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Headache Medicine for Internists

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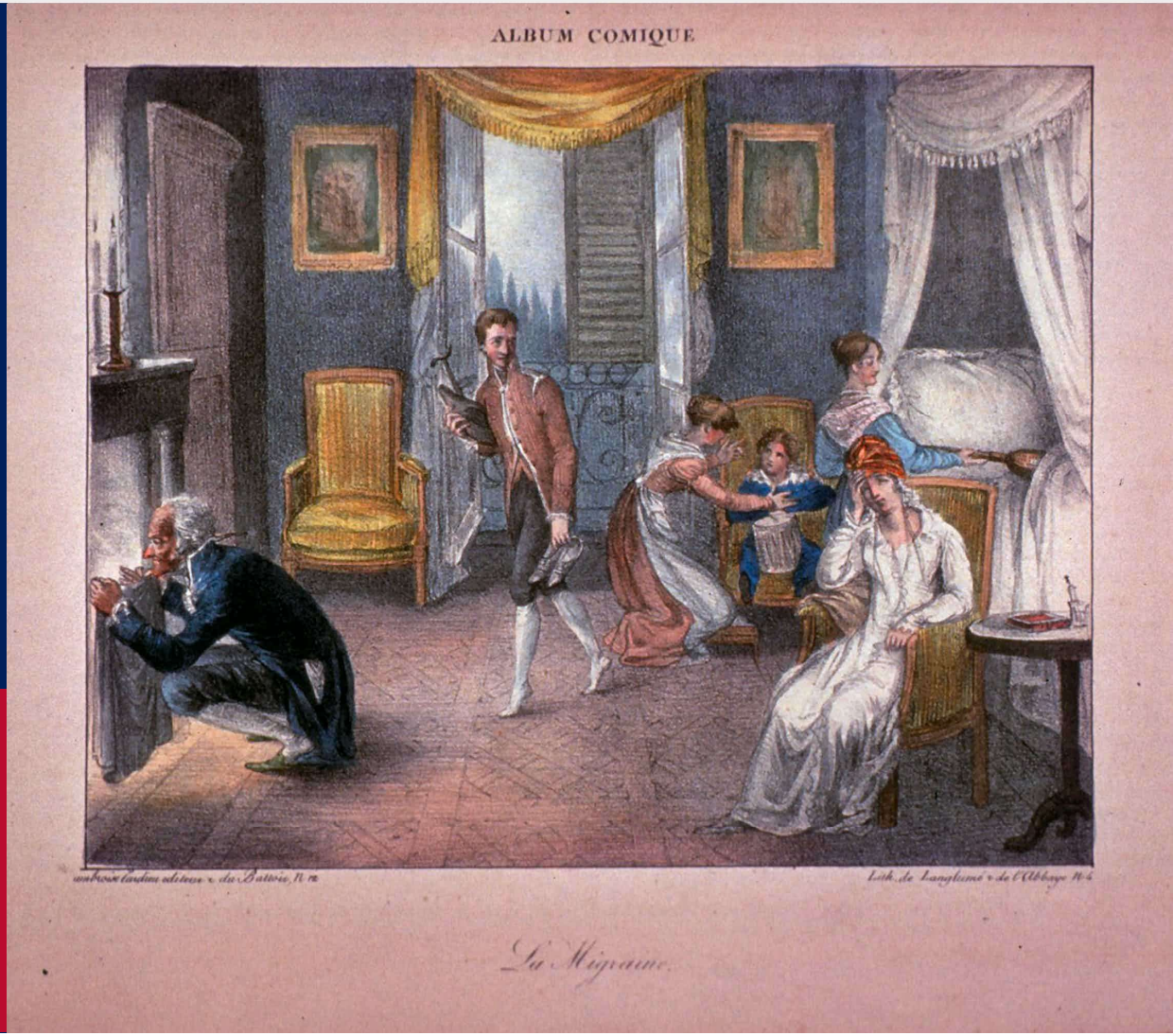

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UNITED COUNCIL FOR NEUROLOGIC SUBSPECIALTIES

December 1, 2025

Joshua A. Tobin, MD
Banner University Medical Center
755 E. McDowell Rd.
3rd Floor
Phoenix, AZ 85006
SUBJECT: Notification of Accreditation Action
PROGRAM NUMBER: HM1069

Dear Dr. Tobin:

Thank you for your Headache Medicine application for initial accreditation with the United Council for Neurologic Subspecialties (UCNS). The UCNS Accreditation Council reviewed your application at its fall 2025 meeting. Below you will find the outcome of your program's review.

Accreditation Information

Accreditation Status: Provisional Accreditation (All programs approved for UCNS initial accreditation are granted this status)
Duration of Accreditation: 3 years beginning December 1, 2025
Term of Fellowship: 12 months
Number of Fellows Approved for the Program: 2 per year
Approximate Date of Next Review: Fall 2028

Program Compliance

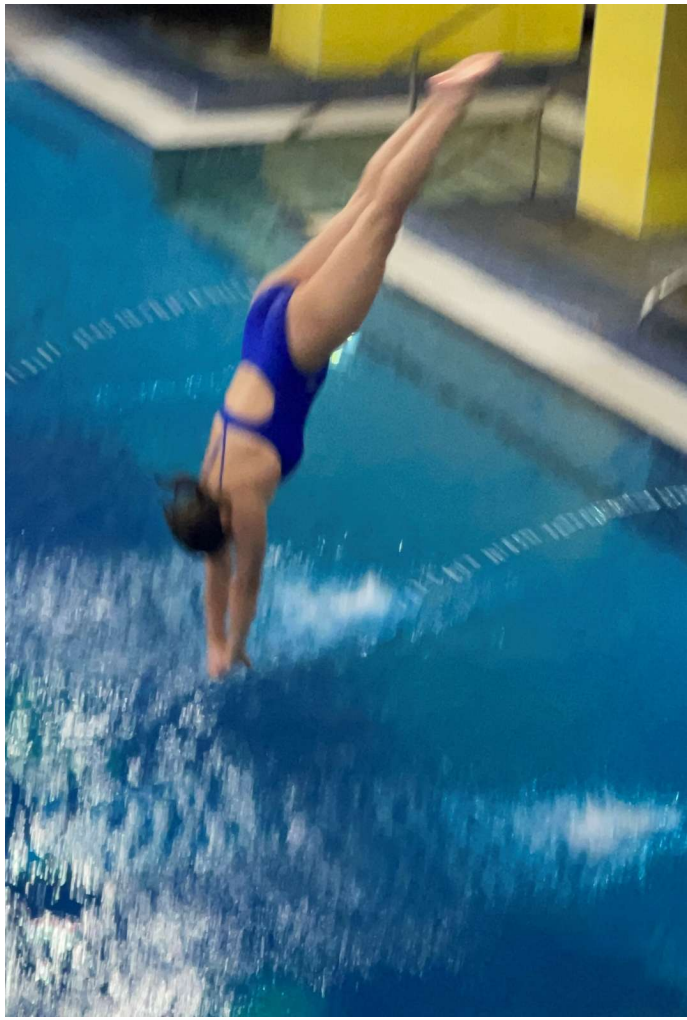
Although the Accreditation Council has granted accreditation, compliance with the following program requirement must be demonstrated in a detailed progress report. **The progress report must be received in the UCNS office by February 1, 2026.**

Disclosures

Off-label treatments

This is the first time I've given this talk to you. FEEDBACK!!!

I want you to fall in love with headache medicine.



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Why should I care about headache?

(Open Evidence searches 17 Nov 2025)

- HTN – 17% have migraine, "headache is about **twice as common** in hypertensive patients as in normotensive individuals, especially when hypertension is untreated or severe."
- Heart Disease – "headache prevalence…ranges from 14% in acute coronary syndromes to over 40% in congenital heart disease…"
  - **…rare but important presenting symptom of myocardial ischemia (cardiac cephalalgia), sometimes occurring as the sole manifestation (**https://pubmed.ncbi.nlm.nih.gov/40152017/, https://pubmed.ncbi.nlm.nih.gov/40152017/, https://pubmed.ncbi.nlm.nih.gov/38870021/ headache occurs in about **25% of patients during or after coronary intervention procedures** (https://pubmed.ncbi.nlm.nih.gov/34755556/).
- Chronic Respiratory Failure - "**25–33% of patients** with chronic respiratory failure…headache affects approximately a from COPD and sleep-disordered breathing."
- Depression – "**20.5% have migraine and 58.1% have non-migraine headache."**
- DM – headache prevalence in diabetes is **not increased and may be lower, especially for migraine**, compared to the general population.
  - hypogylcemia – known migraine trigger
  - Rats with experimentally induced diabetes have a decreased density of CGRP sensory nerve fibers.[34]
  - "could be hypothesized that arteriosclerosis of vessels present in patients with diabetes and DR[15], leads to increased stiffness[29] with reduced ability to dilate the vessels[30], which in turn will cause an inadequate response to impulses in brain vessels associated with migraine."

- Headache medicine isn't difficult, but it is time consuming, and headache people can be whiny.
- The vast majority of headaches are migrainous (or tension-esque).
- The description of the actual headache matters much more when it's a primary headache syndrome other than migraine (or tension).
- Once you have excluded serious secondary causes and other specific secondary headache syndromes, it is almost always reasonable to treat a patient's headaches as migraines (or tension).

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ICHD-3 Diagnostic Criteria for Migraine

Without Aura

A. At least five attacks fulfilling criteria B-D
B. Headache attacks lasting 4-72 hr (untreated or unsuccessfully treated)
C. Headache has at least two of the following four characteristics:
   unilateral location
   pulsating quality
   moderate or severe pain intensity
   aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
D. During headache at least one of the following:
   nausea and/or vomiting
   photophobia and phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.

With Aura

A. At least two attacks fulfilling criteria B and C
B. One or more of the following fully reversible aura symptoms:
   visual
   sensory
   speech and/or language
   motor
   brainstem
   retinal
C. At least three of the following six characteristics:
   - at least one aura symptom spreads gradually over ≥5 minutes
   - two or more aura symptoms occur in succession
   - each individual aura symptom lasts 5-60 minutes
   - at least one aura symptom is unilateral
   - at least one aura symptom is positive
   - the aura is accompanied, or followed within 60 minutes, by
   - headache
D. Not better accounted for by another ICHD-3 diagnosis.

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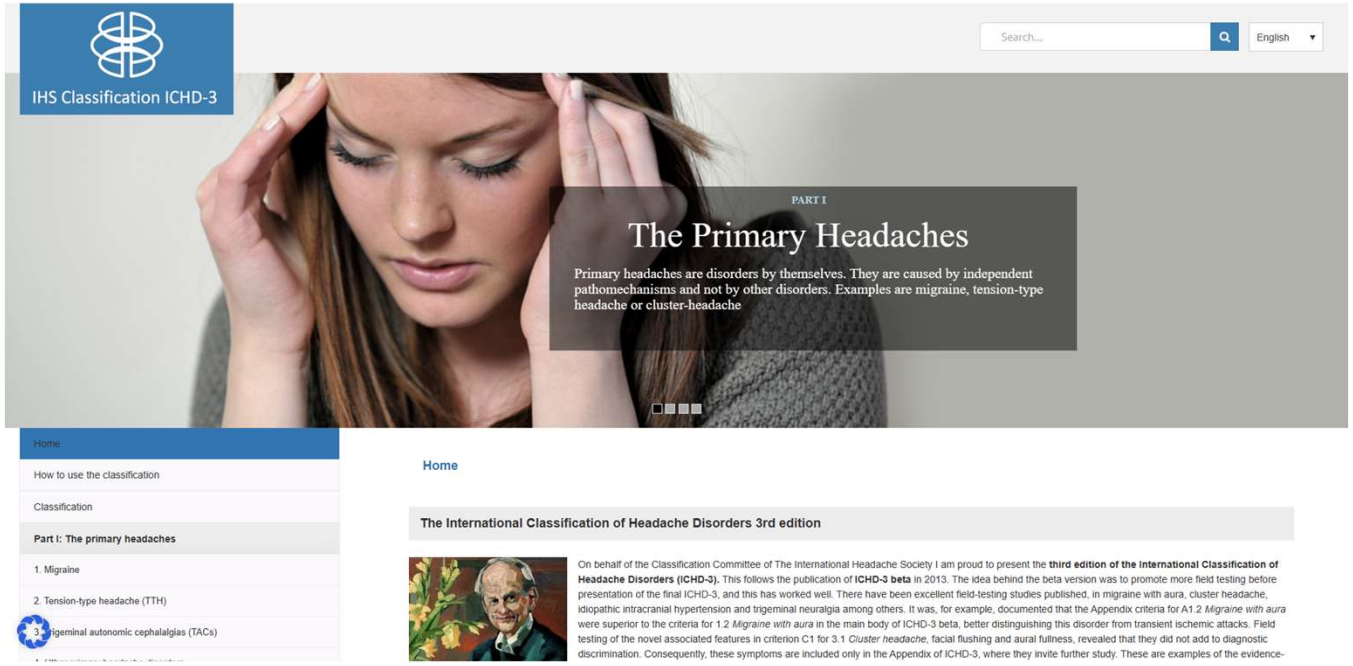
The International Classification of Headache Disorders 3rd edition

- https://ichd-3.org/



Migraine Abortives

- Take ASAP at onset, don't wait.
- Don't wait because "I left my medication at home (or in the car)."
- Don't wait "until I'm sure it's going to be a 'real' migraine."
- If they wait because "I don't like the side effects of my current abortive" then you need to explore other options

Level A	Level B	Level C	Level U	Others
Analgesic Acetaminophen 1000 mg (for non-incapacitating attacks)	**Antiemetics** *Chlorpromazine IV 12.5 mg Droperidol IV 2.75 mg *Metoclopramide IV 10 mg *Prochlorperazine IV/IM 10 mg; PR 25 mg	**Antiepileptic** Valproate IV 400-1000 mg	**NSAIDs** Celecoxib 400 mg	**Level B negative** **Other** Octreotide SC 100 μg
Ergots DHE *Nasal spray 2 mg Pulmonary inhaler 1 mg	**Ergots** DHE * IV, IM, SC 1 mg *Ergotamine/caffeine 1/100 mg	**Ergot** *Ergotamine 1-2 mg	**Others** *Lidocaine IV *Hydrocortisone IV 50 mg	**Level C negative** **Antiemetics** *Chlorpromazine IM 1 mg/kg *Granisetron IV 40-80 μg/kg
NSAIDs *Aspirin 500 mg Diclofenac 50, 100 mg Ibuprofen 200, 400 mg *Naproxen 500, 550 mg	**NSAIDs** *Flurbiprofen 100 mg Ketoprofen 100 mg Ketorolac IV/IM 30-60 mg	**NSAIDs** Phenazone 1000 mg		**NSAIDs** Ketorolac tromethamine nasal spray
Combinations *Acetaminophen/aspirin/caffeine 500/500/130 mg Sumatriptan/naproxen 85/500 mg	**Combinations** *Codeine/acetaminophen 25/400 mg Tramadol/acetaminophen 75/650 mg	**Others** *Butalbital 50 mg *Lidocaine intranasal		

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Abstract

- **Description:** The American College of Physicians (ACP) developed this guideline based on the best available evidence on the comparative benefits and harms of pharmacologic treatments of acute episodic migraine headache, patients' values and preferences, and economic evidence about these pharmacologic treatments.
- **Methods:** This **guideline is based on a systematic review and network meta-analysis of the comparative benefits and harms of pharmacologic treatments of acute episodic migraine headaches**, as well as systematic reviews of patients' values and preferences and comparative cost-effectiveness analyses. The Clinical Guidelines Committee evaluated the following clinical outcomes using the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach: pain freedom and pain relief at 2 hours; sustained pain freedom and sustained pain relief up to 48 hours; need for rescue medication within 24 hours; nausea, vomiting, and restored physical function at 2 hours; and overall and serious adverse events (AEs). Additional data on AEs were captured through U.S. Food and Drug Administration medication labels.
- **Audience and Population:** The audience for this clinical guideline is physicians and other clinicians. The population is adults with acute episodic migraine headache (defined as 1 to 14 headache days per month) managed in outpatient settings.
- **Recommendation 1:** ACP recommends that clinicians **add a triptan to a nonsteroidal anti-inflammatory drug** to treat moderate to severe acute episodic migraine headache in outpatient settings for nonpregnant adults who do not respond adequately to a nonsteroidal anti-inflammatory drug (**strong recommendation**; moderate-certainty evidence).
- **Recommendation 2:** ACP suggests that clinicians **add a triptan to acetaminophen** to treat moderate to severe acute episodic migraine headache in outpatient settings for nonpregnant adults who do not respond adequately to acetaminophen (**conditional recommendation**; low-certainty evidence).

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Triptans – 5HT 1B/1D receptor agonists

medication	dosages	Tmax (hours)	Tmax during migraine (hours)	T1/2 (hours)	route of elimination
rizatriptan	PO 5, 10	1-1.5	no change	2-3	MAO
	ODT 5, 10	1.7-2.2			
Sumatriptan	PO 25, 50, 100	2	2.5	2.5	renal (60%) > MAO
Also	SC 4, 6	.2 (12 minutes)		2	
Sumatriptan+naproxen	NS 20	1.5		2	
85/500 and 10/60 mg	NS 10 (Tosymra)	10 minutes			
zolmitriptan	PO 2.5, 5	1.5	2	3 (cimetidine doubles)	Hepatic 1A2 > MAO
	ODT 2.5, 5	3			
	NS	3			
eletriptan	PO 20, 40	1.5	2	4	Hepatic - 3A4
almotriptan	PO 6.25, 12.5	1-3		3-4	renal (75%) > MAO, hepatic
naratriptan	PO 1, 2.5	2-3	3-4	6	renal
frovatriptan	PO 2.5	2-4		26	Hepatic - 1A2

A word on Calcitonin Gene Related Peptide (CGRP)

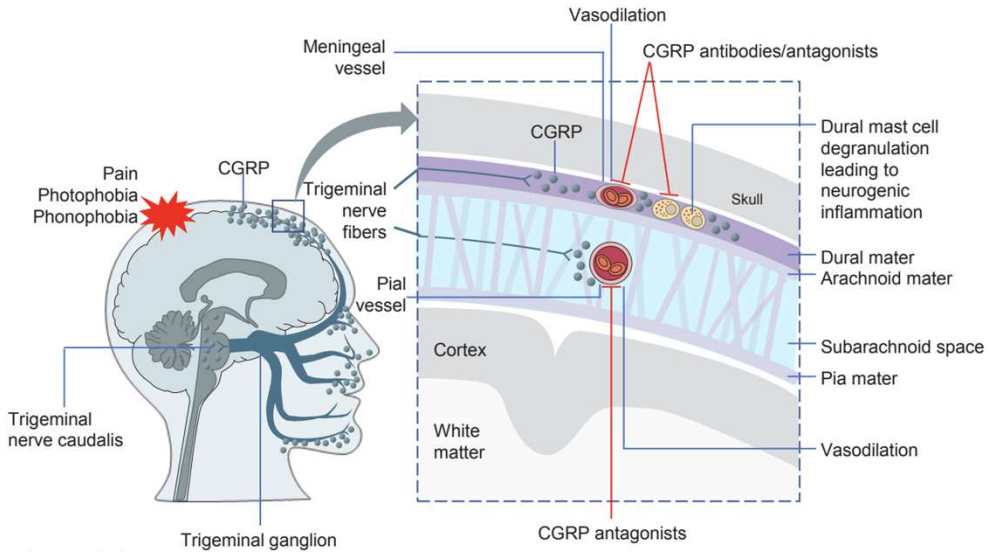

Figure 5 adapted with permission from Russell FA, et al. *Physiol Rev.* 2014;94(4):1099-1142.[22]

- GCRP is a potent vasodilator
- CGRP, released from the trigeminal ganglia, is elevated during migraine attacks
- An infusion of CGRP can induce migraine-like attacks in some people with a history of migraine
- CGRP levels return to baseline with triptan treatment

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Gepants

medication	dosage (acute)	dosage (preventive)	Tmax (hours)	T1/2 (hours)	elimination	side effects
ubrogepant	PO 50, 100, may repeat X1 in 2H	-	1.5	5-7	3A4	nausea, somnolence, dry mouth
zavegepant	NS 10 mg to one nostril X1	-	.5	6.55	3A4 > 2D6	taste disorders, nausea, nasal discomfort, vomiting
rimegepant	ODT 75 mg X1	ODT 75 mg QOD	1.5	11	3A4	nausea
atogepant	-	PO 10, 30, 60 QD	1-2	11	3A4	nausea, fatigue/somnolence, constipation, decreased apetite

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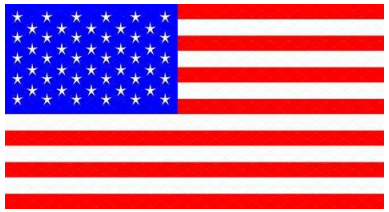
A Word on Obtaining Insurance Coverage

AHS CONSENSUS STATEMENT

The American Headache Society Consensus Statement: Update on integrating new migraine treatments into clinical practice

Jessica Ailani MD[1] | Rebecca C. Burch MD[2] | Matthew S. Robbins MD[3] | on behalf of the Board of Directors of the American Headache Society[4]



Ailani J, Burch RC, Robbins MS, American Headache Society B of Directors of the, American Headache Society the Board of Directors of the. The American Headache Society Consensus Statement: Update on integrating new migraine treatments into clinical practice. *Headache*. 2021;61(7):1021-1039.

TABLE 3 Criteria for initiating acute treatment with gepants, ditans, or neuromodulatory devices[a]

Use is appropriate when ALL the following are met:
(A) Prescribed/recommended by a licensed clinician
(B) Patient is at least 18 years of age[b]
(C) Diagnosis of ICHD-3 migraine with aura, migraine without aura, or chronic migraine
(D) Either of the following:
a. Contraindications to or inability to tolerate triptans[c]
b. Inadequate response to two or more oral triptans, as determined by EITHER of the following
(i) Validated acute treatment patient-reported outcome questionnaire (mTOQ, Migraine-ACT, PPMQ-R, FIS, PGIC)
(ii) Clinician attestation

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Moving on…

Secondary Causes of Headaches (partial list)

Hyper-alert brain, obesity, analgesic overuse, barbiturate or benzo overuse, caffeine overuse, caffeine withdrawal, smell of coffee, other smells (perfume, fresh paint, colognes, soap, hair sprays, hair gels, hair creams), nicotine, postconcussive syndrome, secondhand cigarette smoke, mold, alcohol, dehydration, being overweight, fibromyalgia, obstructive sleep apnea, central sleep apnea, insomnia, jet lag, poor sleep hygiene, sleep deprivation, sinusitis, stress, rest after stress, hormonal changes, skipping meals, monosodium glutamate, sodium nitrite, too much sleep, weather changes (especially barometric pressure drops), foods high in tyramine (aged cheese, deli meats), chocolate, bananas, MSG (found in canned stews, soya sauce, and powdered soups), citrus fruits, exercise, rest after exercise, orgasm, smoke, dust, wind, cleaning fluids, light (especially fluorescent lights), noise (especially loud noise), travel, motion, teeth grinding, poor posture, poor ergonomic workstation, magnesium deficiency, vitamin D deficiency, hypothyroidism, food allergies, Hashimoto,s thyroiditis, riboflavin deficiency, coenzyme Q10 deficiency, patent foramen ovale (???), TMJ syndrome, Chiari 1 malformation, deviated septum, mucosal contact point, occipital neuralgia, temporal arteritis, vasculitis, strokes (especially hemorrhagic), aneurysms, subarachnoid and subdural hemorrhage,tumors, venous sinus thrombosis, meningitis, pseudotumor, intracranial hypotension, medications (HCTZ, furoseamide, other diuretics, amiodarone, amphoterecin B, ASA, ciprofloxacin, corticosteroid withdrawal, cytosine arabinoside, danazol, growth hormone, lithium, NSAIDS, oral contraceptives, phenytoin, sulfonamides, tetracyclines, vitamin A)

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Secondary Causes of Headaches (partial list) font size adjusted for level of badness if missed.

Hyper-alert brain, obesity, analgesic overuse (ANY analgesic), barbiturate or benzo overuse, caffeine overuse, caffeine withdrawal, smell of coffee, other smells (perfume, fresh paint, colognes, soap, hair sprays, hair gels, hair creams), nicotine, postconcussive syndrome, secondhand cigarette smoke, mold, alcohol, dehydration, being overweight, fibromyalgia, obstructive sleep apnea, central sleep apnea, insomnia, jet lag, poor sleep hygiene, sleep deprivation, sinusitis, stress, rest after stress, hormonal changes, skipping meals, monosodium glutamate, sodium nitrite, too much sleep, weather changes (especially barometric pressure drops), foods high in tyramine (aged cheese, deli meats), chocolate, bananas, MSG (found in canned stews, soya sauce, and powdered soups), citrus fruits, exercise, rest after exercise, orgasm, smoke, dust, wind, cleaning fluids, light (especially fluorescent lights), noise (especially loud noise), travel, motion, teeth grinding, poor posture, poor ergonomic workstation, magnesium deficiency, vitamin D deficiency, hypothyroidism, food allergies, Hashimoto,s thyroiditis, riboflavin deficiency, coenzyme Q10 deficiency, patent foramen ovale (???), TMJ syndrome, Chiari 1 malformation, deviated septum, mucosal contact point, occipital neuralgia, temporal arteritis, vasculitis, strokes (especially hemorrhagic), aneurysms, tumors, venous sinus thrombosis, meningitis, subarachnoid and subdural hemorrhage, pseudotumor, intracranial hypotension, medications (HCTZ, furoseamide, other diuretics, amiodarone, amphoterecin B, ASA, ciprofloxacin, corticosteroid withdrawal, cytosine arabinoside, danazol, growth hormone, lithium, NSAIDS, oral contraceptives, phenytoin, sulfonamides, tetracyclines, vitamin A)

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Questions to Ask

- Character (pounding vs pressure vs stabbing/shooting)
- If you look in the mirror when you have a headache, do you see any changes?
- Frequency/severity/duration
- _____

- Is the pain worse standing up, worse lying down, or no different?
- Is there any particular time of day or night when a headache is most likely to start?
- Does sleep make the pain better or worse or neither?

- Any associated visual changes?
- Associated focal numbness or weakness?

- Can you make the pain go away if you lie down for long enough?

- Jaw claudication?
- Shoulder and hip girdle morning aching and stiffness?
- _____

- Orthostatic dizziness
- Orthostatic tachycardia
- Hypermobile joints

- In a typical 7 day period, how many of those days do you take at least one pain pill?

- In a typical 7 day period, on how many days do you wake up refreshed?
  - Does your brain refuse to shut off at night?
  - Hot flashes?
  - Do you have nightmares?
  - Do you know if you snore ?
    - When you wake up in the morning, is your mouth dry?
    - When you wake up in the morning, are the sheets still over you, or are they pushed off to the side?
  - Does your bladder wake you up?
  - Do you get leg cramps when you are in bed?
  - Do you have an urge to move your legs when you are in bed at night?

- Does your neck hurt?
- Do you like to sleep on your stomach?

- Do you clench your jaw muscles?

- How many caffeinated beverages do you consume per 24 hour period?

- Is your urine completely clear at least once a day?

- Prior neck or neck surgery?
- Prior head or neck trauma?

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BMI

- Weight loss improves migraines in obese individuals, regardless of whether bariatric surgery is utilized.
  - https://pubmed.ncbi.nlm.nih.gov/29178659/
  - https://pubmed.ncbi.nlm.nih.gov/28685361/
  - https://pubmed.ncbi.nlm.nih.gov/21444898/
  - https://pubmed.ncbi.nlm.nih.gov/32008255/
  - https://pubmed.ncbi.nlm.nih.gov/22642299/
- Bariatric surgery improves migraines and lowers CGRP levels
  - https://pubmed.ncbi.nlm.nih.gov/35922609/
- Weight loss improves IIH
  - https://www.nejm.org/doi/full/10.1056/NEJMra2404929
- Surgical weight loss improve atherosclerosis:
  - https://pubmed.ncbi.nlm.nih.gov/23512491/
- Deliberate weight loss improves cognition in obesity and obesity with MCI.
  - https://pubmed.ncbi.nlm.nih.gov/27890688/
  - https://pubmed.ncbi.nlm.nih.gov/21762426/
  - https://pubmed.ncbi.nlm.nih.gov/26713821/
- Weight loss improves balance.
  - https://pubmed.ncbi.nlm.nih.gov/35614189/
  - https://pubmed.ncbi.nlm.nih.gov/16682978/
  - https://pubmed.ncbi.nlm.nih.gov/31901766/
  - http://pubmed.ncbi.nlm.nih.gov/36882303/
- Weight loss improves mood.
  - https://pubmed.ncbi.nlm.nih.gov/21343903/
  - https://pubmed.ncbi.nlm.nih.gov/17158841/
  - https://pubmed.ncbi.nlm.nih.gov/24762259/
- Weight loss improves OSA.
- (surgical more so that nonsurgical more likely to cure, supine AHI decreases more than nonsupine AHI)
  - https://pubmed.ncbi.nlm.nih.gov/24061345/
  - https://pubmed.ncbi.nlm.nih.gov/22374151/
  - https://pubmed.ncbi.nlm.nih.gov/32721163/
  - https://pubmed.ncbi.nlm.nih.gov/28444355/
- Weight loss improves neuropathy.
  - https://pubmed.ncbi.nlm.nih.gov/34747574/
  - https://pubmed.ncbi.nlm.nih.gov/33504933/
  - https://pubmed.ncbi.nlm.nih.gov/36462960/
- Weight loss improves daytime energy levels, probably even in patients without OSA.
  - https://pubmed.ncbi.nlm.nih.gov/28117952/
  - https://pubmed.ncbi.nlm.nih.gov/12702031/
  - https://pubmed.ncbi.nlm.nih.gov/34386907
- Weight loss reduces the risk of developing multiple sclerosis
  - https://pubmed.ncbi.nlm.nih.gov/27351487/
  - https://pubmed.ncbi.nlm.nih.gov/27723651/
  - https://pubmed.ncbi.nlm.nih.gov/35575213/
  - https://pubmed.ncbi.nlm.nih.gov/33605807/
- Excess weight is associated with RLS
  - https://pubmed.ncbi.nlm.nih.gov/29674254/
  - https://pubmed.ncbi.nlm.nih.gov/19349606/
  - https://pubmed.ncbi.nlm.nih.gov/24753235/
- Weight loss associated with 27% decreased hospital stay length after surgery.
  - https://pubmed.ncbi.nlm.nih.gov/30328098/
- Weight loss - reduced surgical complications
  - https://pubmed.ncbi.nlm.nih.gov/34836028/
- Weight loss before bariatric surgery – reduction in perioperative complications
  - https://pubmed.ncbi.nlm.nih.gov/25211265/
- Weight loss is associated with reduced allergy pathology, especially in the context of asthma.
  - https://pubmed.ncbi.nlm.nih.gov/27064658/
  - https://pubmed.ncbi.nlm.nih.gov/23278879/
  - https://pubmed.ncbi.nlm.nih.gov/25763936/
  - https://pubmed.ncbi.nlm.nih.gov/25658739/
- Weight loss improves fibromyalgia.
  - https://pubmed.ncbi.nlm.nih.gov/22948223/
  - https://pubmed.ncbi.nlm.nih.gov/16253617/
  - https://pubmed.ncbi.nlm.nih.gov/33676126/
- Bariatric surgery improves nocturia
  - https://pubmed.ncbi.nlm.nih.gov/35864289/
  - https://pubmed.ncbi.nlm.nih.gov/37470955/
- Weight loss was associated with improvement in spinal column disease:
  - https://pubmed.ncbi.nlm.nih.gov/16652131/
  - https://pubmed.ncbi.nlm.nih.gov/22648024/
  - https://pubmed.ncbi.nlm.nih.gov/30877387/
- Obesity is associated with increased risk of meningiomas and other CNS tumors:
  - https://pubmed.ncbi.nlm.nih.gov/26332834/
  - https://pubmed.ncbi.nlm.nih.gov/40359201/
  - https://pubmed.ncbi.nlm.nih.gov/26377253/
  - https://pubmed.ncbi.nlm.nih.gov/24587258/
- Weight loss reduces the risk of numerous types of cancer:
  - https://www.nejm.org/doi/full/10.1056/NEJMsr1606602
- Obesity is associated with increased risk of drug reactions.
  - https://pubmed.ncbi.nlm.nih.gov/33771681/
- Obesity is associated with an increased risk of GBS:
  - https://pubmed.ncbi.nlm.nih.gov/33259491/
- BMI>30 qualifies for surgery, BMI > 27 qualifies for medical weight loss - (Banner podcast with Drs. Farrah Hussein chief of bariatric surgery at BUMC, David Podkameni, bariatric surgeon at BEMC, and Sleep Medicine Dr. Lee-Iannotti)
  - https://www.youtube.com/watch?v=OYIcI4-96vg&list=PLnSXT-M_BnWkQ1dNWWYSKDu9gXajIvajQ&index=5

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the house always wins…

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…almost

Weight loss reduces CGRP levels

Methods: Patients with severe obesity who were bariatric surgery candidates and had been diagnosed with chronic migraine were included in this study. Weight, BMI, number of days with headache in the past 3 months, and severity of headaches in 10-point Likert VAS, Migraine Disability Assessment Scale (MIDAS) and Migraine Specific Quality of life (MSQ) questionnaire scores, and serum CGRP levels were evaluated before and within 6-10 months after surgery.

Result: Sixty patients with chronic migraine with severe obesity were included. Ninety-five percent of patients reported a significantly lower number of attacks (**21 to 8**, $p < 0.001$) and severity of headaches within 90-day (7.7 to 4.8, $p < 0.001$); MIDAS (**64.4 to 25.5**, $p < 0.001$) and MSQ scores (44.6 to 26.8, $p < 0.001$) and CGRP level (**252.7 to 130.1**, $p < 0.001$) were significantly reduced after surgery with a mean follow-up of 7.5 months. Changes in MIDAS, MSQ, and CGRP were significantly associated with weight-related variables.

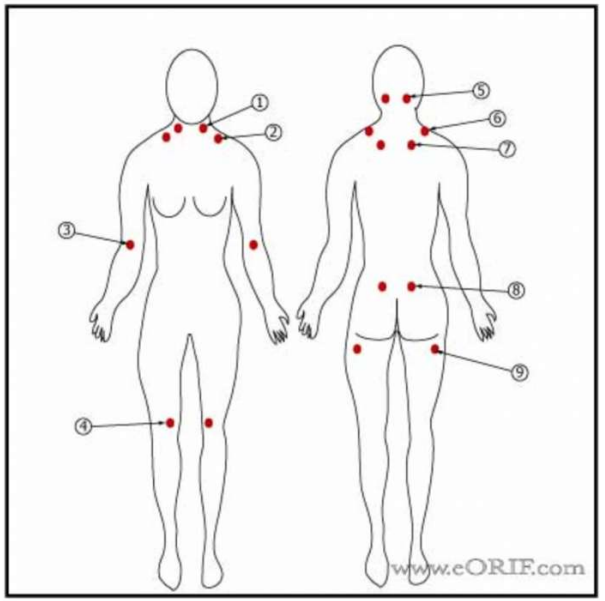
https://pubmed.ncbi.nlm.nih.gov/35922609/ (Etefagh et al, Isfahan University of Medical Sciences, Iran, 2022)

Headache exam (besides the neuro exam)

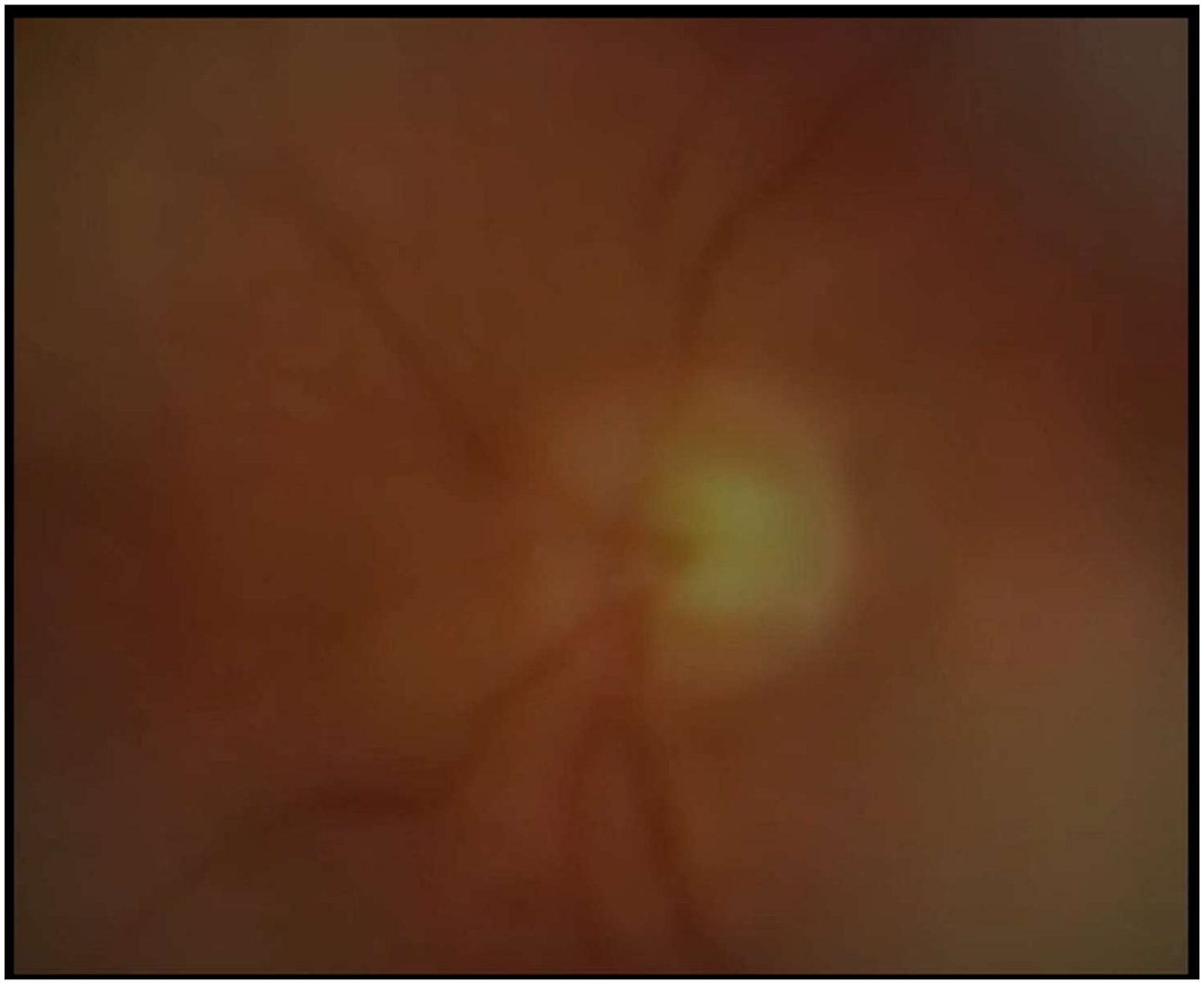
- Fundoscopic exam!
- STOP BANG
  - BMI, Neck Circumference
- Friedman Tongue Position
- Beighton score

- Trendelenburg
- Light touch bilat V2 and V3
- Feel their neck muscles
- Occipital nerve pressure

- ACR tenderpoint exam



Venous Pulsations



STOP-BANG

Table 2. Combined Test Characteristics of a STOP-Bang Score of 3 or Greater

Test characteristic	All OSA, ie, AHI ≥5, % (95% CI)	Moderate to severe OSA, ie, AHI ≥15, % (95% CI)	Severe OSA, ie, AHI ≥30, % (95% CI)
All regions			
Studies, No. (participants, No.)	45 (24 192)	38 (23 811)	29 (17 984)
Prevalence	80 (80 to 81)	58 (58 to 59)	39 (38 to 39)
Sensitivity	92 (89 to 94)	95 (93 to 96)	97 (95 to 98)
Specificity	33 (26 to 41)	28 (22 to 34)	24 (19 to 30)
PPV	86 (85 to 86)	66 (65 to 66)	46 (45 to 47)
NPV	47 (45 to 49)	77 (75 to 78)	91 (90 to 92)
Log scale DOR (95% CI)	1.74 (0.88 to 2.59)	1.91 (1.62 to 2.21)	2.08 (1.72 to 2.43)
AUC (95% CI)	0.76 (0.72 to 0.80)	0.76 (0.72 to 0.80)	0.72 (0.68 to 0.76)

https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2777142

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STOP-BANG

Ask the patient the following:

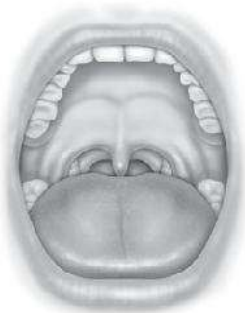
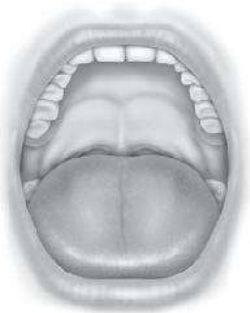
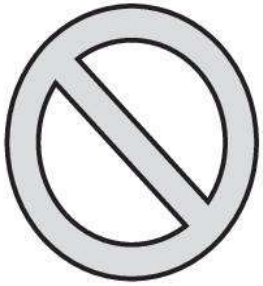
Do you snore loudly? Louder than talking or loud enough to be heard through closed doors	**No 0**	Yes +1
Do you often feel tired, fatigued, or sleepy during the daytime?	**No 0**	Yes +1
Has anyone observed you stop breathing during sleep?	**No 0**	
Do you have (or are you being treated for) high blood pressure?	**No 0**	

Objective measures:

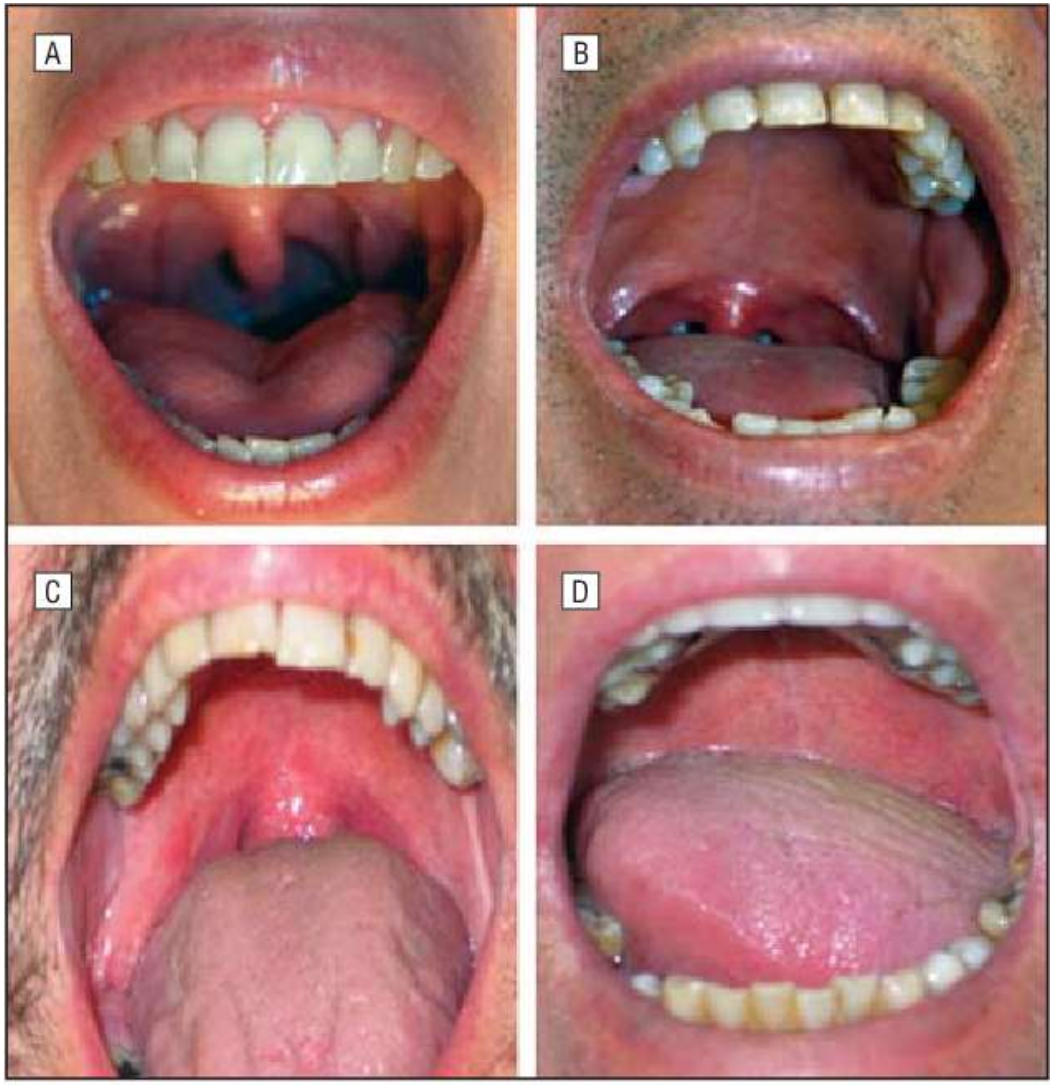
BMI	**≤35 kg/m² 0**	>35 kg/m² +1
Age	**≤50 years 0**	>50 years +1
Neck circumference	**≤40 cm 0**	>40 cm +1
Gender	**Female 0**	Male +1

https://www.mdcalc.com/calc/3992/stop-bang-score-obstructive-sleep-apnea

Friedman Tongue Position and Mallampati Classification

Friedman (Natural Tongue Position)					
	FTP I: Allows visualization of the entire uvula and tonsils or pillars	FTP IIa: Allows visualization of the uvula, but only parts of the tonsils are seen	FTP IIb: Allows visualization of the complete soft palate down to the base of the uvula, but the uvula and the tonsils are not seen	FTP III: Allows visualization of some of the soft palate, but the distal soft palate is eclipsed	FTP IV: Allows visualization of the hard palate only
Mallampati (Tongue Protruded)					
	MC I: Allows visualization of faucial pillars, soft palate and uvula	MC II: Allows visualization of the faucial pillars and soft palate		MC III: Allows only visualization of the soft palate	

FTP 1



FTP 2

FTP 3

FTP 4

Barceló, X., Mirapeix, R. M., Bugés, J., Cobos, A., & Domingo, C. (2011). Oropharyngeal examination to predict sleep apnea severity. Archives of otolaryngology--head & neck surgery, 137(10), 990–996. https://doi.org/10.1001/archoto.2011.176

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Beighton score

Give yourself 1 point for each of the manoeuvres you can do, up to a maximum of 9 points

Ehlers-Danlos Support UK

Registered Charity 1157027

Can you bend your thumb back onto the front of your forearm?

left thumb 1 point

right thumb 1 point

Can you put your hands flat on the floor with your knees straight?

1 point

left hand 1 point

right hand 1 point

Can you bend your little finger up at 90º (right angles) to the back of your hand?

Can you bend your elbow backwards?

right arm 1 point

left arm 1 point

Can you bend your knee backwards?

left knee 1 point

right knee 1 point

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When to Order an MRI Brain

Red Flags – "SNOOP[5]"

- Systemic disease or symptoms
- Neurologic symptoms and signs
- Onset sudden
- Onset > 50 years age
- Papilledema
- Pattern change
- Postural relationship
- Precipitated by Valsalva maneuver
- Pregnancy or Postpartum

Green Flags

- Headache has been stable for at least a year
- Current headache has been present since childhood
- The patient has headache free days
  - no pain free days is not a red flag, as many primary headaches are continuous
- The headache occurs in temporal relationship with the menstrual cycle
- Close family members have the same headache phenotype
- Headache occurred or stopped more than one week ago

Other Tests to Consider

- Home Sleep Test
- MRA head, MRA neck
- MRV head, MRV neck
- ESR, CRP, IL-6
- TSH with reflex to FT4
- anti-thyroglobulin antibodies, anti-TPO antibodies, anti-thyrotropin receptor antibodies
- 25-OH vitamin D level
- riboflavin level
- Omega-3 fatty acid levels
- Food allergy testing
- Homocysteine
- Coenzyme Q10 level
- magnesium
- ANA

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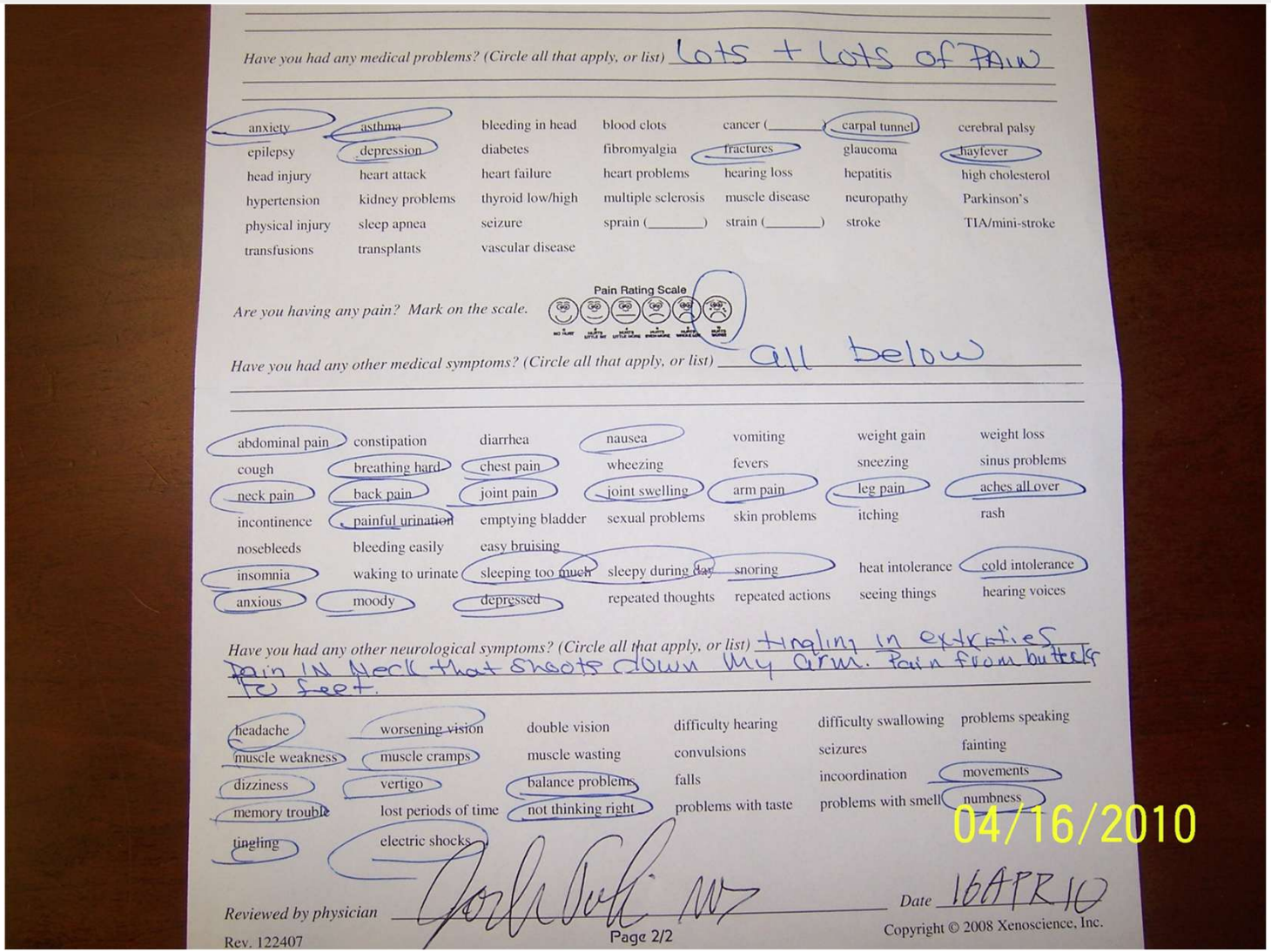


Have you had any medical problems? (Circle all that apply, or list) Lots + Lots of PAIN

anxiety	asthma	bleeding in head	blood clots	cancer (_____)	carpal tunnel	cerebral palsy
epilepsy	depression	diabetes	fibromyalgia	fractures	glaucoma	hayfever
head injury	heart attack	heart failure	heart problems	hearing loss	hepatitis	high cholesterol
hypertension	kidney problems	thyroid low/high	multiple sclerosis	muscle disease	neuropathy	Parkinson's
physical injury	sleep apnea	seizure	sprain (_____)	strain (_____)	stroke	TIA/mini-stroke
transfusions	transplants	vascular disease				

Are you having any pain? Mark on the scale.

Pain Rating Scale

Have you had any other medical symptoms? (Circle all that apply, or list) all below

abdominal pain	constipation	diarrhea	nausea	vomiting	weight gain	weight loss
cough	breathing hard	chest pain	wheezing	fevers	sneezing	sinus problems
neck pain	back pain	joint pain	joint swelling	arm pain	leg pain	aches all over
incontinence	painful urination	emptying bladder	sexual problems	skin problems	itching	rash
nosebleeds	bleeding easily	easy bruising				
insomnia	waking to urinate	sleeping too much	sleepy during day	snoring	heat intolerance	cold intolerance
anxious	moody	depressed	repeated thoughts	repeated actions	seeing things	hearing voices

Have you had any other neurological symptoms? (Circle all that apply, or list) tingling in extremities Pain IN Neck that shoots down My arm. Pain from buttocks to feet.

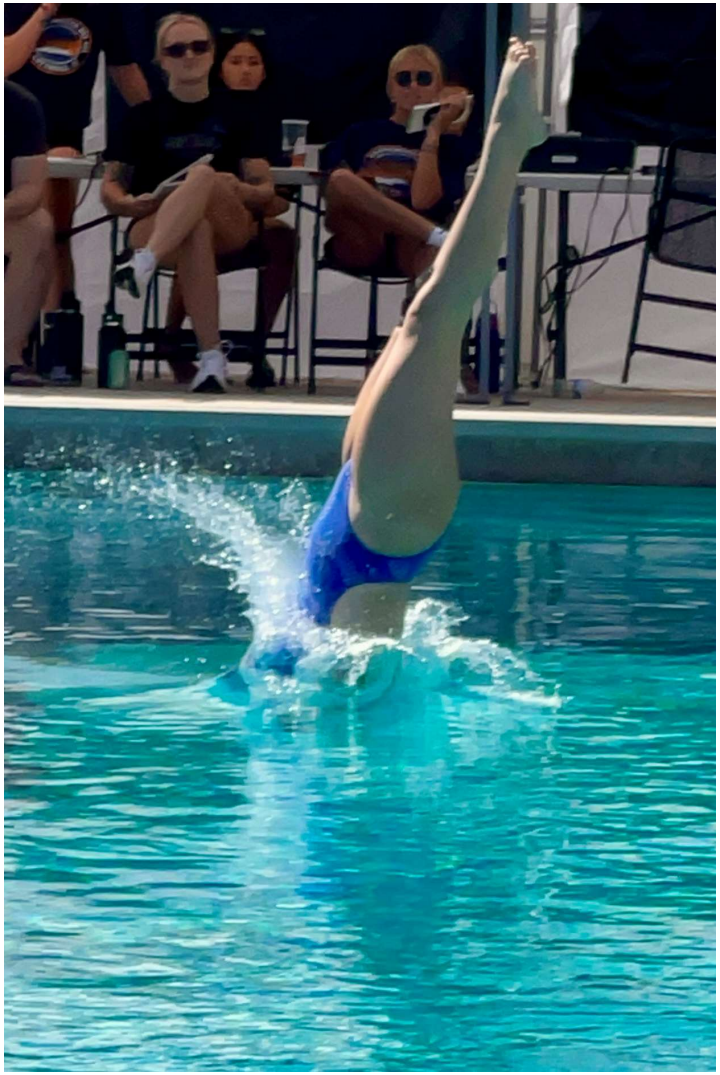
headache	worsening vision	double vision	difficulty hearing	difficulty swallowing	problems speaking
muscle weakness	muscle cramps	muscle wasting	convulsions	seizures	fainting
dizziness	vertigo	balance problems	falls	incoordination	movements
memory trouble	lost periods of time	not thinking right	problems with taste	problems with smell	numbness
tingling	electric shocks				

04/16/2010

Reviewed by physician _____ *Date* 16APR10

Rev. 122407

Page 2/2



The end