

## About Migraines

Migraines are a recurrent, severe type of headache that can last between four and 72 hours if untreated and are often characterized as an intense pulsing or throbbing in one area of the head.<sup>1</sup> Nearly 30 million Americans suffer from migraines, about 12 percent of the adult population, with women impacted three times more than men.<sup>2</sup> Migraine-related healthcare expenses and lost productivity in the workplace cost the United States economy approximately \$17 billion each year.<sup>3</sup>

## Cause

The exact cause of migraines is not completely understood, however scientists agree that both genetics and environmental factors can trigger an attack.<sup>4</sup> In addition to genetic predisposition, factors such as missing a meal or eating certain foods, modifying sleep patterns, bright lights or sunlight, excessive TV or movie watching, loud noise, stress or hormonal changes in women all may trigger a migraine attack.<sup>2,4</sup>

## Symptoms of a Migraine Attack

Migraines may progress through four stages – prodrome, aura, attack, postdrome – though sufferers may not experience all phases.<sup>4</sup> During the attack stage, migraine symptoms may last between four and 72 hours if left untreated and may be so severe they impact the ability of an individual to perform daily activities.<sup>2</sup> Additionally, physical exertion, such as climbing stairs, often exacerbates symptoms, making migraines worse.<sup>2</sup>

Symptoms during a migraine attack may include:<sup>2</sup>

- Pulsating or throbbing pain typically on one side of the head
- Nausea or vomiting
- Sensitivity to light or sound
- Visual disturbances or a temporary loss of vision

## Treatments

Currently, there is no cure for migraines and treatment options focus on either prevention or acute symptom relief.<sup>1</sup>

- **Prevention** – Prevention typically involves the use of medications and lifestyle changes.<sup>4</sup> Preventative medicines are drugs taken on a regular basis to reduce the severity or frequency of migraines.<sup>4</sup> These medications, originally developed for conditions including epilepsy, depression, or high blood pressure have been shown to be effective in preventing or reducing migraines when taken daily or at the first sign of a migraine trigger.<sup>1,4</sup> Preventive medications don't eliminate headaches completely, and some cause serious side effects, including dizziness, nausea and diarrhea.<sup>4</sup>
- **Acute Symptom Relief** – Pain-relief medications are types of drugs taken during migraine attacks and are designed to stop symptoms that have already begun.<sup>4</sup> For acute symptom relief, medicines called triptans are the most effective and commonly prescribed migraine medications, effective in relieving pain, nausea, and sensitivity to light and sound.<sup>4</sup> Side effects of triptans include nausea, dizziness and muscle weakness.<sup>4</sup> In addition, other non-specific analgesics such as non-steroidal anti-inflammatory drugs (NSAIDs) and opiates are used for the treatment of migraines.

## Unmet Need

Despite various migraine treatment options, patients are still strongly dissatisfied with current prevention or symptom relief. Current treatments can take up to 1-2 hours to begin relieving symptoms and only between 21% and 48% of patients achieve sustained pain relief, with high recurrence rates despite initial treatment.<sup>5</sup>

## About OptiNose Breath Powered™ Delivery Technology

OptiNose's Breath Powered delivery technology is unique in that it uses the natural function of a user's breath to propel medications beyond the nasal valve into the deep, targeted areas of the nasal cavity more effectively, efficiently and consistently than current treatments. A user exhales into the device, automatically closing the soft palate and sealing off the nasal cavity completely. The exhaled breath carries medication from the device into one side of the nose through a sealing nosepiece. Narrow nasal passages are gently expanded and medication is transported well beyond the nasal valve to targeted sites. After delivering medication to the targeted sites, air painlessly flows around to the opposite side of the nasal cavity and exits through the other side of the nose rather than into the throat or lungs. For information on the OptiNose device, visit [www.optinose.com](http://www.optinose.com).

## References

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- 3) Goldberg LD. The cost of migraine and its treatment. *American Journal of Managed Care*, 2005 Jun;11(2 Suppl):S62-7. <http://www.ncbi.nlm.nih.gov/pubmed/16095269>
- 4) Mayo Clinic. (2012). *Migraine*. Retrieved August 16, 2012 from <http://www.mayoclinic.com/health/migraine-headache/DS00120>
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