT and Rehabilitative Approach to Headache

- Goal is to focus on INCREASING FUNCTIONING

- Increase activity level
  - Daily schedule/routine
  - Attend school daily
  - Avoid laying down during waking hours

- Focus on Aerobic Desentization
  - “Do What Hurts Most”

- Levine Protocol: Exercise guidelines
  - Endurance training- recumbent or semi recumbent position (recumbent bike, rowing machine, aquatic therapy), gradually work up to upright position (Goal 4-5 x/week)
  - Statistical improvement in cardiac output, quality of life, LV mass within 3 mos of regular aerobic training program
    - Fu Q, Levine BD et al. Cardiac origins of the postural orthostatic tachycardia syndrome. J Am Coll Cardiol. 2010;55:2858–2868.

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Amplified Pain Syndrome: Rehabilitation Outcomes

Clinical J Pain 1999;15(3)

- 103 children with amplified pain syndrome
- Mean duration of pain 2 months
- All received intensive exercise program lasting 14 consecutive days
  - Includes aerobic, hydrotherapy, desentization
  - No medications for pain
  - Psychologic counseling
- 92% became symptom free during treatment
  - 88% symptom free at 2 years
  - 10% fully functional with some pain at 2 years
  - 2% remained with some functional limitation at 2 years

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Rule #3 - Sleep

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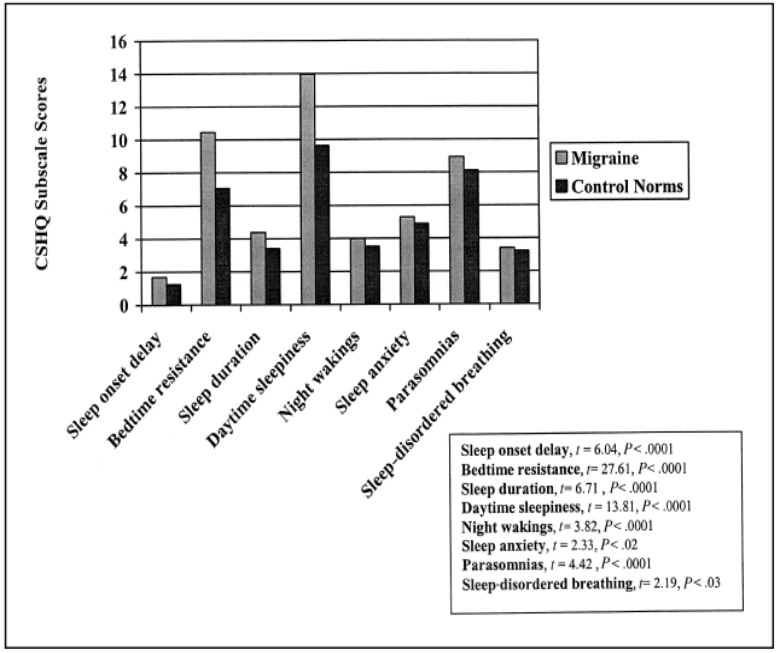
Sleep Recommendations

- Data showing migraine patients have statistically significant increase in sleep related disorders including onset, duration, awakenings, breathing (Headache 2003;43:362-368)
- Data demonstrating the bidirectional relationship between pain and sleep (Palermo, 2010)
- Sleep Goals
  - 8-12 hours per night based on American Sleep Academy, AAP



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Sleep Dos & Don'ts

DO:

- Maintain consistent sleep/wake schedule (vary weekend sleep no more than 1-2 hours)
- Use your bed ONLY for sleeping, not a place to use electronic devices
- Have a regular bedtime routine – do the same things each night to cue your body that it is time to sleep (e.g. a warm bath or shower, read for fun, etc.)
- Get regular exercise or go outside every day
- Make sure your room is at a comfortable temperature
- Keep your room quiet and dark while sleeping
- Do some relaxation exercises before bed

DO NOT:

- Exercise right before bed
- Do something exciting or stimulating right before bed (watch a suspenseful TV show, play video games, get into an intense conversation with family or friends)
- Have caffeine after lunch time
- Watch TV or use any computer devices in bed
- Use electronic devices 1 hour prior to bedtime
- Do your homework in bed
- Take naps during the day
- Lay in bed more than 30 minutes if you are not falling asleep; get up and do a relaxing activity and return to bed when you feel sleepy

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Rule #4 - Eat

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Dietary Recommendations

- Diet Goals
    - Eat at least three meals per day
    - Regular schedule with no prolonged fasts
    - Eat frequent snacks
    - High protein snacks at night
    - Cold Gatorade upon awakening
    - If no GI symptoms, minimize work up for Celiac or other GI disease
    - Screen for eating disorders
    - Focus on caloric intake rather than diet quality

- Data showing fasting headache is common in the population, likely related to vascular and metabolic effects
    - Headache 2009;49:744-752
    - Headache 1999;39:225-227

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Rule #5
Prevent headaches




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Headache Treatment Approach

DiSabella M, Langdon R. Pediatric Headache Disorders. Scientific American Neurology. April 2017

Table 2 How to Explain Migraine and a Treatment Plan to a Patient and Family
1. Discuss the criteria for migraine and specify which are fulfilled by the child's symptoms. A standardized handout may be used for this.
2. Discuss migraine pathophysiology to explain to the child and family that increased brain needs, whether due to dehydration, sleep disruptions, poor caloric intake, barometric weather fronts, emotional stress, or increased cognitive demands, result in vasodilation to the brain, which results in activation of the V1 subdivision of the trigeminal nerve, causing head pain.
3. Discuss the treatment strategy for the patient's migraine, including separate foci on lifestyle modification, behavioral strategies, abortive therapies, and preventive therapy when indicated. A standardized handout with clear delineation of each of these areas can act as a self-administered treatment plan at home.
4. Discuss the indications for diagnostic testing and whether or not the patient fulfills these. If the patient does not require testing, discuss the historical and examination findings that are reassuring and make the likelihood of more serious central nervous system pathology unlikely.
5. Provide appropriate contact information for interim support for headaches. Consider providing a specific emergency department protocol for status migrainosus.
6. Provide specific follow-up timing.

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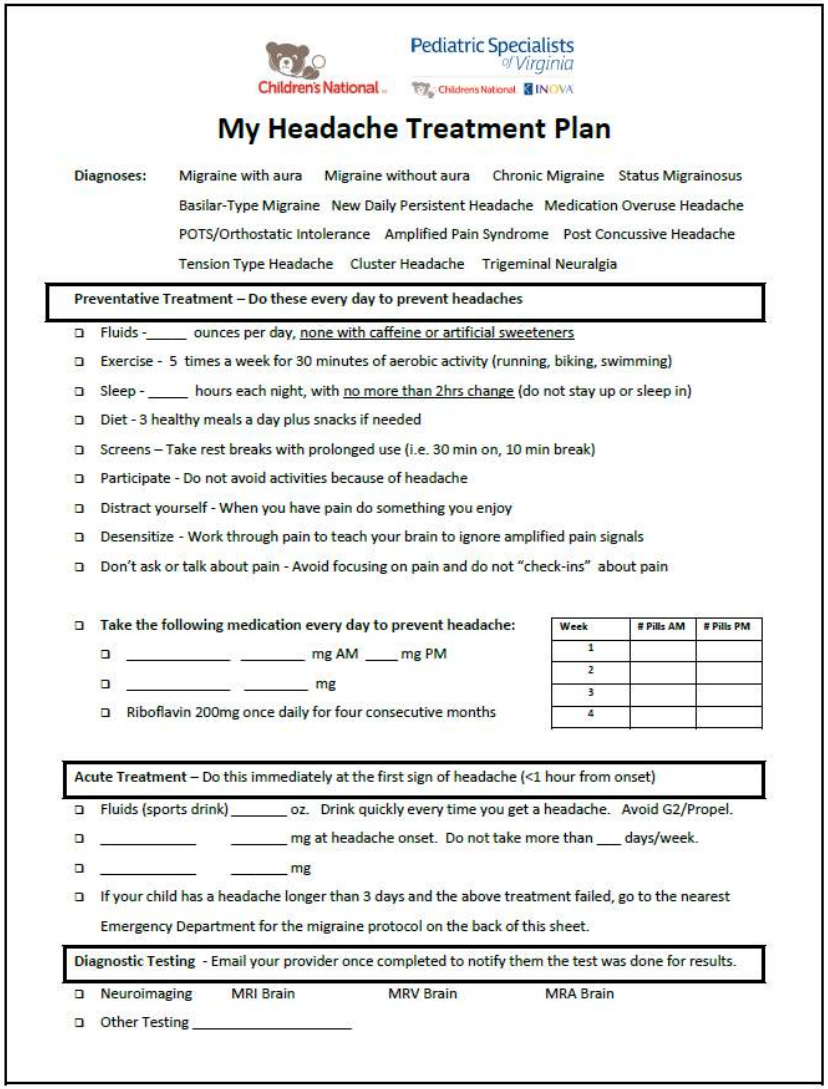
Comprehensive Headache Treatment Plan



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My Headache Treatment Plan

Diagnoses: Migraine with aura Migraine without aura Chronic Migraine Status Migrainosus
Basilar-Type Migraine New Daily Persistent Headache Medication Overuse Headache
POTS/Orthostatic Intolerance Amplified Pain Syndrome Post Concussive Headache
Tension Type Headache Cluster Headache Trigeminal Neuralgia

Preventative Treatment – Do these every day to prevent headaches

- ❑ Fluids -_____ ounces per day, none with caffeine or artificial sweeteners
- ❑ Exercise - 5 times a week for 30 minutes of aerobic activity (running, biking, swimming)
- ❑ Sleep - _____ hours each night, with no more than 2hrs change (do not stay up or sleep in)
- ❑ Diet - 3 healthy meals a day plus snacks if needed
- ❑ Screens – Take rest breaks with prolonged use (i.e. 30 min on, 10 min break)
- ❑ Participate - Do not avoid activities because of headache
- ❑ Distract yourself - When you have pain do something you enjoy
- ❑ Desensitize - Work through pain to teach your brain to ignore amplified pain signals
- ❑ Don't ask or talk about pain - Avoid focusing on pain and do not "check-ins" about pain

- ❑ **Take the following medication every day to prevent headache:**
  - ❑ _____ _____ mg AM ____ mg PM
  - ❑ _____ _____ mg
  - ❑ Riboflavin 200mg once daily for four consecutive months

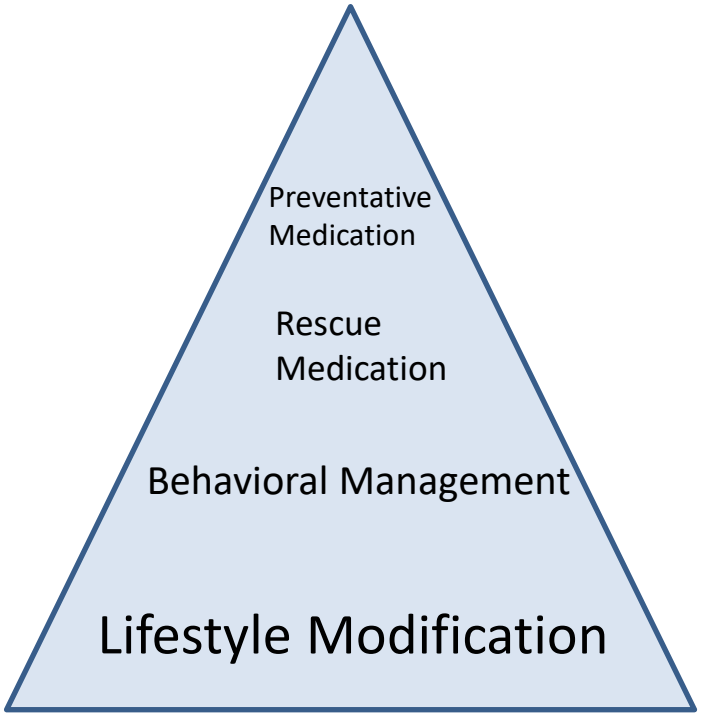
Week	# Pills AM	# Pills PM
1		
2		
3		
4		

Acute Treatment – Do this immediately at the first sign of headache (<1 hour from onset)

- ❑ Fluids (sports drink) _____ oz. Drink quickly every time you get a headache. Avoid G2/Propel.
- ❑ _____ _____ mg at headache onset. Do not take more than ___ days/week.
- ❑ _____ _____ mg
- ❑ If your child has a headache longer than 3 days and the above treatment failed, go to the nearest Emergency Department for the migraine protocol on the back of this sheet.

Diagnostic Testing - Email your provider once completed to notify them the test was done for results.

- ❑ Neuroimaging MRI Brain MRV Brain MRA Brain
- ❑ Other Testing _____



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Trial of Amitriptyline, Topiramate, and Placebo for Pediatric Migraine – CHAMP

N Engl J Med 2017; 376:115-124

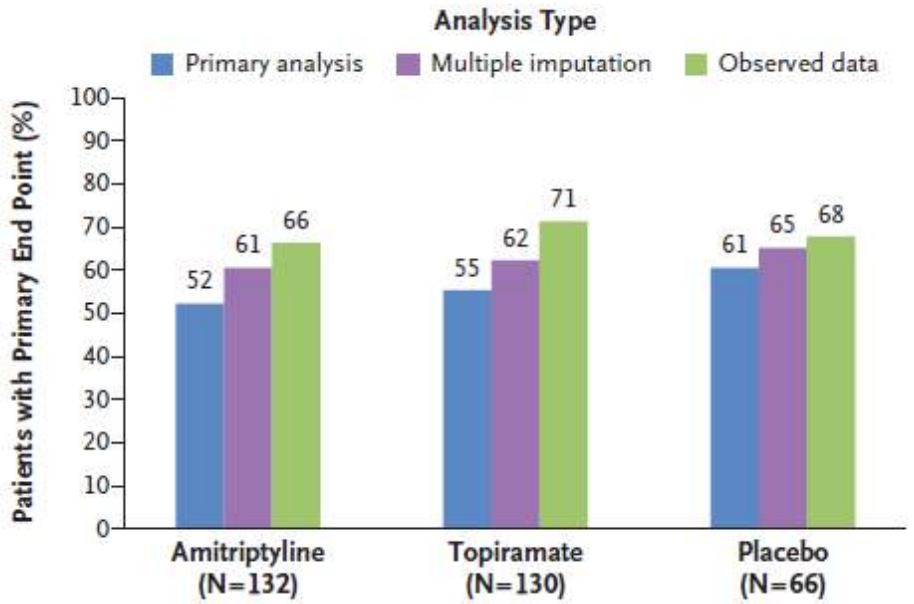

Figure 2. Patients with a Relative Reduction of 50% or More in the Number of Headache Days.

Shown is the percentage of patients with a relative reduction of 50% or more in the number of headache days in the comparison of the 4-week baseline period with the last 4 weeks of a 24-week trial (primary end point). Results are shown for the primary analysis and two a priori sensitivity analyses to assess the effect of missing data. Sample sizes for the trial groups represent the primary analysis population. For observed data, the population is the subgroup with observed data at week 24.

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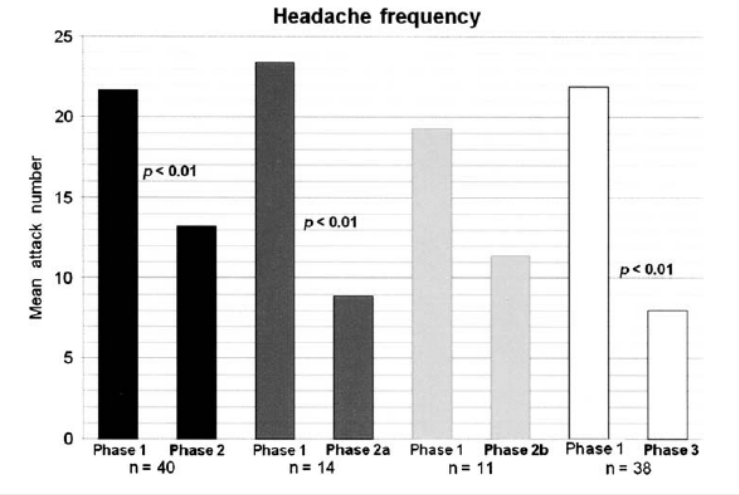
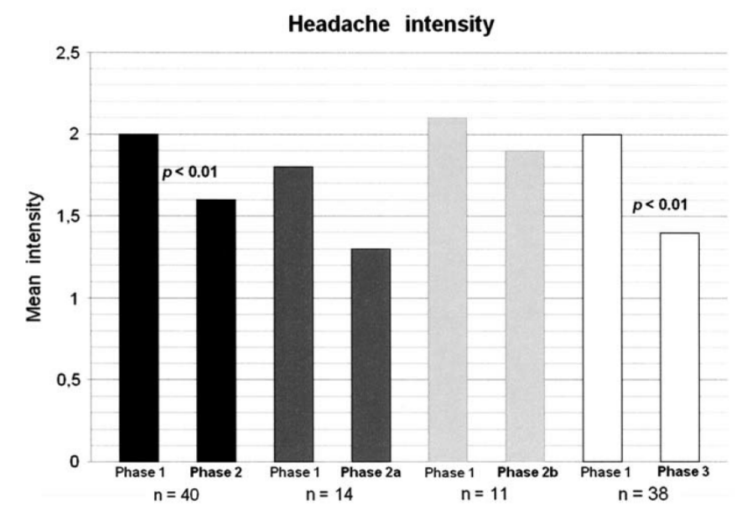
Riboflavin prophylaxis in pediatric and adolescent migraine

J Headache Pain (2009) 10:361–365





Riboflavin 200-400mg per day vs Pre-Treatment

Phase 1 – pre-washout (control)

Phase 2 - 3mos, 2a – 4mos, 2b – 6mos

Phase 3 – post-washout

Primary outcome **Headache Frequency: Reduced** 8 days (p<0.01)

Secondary outcome **Headache Intensity: Reduced** to Mild (p<0.01)

Secondary outcome **Response to Abortives: Improved** in 77%

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Rule #6
Use Rescue Medications Appropriately

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Abortive Treatment In Children

Lewis. Pediatric Migraine. Neurol Clin 2009:27;481–501

Table 2
Evidence summary for treatment of acute attacks of migraine in children and adolescents

Drug	Class	Study Design	n	Age (Years)	Primary End Point	Efficacy	Placebo Response	Clinical Impression of Effect[a]	Adverse Effects	Reference
NSAIDs and nonopiate analgesics										
Ibuprofen	II	DBPC	88	4–16	HA response	68%	37%	+++	Infrequent	45
	II	DBPC	84	6–12	HA response	76%	53%	+++	Infrequent	46
	II	DBPCCO	32	10–17	HA relief	69%	28%	+++		63
Acetaminophen	II	DBPC	88	4–16	HA response	54%	37%	++	Infrequent	45
Triptans (serotonin$_{1B/1D}$ receptor agonists)										
Nasal spray	II	OL	58	4–11	HA relief	78%	—	++	Occasional to frequent	64
Sumatriptan	III	DBPC	14	6–10	HA response	86%	43%	+++		41
Zolmitriptan	I	DBPC	510	12–17	2-hour HA response	63%–66%	53%	+++		39
	I	SB-DBPC	171	12–17	1-hour HA response	58%	43%	+++		42
Oral triptans										
Naratriptan	I	DBPC	300	12–17	4-hour HA relief	64%–72%	65%	O	Occasional	65
Rizatriptan	I	DBPC	296	12–17	2-hour pain relief	66%	56%	++	Occasional	66
	I	DBPC	96	6–17	2-hour HA relief	74%	36%			43
Sumatriptan	I	DBPC	302	12–17	2-hour pain relief	NA	NA	0	Occasional	68
Sumatriptan	II	DBPCCO	23	8–16	2 hour >50% decrease	34%	21%	0	Occasional	67
Zolmitriptan	IV	OL	38	12–17	HA improvement	88%	—	+	Occasional	69
	II	DBPCCO	32	11–17	2-hour pain relief	62%	28%	++		63
	I	DBPC	850	12–17	2-hour HA response	53%–57%	58%	0		70
Eletriptan	II	DBPC	267	12–17	2-hour HA response	57%	57%	0	Occasional	71
Almotriptan	IV	OL	15	11–17	HA reduction	85%	—	+	Occasional	72
	I	DBPC	866	12–17	2-hour pain relief	67%	55%	++		44
Sumatriptan	IV	OL	17	6–16	HA response	64%	—	+	Occasional	73
Subcutaneous	IV	OL	50	6–18	HA response	78%	—	+	Frequent 80%	74

Abbreviations: DBPC, double blind placebo-controlled; DBPCCO, double blind placebo-controlled crossover; HA, headache; IV, intravenous; NSAID, nonsteroidal anti-inflammatory drug; OL, open-label; SB, single blind.

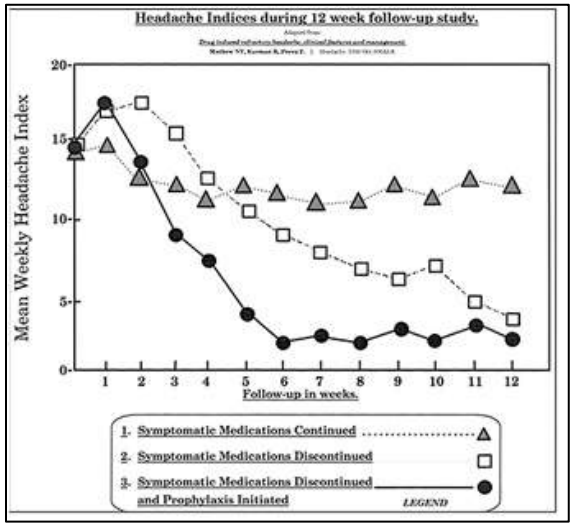
[a] Clinical impression of effect: O, ineffective: most patients get no improvement; +, somewhat effective: few patients get clinically significant improvement; ++, effective, some patients get clinically significant improvement; +++, very effective: most patients get clinically significant improvement.

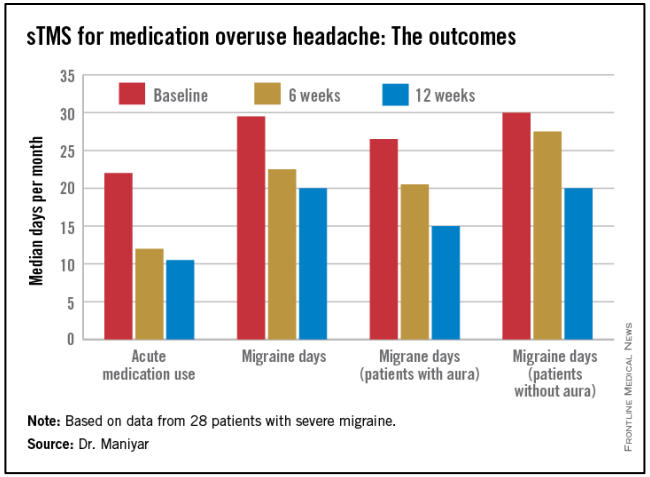
Data from Refs. [63–74]

Avoid Medication Overuse Headache

Headache: 2008;48(8):1242

- Misuse of medications/caffeine
  - NSAIDS/Analgesics ≥ 15 days/month
  - Triptans ≥ 10 days/month
- Gradual increase headache frequency
  - ≥15 headaches per month
- Low dose daily use worse than high dose
- Treatment is withdraw of medications/caffeine
  - 2 months off offending agent
- Conflicting results if preventative medications improve outcome or reduce morbidity
  - Single pulse Trans-Magnetic Stimulation





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Medication overuse headache

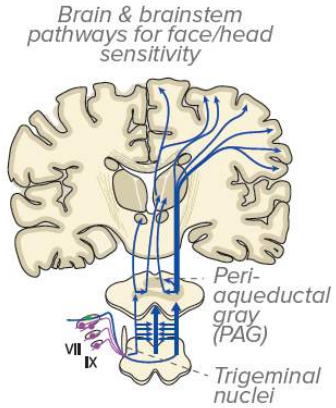
Common
Severe

@DrMingKao

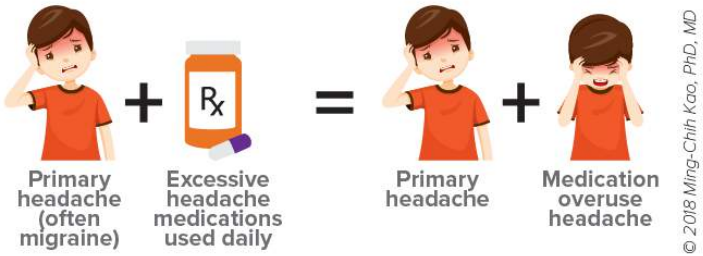
Headache medications taken too regularly can paradoxically cause a new headache, called medication overuse headache (MOH), that is constant, over & above the primary headache. The treatment is to stop the medications & treat the primary headache.

Central sensitization

Using **rescue headache medications** every day changes the balance of neurochemistry (in particular serotonin) in the brainstem, leading to **central sensitization**.



Central sensitization increases overall sensitivity in the head, leading to abnormal excitations of the brain pain pathways. This creates a nearly constant pain experience for the patient known as **medication overuse headache (MOH)**. It is also called **rebound headache**.



Patients with MOH are in particular misery because not only is the original, **primary headache** still present, there is now an overlapping **secondary MOH**.

Features

1. New headache 15+ days a month
2. Regular combined use of rescue headache medications (**triptans, opioids, butalbital, carisoprodo, acetaminophen, ibuprofen, naproxen**) more than 10 days a month for 3+ months
3. No other explanation for new headache

Treatment

1. Stop or taper off rescue headache medications
2. Optimize preventive strategy: oral medications, Botox, and/or monoclonal antibodies
3. New bridge therapies with
   - **Nerve blocks & ablations**
   - **Botox injections**
   - DHE infusion, valproate, levetiracetam infusions
4. **Pain psychology support**
5. Diagnosis & treatment of the **primary headache**

Risks

1. While stopping headache medications to treat headache seems **counter-intuitive**, studies have shown this is the only reliable way to treat MOH
2. Some medications like carisoprodol must be reduced slowed via a **gentle tapering process**
3. The **discomfort from stopping medications** is a necessary cost for treatment

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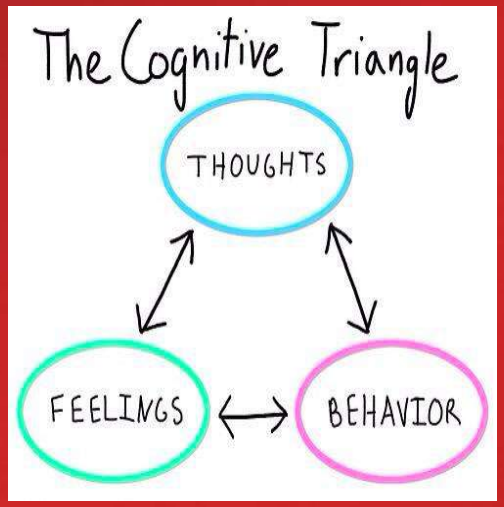
Rule #7
Utilize Cognitive Behavioral Therapy



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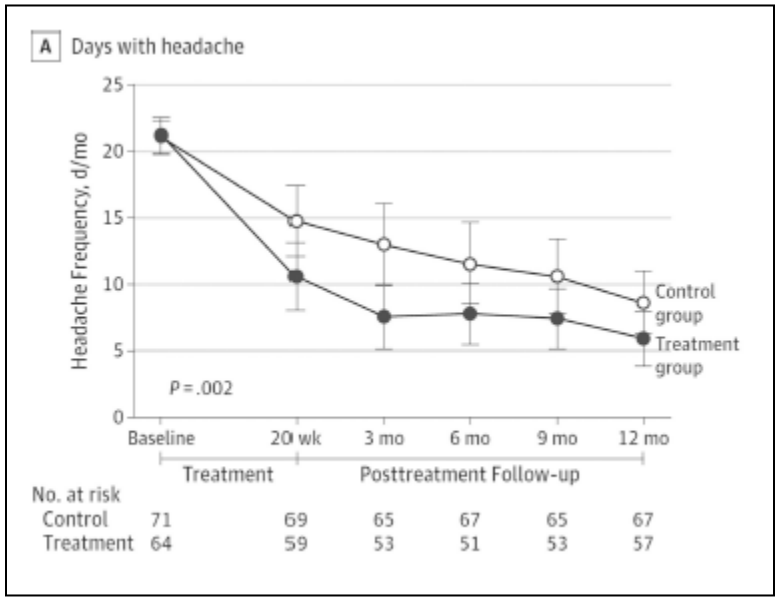
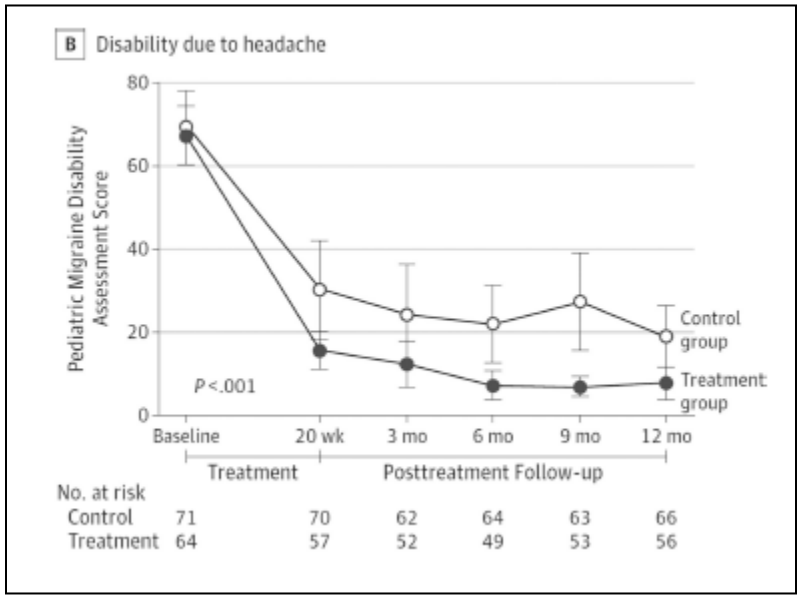
Cognitive Behavioral Therapy Plus Amitriptyline for Chronic Migraine in Children and Adolescents: A Randomized Clinical Trial

JAMA. 2013 December 25; 310(24): 2622–2630





- At the 20-week end point, **days with headache** were reduced by 11.5 for the CBT plus amitriptyline group vs 6.8 for the headache education plus amitriptyline group (difference, 4.7 [95% CI, 1.7–7.7] days; P = .002).

- The **PedMIDAS** decreased by 52.7 points for the CBT group vs 38.6 points for the headache education group (difference, 14.1 [95% CI, 3.3–24.9] points; P = .01).

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Pain-Focused CBT

- Co-occurring anxiety/depression – exacerbate Headache symptoms

- Psychoeducation about the mind-body connection (thoughts -> emotions -> behaviors)
  - Impact of stress on pain; impact of pain on stress
    Stress increases demands on nervous system
    Stress response: fight or flight
    Even unrecognized stress can impact headaches
  - Prevention of depression and avoiding anxiety cycles
- Understanding physiological responses, identify emotions, and individual stress responses

- Thoughts and behaviors effects on pain exacerbations
  - Identification of “Negative/Unhelpful Thoughts”
  - Challenging negative thoughts
    - “I will never make it through the school day with this dizziness”

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Stress & Pain

- Children/teens often have difficulty understanding the interplay between emotional and physical effects of stress
- Chronic maladaptive reactions to stress has physical and emotional effects on our bodies
- Identify headache related stressors – overtime most patients can identify some type of trend
- Learning how the mind and body are connected and how repeated stress level impacts pain is important in effectively increasing relaxation and reduce pain intensity

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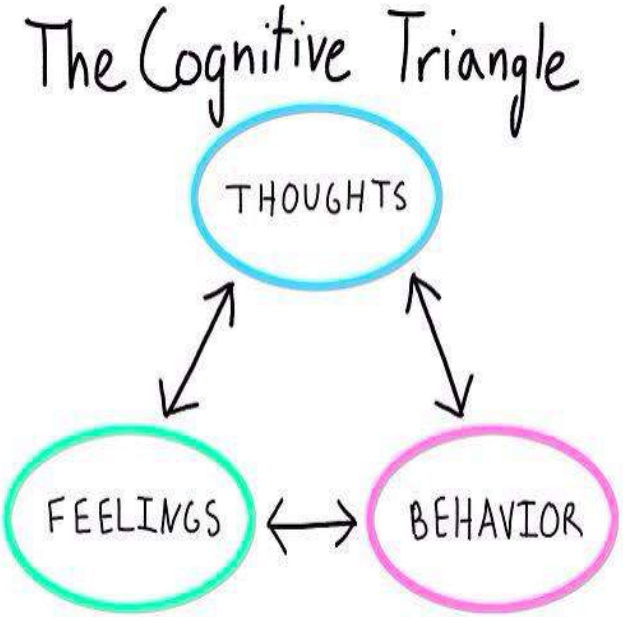
The Cognitive Triangle
THOUGHTS
FEELINGS
BEHAVIOR


What we think
"I can't cope"
How we feel
Worried, scared
What we do
Avoid

Relaxation

- Types of Relaxation Training:
  - Diaphragmatic Breathing: To reduce muscle tension and promote deep relaxation. Diaphragmatic breathing also provides a distraction from stress and pain
  - What is Deep Relaxation: A distinct physiological state that is the exact opposite of the way the body reacts under stress or during a pain flare-up.

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Relaxation Skills: Guided Imagery

- Goal: To provide distraction and relaxation from symptoms in a manner that reduces pain.
- Definition: Guided Imagery is a relaxation technique where thoughts and beliefs are purposely "redirected" by way of words on an imaginary story (visualization) to create a desired outcome or goal
- Mindfulness

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Relaxation Skills: Progressive Muscle Relaxation

- Goal: Assist in reducing muscle tension and increasing calmness and comfort in the body
  - Task: Each large muscle group will be stretched or tensed for approximately 30 seconds
    - Stretching or tensing allows the muscle to become tired and fatigued
    - When the muscle is then relaxed, the difference between being tight and tense and being more relaxed is more prominent.

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Rule #8

Provide Education, Reassurance, & More Education

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Education, Education, & Education!

- “All pain is real to the patient, regardless of whether or not there is clear origin”
- Difference between acute pain and chronic pain – use analogies
- Stress (good and bad) typically worsens any medical problems including pain
- Pain is always personal and subjective
- “The relationship between anxiety, depression, and pain is bi-directional”

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Education, Education, & Education!

- Improved functioning and coping comes first, *pain reduction is secondary*
- **Functioning typically improves before pain intensity reduction** (McGrath et al. 2004)
- **Can not wait until they feel better to resume life**
- Pain heals slowly

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Rule #9

Help Parents with Coping and Coaching

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Parent and Child Distress Effects on Pain

Pain. 2016 June ; 17(6): 729–738

- 195 patients with chronic pain (ages 8–17) and their parent(s)
- Two parental factors emerged as significant ($p < 0.05$) factors predicting worse outcomes in children
  - **Parent avoidance of activities due to fear of pain**
    - Parent Fear of Pain Questionnaire is a 21-item self reported measure to assesses parental fears and avoidance behaviors regarding their child's pain
  - **Parent protective behavior**
    - Adult Responses to Children's Symptoms is a 29-item self-report measure that assesses a parent's protectiveness, minimizing, and encouraging responses to a child's pain
- Parent distress and behavior influence child distress and functioning over time and these findings identify key parent domains to target in the context of a child's pain treatment.

Item
I avoid making plans because of my child's pain.
I cancel plans when my child is in pain.
My world has become small because of my child's pain.
My child's pain controls my life.
When my child is in pain, I stay away from other people.
When my child is in pain, I say things like 'I don't have any energy...'
I think if my child's pain gets too bad, it will never get better.
When the pain comes on strong, I think my child might become permanently injured.
When my child is in pain, I am afraid that something terrible will happen.

ARCS Item
1. Ask your child what you can do to help
2. Express irritation or frustration with your child
4. Talk to your child about something else to take your child's mind off it
8. Bring your child special treats or little gifts
9. Try not to pay attention to your child
10. Ask your child questions about how he/she feels
11. Let your child stay home from school
12. Encourage your child to do something he or she enjoys (like watch TV or play a game)
13. Tell your child that he/she doesn't have to finish all your homework
14. Tell your child there's nothing you can do about it
15. Give your child special privileges
16. Stay home from work or come home early (or stay home instead of going out or running errands)
17. Tell others in the family not to bother your child or to be especially nice to your child
18. Tell your child not to make such a fuss about it
19. Pay more attention to your child than usual
20. Let your child sleep in a special place (like in your room or on the couch)?
21. Tell your child that he/she needs to learn to be stronger
22. Let your child sleep later than usual in the morning
23. Keep your child inside the house
24. Try to involve your child in some activity
25. Spend more time than usual with your child
26. Try to make your child as comfortable as possible
28. Check on your child to see how he/she is doing

Strategies for Working with Parents

- The symptoms are real
- Focus on Functioning and Coping
  - Distract
    - Limit catastrophic thinking
  - Don’t check in repeatedly about pain

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Strategies for Working with Parents

Make Pain Less Dangerous"

Eliminate status checks – Remove focus from the pain

Modify contingencies in child's environment may influence pain & disability (e.g., school avoidance/refusal, access to electronics)

Be cautious how much concern and worry expressed in front of child – pain is frightening

Encourage child to manage pain independently

Encourage child to do similar activities before pain started, even if modified

Don't avoid going places or doing things with child out of fear of pain
Live life = Take more breaks!!

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Strategies for Working with Parents

- Secondary gain can happen as a byproduct of dependence on caregivers, reduced demands on the patient, and reduced activity

- Avoid a reinforcing environment (pt should not be allowed to sit at home and play video games)

- Provide positive attention and praise when coping with the pain (not demonstrating pain behaviors)

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Rule #10

Daily School Attendance

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SCHOOL & PAIN

- **Daily School Attendance** is critical to student's physical and emotional well-being
- Long term home bound is strongly discouraged for pain
- School should not be "optional" for recurrent headaches

•WHY??

  - Distraction
  - Lower long-term stress
  - Fits with Treatment Plan /goals
    - Increased functioning/activity
    - Remember: they have a TEAM
  - School attendance does not need to be all or nothing
    - It can be a modified day…
    - Paced school plan

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SCHOOL & PAIN

School Recommendations: 504 Plan

- Flash Pass
- Access to hydration & nutrition
- Flexible make-up time for assignments, exams, & projects
- Reduced work load/mastery of content
  - ONLY while catching up on missed work/after missing several consecutive days/weeks (limited time)
- Modify schedule to increase time spent in school
  - E.g., delayed start or early release
- More travel time between classes
- Reduce class load (if you can)

- Note: 504 Plan can be beneficial;
- can also be counter-productive

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Refer for Consultation with Children's Comprehensive Headache Team

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Urgent, Specialized Headache Care: TRUST THE EXPERTS

For urgent appointments, call **202-476-HEAD (4323)** from 8:30 a.m. to 4:00 p.m. Monday through Friday to speak with a trusted headache expert in one of the following locations:

- **Washington, DC**
  Sheikh Zayed Campus
- **Montgomery County, MD**
  Montgomery County Regional Outpatient Center
- **Anne Arundel County, MD**
  Annapolis Regional Outpatient Center
- **Prince George's County, MD**
  Laurel Regional Outpatient Center
- **Fairfax County, VA**
  Pediatric Specialists of Virginia (PSV)
  Northern Virginia Outpatient Center

MEET THE TEAM

Marc DiSabella, DO, *Director, Headache Program, Child Neurology*
Raquel Langdon, MD, *Co-Director, Headache Program, Child Neurology*
Kasey Crowder, MSN, CPNP, *Child Neurology*
Angela Fletcher, PsyD, *Behavioral Pain Medicine Psychologist*
Laura Gray, PhD, *Behavioral Pain Medicine Psychologist*
Ilana Kahn, MD, *Child Neurology*
Marian Kolodgie, MSN, CPNP, *Child Neurology*
William McClintock, MD, *Child Neurology*
Jennifer Tu, MD, PhD, *Child Neurology*

The Headache Team offers the following services to their patients and families:

- **Urgent headache appointments** – most patients can be scheduled within five business days of calling to see a headache expert and provide urgent management
- **Interdisciplinary headache evaluations** – patients with chronic debilitating headaches have the option of seeing an interdisciplinary team of experts including neurologists, behavioral pain medicine specialists, anesthesiologists, and neurosurgeons, who aim to provide a comprehensive approach to pain management
- **Headache infusions** – patients with acute exacerbation of headache disorders can be given intravenous infusions in an outpatient setting to alleviate their pain rapidly and get them back to school and activities

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111 Michigan Ave NW
Washington, DC 20010

childrensnational.org

BEST CHILDREN'S HOSPITALS U.S.News & WORLD REPORT HONOR ROLL 2017-18

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Urgent Headache Team

Children's National Health System

- 6 Attending Physicians
- 1 Nurse Practitioners
- More than 50 Urgent Access Appointments Weekly
  - Annapolis, DC, Fairfax, Frederick, Friendship Heights, Laurel, and Rockville

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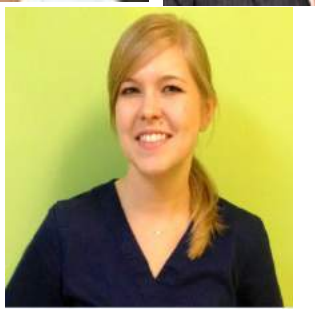
Comprehensive Headache Team

Children's National Health System





- Behavioral Pain Medicine – 1 PsyD, 1 Intern, 1 Extern, 1 Fellow
- Anesthesia/Pain Medicine - Nerve Blocks, Trigger Point Injections, Botox, Acupuncture
- Physical Therapy – 2 PTs doing desensitization, range of motion, pain de-amplification
- Neurosurgery - Occipital nerve stimulator, Neuro-interventional Procedures
- Clinical Coordinator – Urgent Appointments, Chronic Headache Multidisciplinary Appointments
- Headache Nurse – Urgent Headache Needs, Forms, Authorization
- Headache Infusion Center – 2 beds x 5 days per week, two nurses, coordinator
- Research Assistant – 3 IRB internal protocols, 2 Clinical Trials

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Conclusions

- Instruct patients on goals for hydration, exercise, sleep, and diet to help reduce headache frequency
- Consider using neutraceuticals, vitamins, or prescription medications to prevent headache
- Recommend aggressive but infrequent use of abortive therapies
- Utilize cognitive behavioral therapy to improve compliance with treatment
- Provide education and reassurance about headache plans
- Help parents with coping strategies to reduce pain behaviors and improve resiliency so children can attend school and activities regularly
- Refer to Children's National Urgent and Comprehensive Headache Program when necessary
    - Call 202-476-HEAD (4323)
    - Email headache@childrensnational.org

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