The Institute of Optometry is unique in being an independent self-financing charity dedicated to the promotion of clinical excellence, research, and education in optometry.

Roberson (1989)

Taking the headache out of headaches

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DISCLOSURE

Funding for lectures, KOL/product feedback, research:


Lecture content always my own

Author of Pickwell’s Binocular Vision Anomalies, editions 3-5

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Community optometric practice in Brentwood, Essex

International Classification of Headache Disorders (ICHD-3, 2018)

Primary

Migraine

Tension

Cluster

Other primary headaches

Secondary

Head/neck trauma

Vascular

Non-vascular intra-cranial disorder

Substances or their withdrawal

Infection

Disorder of homeostasis (e.g., endocrine)

Disorder of facial or cranial structures (inc. eye)

Psychiatric disorder

Painful lesions of cranial nerves (neuralgias) & other facial pain

Other

1. Migraine

2. Tension

3. Cluster

(Trigeminal autonomic cephalalgias)

4. Other primary headaches

5. Head/neck trauma

6. Vascular

7. Non-vascular intra-cranial disorder

8. Substances or their withdrawal

9. Infection

10. Disorder of homeostasis (e.g., endocrine)

11. Disorder of facial or cranial structures (inc. eye)

12. Psychiatric disorder

13. Painful lesions of cranial nerves (neuralgias) & other facial pain

14. Other
Prevalence in the real world

- Prevalence varies in different countries (Stovner et al., 2007)
- Marked difference in the two sexes (Lebedeva et al., 2016)
- Marked effect of social groups & age (Lebedeva et al., 2016)

In a headache clinic sample of 100, no secondary headaches and most were migraine (Leone et al., 1993)

In an "emergency room", 26% were secondary headaches & the most common primary headache was migraine (Munoz-Ceron et al., 2019)

BUT, optometrists over-estimate prevalence of headaches from ocular origin

1. Migraine (54%)
2. Tension (30%)
3. Cluster (7%)
4. Miscellaneous (0%)

Primary (91%)
5. Head trauma
6. Vascular
7. Non-vascular intra-cranial disorder
8. Substances or their withdrawal

Secondary (0%)
9. Non-cephalic infection
10. Metabolic disorder
11. Disorders of facial or cranial structures (inc. eye)
12. Neuralgias & deafferation

Secondary (cont.) (0%)

Role of the optometrist

- Classification
- Diagnosis
- Visual triggers
- Visual treatment

Never ask a clinician about prevalence!

- In a headache clinic sample of 100, no secondary headaches and most were migraine
- In an "emergency room", 26% were secondary headaches & the most common primary headache was migraine
- In both studies, no cases of ocular headache
- BUT, optometrists over-estimate prevalence of headaches from ocular origin
MIGRAINE WITHOUT AURA:

- at least 5 attacks which:
  - last 4-72 hrs (untreated)
  - have at least 2 of the following:
    - unilateral
    - pulsating
    - moderate/severe
    - aggravated by routine physical activity
  - during HA at least 1 of the following:
    - nausea and/or vomiting
    - photophobia and phonophobia

That’s it!
MIGRAINE WITH AURA: 2+ attacks with:

- fully reversible aura symptoms
  - e.g., vision, sensory, speech/language, motor, brainstem, retinal
- at least 3 of the following:
  - at least one aura symptom develops gradually over 5 mins and/or
  - two or more symptoms occur in succession
  - each symptom lasts 5-60 min
  - at least one aura symptom is unilateral
  - at least one aura symptom is positive
  - aura accompanied and/or followed with 60 min by HA

Optometric correlates of migraine

- Subtle pupillary anomalies (Harle & Evans, 2004; Harle et al., 2005)
- Little evidence of visual field defects or increased risk of glaucoma (Harle & Evans, 2004; Harle & Evans, 2005)
- Slightly higher prevalence of astigmatism and anisometropia (Harle & Evans, 2004; Harle & Evans, 2005)
- Slightly higher prevalence of heterophoria and fixation disparity, but not usually a trigger (Harle & Evans, 2004; Harle & Evans, 2005)
- The strongest visual correlate of migraine is pattern glare, which can be a migraine trigger (Harle & Evans, 2004; Harle et al., 2005)

Vision & headache: Coloured filters

- Pattern glare is prevalent in migraineurs (Wilkins et al., 1984; Marcus and Soso, 1989; Evans et al., 2002; Harle et al., 2005)
- “What may be inherited in migraineurs is an abnormal biological threshold to a variety of visual stimuli” (Wiley et al., 1985)
- Review of evidence linking Meares-Irving Syndrome, visual stress, photosensitive migraine & epilepsy (Wiley, 1985)
- Of 323 people seen in IoO SpLD clinic, 53% had more than 6 HA a year. 40% of these had at least 3 “associated factors” suggesting migraine (Evans et al., 1988)

PTL reduce cortical hyperactivation in migraine

- 10 of 11 migraineurs & 11 non-headache controls
- Viewed visual stressful & non-stressful patterns through PTL (POT), control colour, grey
- Migraineurs & controls did not differ for non-stressful patterns
- Migraines had greater activation than controls with grey or control colours
- Normalised with PTL

Pattern glare

- High prevalence in:
  - Visual stress
  - Migraine
  - Photosensitive epilepsy
  - Autism

DO NOT VIEW THIS IF YOU HAVE EPILEPSY OR MIGRAINE
**Role of the optometrist**

- **classification**
- **diagnosis**
- **visual triggers**
- **visual treatment**

Full layout from: www.bruce-evans.co.uk for regular vision, sleep, ocular, neurology.

**Visual triggers for migraine**

- **Glare**
  - Sun reflections (water, beach, snow, paper, chrome)
  - Bright lights
- **Flicker**
  - Sun through trees/leaves/pavement
  - Streetlights (e.g., shadowing)
  - Faulty fluorescent lights & non-faulty
  - Television or cinema
  - Light in traffic tunnels
  - Flashlights or headlights

- **Patterns**
  - Carpets, escalators, stairs
  - Text

**International Classification of Headache Disorders (ICHD-3, 2018)**

**Headaches**

**Primary**

1. Migraine
2. Tension
3. Cluster
4. Other primary headaches
5. Headache trauma
6. Vascular
7. Non-vascular intracranial disorder
8. Substance or their withdrawal
9. Infection
10. Disorder of homeostasis (e.g., endocrine)
11. Disorder of facial or cranial structures (inc. eye)
12. Psychiatric disorder
13. Painful lesions of cranial nerves (neuralgias) & other facial pain
14. Other

**Secondary**

- Secondary (cont.)
- 10. Disorder of homeostasis (e.g., endocrine)
- 11. Disorder of facial or cranial structures (inc. eye)
- 12. Psychiatric disorder
- 13. Painful lesions of cranial nerves (neuralgias) & other facial pain
- 14. Other

**Secondary (cont.)**

- 10. Disorder of homeostasis (e.g., endocrine)
- 11. Disorder of facial or cranial structures (inc. eye)
- 12. Psychiatric disorder
- 13. Painful lesions of cranial nerves (neuralgias) & other facial pain
- 14. Other

**Tension-type headache:** >10 attacks which:

- last 30 mins - 7 days
- have at least 2 of the following:
  - bilateral
  - pressing/tightening (not pulsating)
  - mild/moderate (reduces, not prohibits, daily activities)
  - not aggravated by routine physical activity
- both of the following:
  - no nausea or vomiting
  - not both photophobia & phonophobia
- frequent, infrequent, and chronic varieties

**International Classification of Headache Disorders (ICHD-3, 2018)**
**Cluster HA**: 5+ attacks which:

- severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 mins untreated
- HA associated with at least 1 of the following:
  - ipsilateral conjunctival injection and/or lacrimation
  - ipsilateral nasal congestion and/or running nose
  - ipsilateral eyelid oedema
  - ipsilateral miosis and/or ptosis
  - sense of weakness and/or agitation
- frequency of attacks: 1 every other day to 8 per day

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**Asthenopia headache: received wisdom**

- “Headache is the commonest symptom associated with eyestrain. This occurs in almost every possible variety”
- All “obscure headaches” should have eye exam before medical treatment. Rule out:
  - Environmental factors
  - Refractive error
  - Binocular vision anomaly
  - IOP, floaters, disc & vessels (Duke-Elder, 1970)
- No form of headache is specific to eye-related disorders (Ball, 1982)

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**Role of the optometrist**

- Visual triggers
- Visual treatment

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**International Classification of Headache Disorders (ICHD-3, 2018)**

1. Migraine
2. Tension
3. Cluster
4. Other primary headaches
5. Head/neck trauma
6. Vascular
7. Non-vascular intra-cranial disorder
8. Substances or their withdrawal
9. Infection
disorder
10. Disorder of homeostasis cranial structures (inc. eye)
11. Disorder of facial or cranial nerves (e.g., endocrine)
12. Psychiatric disorder
13. Painful lesions of cranial nerves (neuralgias) & other facial pain
14. Other

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**International Classification of Headache Disorders**

11.1 Cranial bone
11.2 Neck
11.3 Eyes
11.3.1 Acute angle-closure glaucoma
11.3.2 Refractive errors
11.3.3 Ocular inflammatory disorder
11.4 Ears
11.5 Noses & sinuses
11.6 Teeth, jaws, etc.
11.7 Temporomandibular joint disease
11.8 Other disorders of face or cranial structures
Date | Time | Impact | Intensity | Comments
--- | --- | --- | --- | ---
Medicine | Taken | Dosage | Time to Relief
Hormonal Stress | Noise | Tiredness | Other food
Chocolate | Cheese | Red wine | Caffeine | Other drinks
Flickering | Patterns | Reading

Headache diary
Enter every headache you experience in the table below. Impact ratings can be graded as: none, mild, severe, totally disabled. Intensity ratings can be graded as: mild, moderate, severe, very severe. Not all of the triggers that describe you are likely to be relevant, so using questionnaires should help you identify what might be relevant to you. The information recorded here can be used to help plan treatment of the headaches. If you follow the advice given above you can avoid headaches in the future, but if frequently recurring headache is a problem or you are unable to identify triggers, you should consult your optometrist. If you have consulted your optometrist, you should bring this directory to your next appointment.

Role of the optometrist
Classification
Diagnosis
Visual triggers
Visual treatment

Conclusions
- Optometrists can diagnose commonplace headaches
- Know the normal: refer the abnormal asap
- Refractive errors or binocular vision anomalies can trigger headaches
- Precision tinted lenses help some people with headaches (migraine)
  - These people usually know they have visual triggers

A personal perspective: Dr Optometry
- In 2008 the Institute of Optometry launched a Doctor of Optometry degree in collaboration with London South Bank University
- 5 year part time professional doctorate
  - Year 1 has 13 taught days & 2 assignments
  - Year 2 has 8 taught days & 2 assignments
  - Years 3-5 are supervised doctoral research
  - Research most likely to be clinical, in practice
- "The ultimate qualification for UK optometrists"

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