N 450 BC, HIPPOCRATES noted an association between headaches and exercise.¹ Since then, the definitions, diagnosis, and treatment options for headaches have changed considerably. It is important for team physicians and athletic trainers to be aware of the types of headaches affecting athletes, symptoms that represent serious pathology, and the repercussions of different treatments.

**Primary Headache Disorders**

The primary headache disorders include migraine, tension, and cluster headaches. The prevalence of migraines has been reported to be 12–18% in the general population.² Migraines are idiopathic, episodic headaches, usually unilateral, throbbing, and moderate to severe, and last 4–72 hr. They are accompanied by nausea, vomiting, and sensitivity to light and sound. Classic migraines are preceded by sensory disturbances known as auras, which are typically visual but can include other neurological changes. Common migraines do not have auras.³ There is an inherited tendency for migraines and a female predominance, with a relationship to hormonal changes around ovulation.

Tension headaches are usually bitemporal, of mild to moderate severity, and described as having a “tight bandlike” quality. They do not include prodromal symptoms, nausea and vomiting, and sensitivity to light and sound.³ They are related to stress, are more common in women, and can be episodic or daily.

Cluster headaches are rarer than migraines or tension headaches but are more common in men. They are described as severe, unilateral, stabbing pain in the supraorbital, orbital, or temporal region. They occur in short, recurrent episodes and are associated with red, watery eyes; nasal congestion or rhinorrhea; sweating; a constricted but reactive pupil; and eyelid lag and swelling.³ They are commonly triggered by alcohol and often awaken the sufferer from sleep.

Other common headaches seen in athletes include rebound and drug-induced headaches. Rebound headaches are mild, dull, and diffuse and last less than 24 hr. They occur after stopping medications previously taken daily to prevent mild tension headaches and intermittent migraines. Drug-induced headaches can be caused by many different drugs, the most common ones involving athletes being histamines, nonsteroidal anti-inflammatory drugs (NSAIDs), amino acids, oral contraceptives, antibiotics, and alcohol.

**Headaches Related to Athletic Activity**

In addition to the primary headache disorders, athletes might develop sports-related headaches. These headaches are sometimes difficult to distinguish from the primary disorders because of similar symptoms, but a detailed history can often lead to the correct diagnosis.

Benign exertional headaches were first described in 1932 as severe but short headaches after exercise.² The International Headache Society (IHS) has since developed diagnostic criteria for them. They are bilateral and throbbing in nature and can develop migrainelike features. They last from 5 min to 24 hr, are brought on by exercise, and are prevented by avoiding excessive exertion.³ They are also known as “weightlifter’s headache” because they are often brought on by Valsalva maneuvers used while straining.

Effort headaches are the most common type of headache in athletes.⁴ They differ from exertional headaches in that they are brought on by maximal or submaximal aerobic exercise rather than strenuous activity. They are described as mild to severe throbbing headaches lasting 4–6 hr and are more frequent in hot weather. Individuals with migraine histories might be predisposed to effort headaches, so prodromal migrainelike symptoms might occur.²

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¹ Tracy Ray, MD, Column Editor

² © 2005 Human Kinetics • ATT 10(3), pp. 28–29

³ American Sports Medicine Institute
Head trauma can also lead to headaches. The IHS has a classification for acute posttraumatic headaches that includes both significant and minor head trauma. Significant head trauma is defined as loss of consciousness, posttraumatic amnesia longer than 10 min, or abnormalities on exam or diagnostic studies. Minor head trauma is any trauma that does not fulfill those criteria. Both subsets must have an onset within 14 days of trauma and resolve within 8 weeks after trauma. These headaches might have migrainous, tension-type, or cluster qualities. Any organic basis for prolonged symptoms should be excluded, and a symptomatic athlete should not be returned to play.

An external-compression headache, formerly known as “swim-goggle headache,” is a constant pain resulting from sustained stimulation of the cutaneous nerves of the forehead and scalp by external pressures. It is commonly seen in swimmers and divers as a result of tight goggles or face masks.

Finally, athletes competing or training at high altitude might experience headaches. The IHS has classified high-altitude headache as a migrainelike headache occurring within 24 hr of ascent to altitudes above 3,000 m. These headaches are seen in unacclimatized athletes and are usually accompanied by other symptoms of high altitude.

**Worrisome Headache Symptoms**

There are several key headache symptoms that should trigger further investigation. A mass lesion, brain abscess, infection, and intracranial hemorrhage might all present with a headache. Worrisome symptoms include focal neurologic deficits, altered level of consciousness, seizures, sudden onset of “the worst headache of my life,” a stiff neck with fever, headaches that wake the patient at night, early-morning nausea and vomiting without headaches, and gait disturbance. If an athlete complains of any of these symptoms, medical care should be sought urgently.

**Treatment Options in Athletes**

When treating athletes for headaches, several factors should be considered. Some medications should be used only in acute cases, whereas others are only effective as prophylactic agents. A few can affect athletic performance, and many are banned by different sporting organizations.

Athletes with migraines should use sumatriptan (Imitrex®) or other drugs in the triptan class (e.g., Zomig®, Maxalt®, Relpax®) for abortive therapy. These medications work quickly, relieve nausea and sensitivity to light, and have few side effects. If a triptan is not readily available, an NSAID might relieve mild migraine symptoms. Prophylactic therapy should be considered for an athlete having two or more headaches a month. Antidepressants such as selective serotonin-reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs) taken at bedtime have been effective at preventing migraines, as is Valproate (Depakote®), an antiepileptic drug. Many of the other treatments for migraines (i.e., beta-blockers, caffeine-containing compounds, narcotics, and opiates) have been banned by sporting organizations.

NSAIDs are useful for acute and prophylactic treatment of tension-type, benign exertional, effort, and high-altitude headaches. Athletes with chronic tension headaches might also respond to SSRIs and TCAs at bedtime for prophylactic treatment. Effort headaches with migrainous features respond to migraine treatments. Cluster headaches are treated with oxygen therapy and triptan drugs. Finally, acute posttraumatic headaches should be treated according to their symptom profiles.

**Summary**

Given the wide array of headache symptoms, a thorough history of an athlete’s headache is paramount in making the correct diagnosis. Prior headaches, family history, training schedules, medications, weather, trauma, and equipment must all be considered. It is important to be aware of the symptoms that might represent more than just a headache. Furthermore, having a basic knowledge of treatment options and their effects will help training staffs return athletes to play.

**References**


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