



Subarachnoid Hemorrhage and the Lifter's Headache WEEKLY

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At the end of this article, you should be able to:

- Understand what it means to have a Subarachnoid Hemorrhage
- Understand what it means to have a Lifter's Headache
- Understand the differences and similarities between the two, and why you should care if you lift heavy things

This article begins a series of articles on common injury patterns in lifters. The reason this topic was selected as the first article was because it is a topic that is extremely important to me as an Emergency Physician. It is one of the few things related to moving heavy objects that actually will kill you or make you a

vegetable. Surprisingly, in spite of the massive amounts of weight that some lifters move, it is difficult to get killed or severely injured in most lifting sports. Overall injury rates are pretty low for both powerlifting and weightlifting, making them some of the safest sports possible (Table [1]).

This topic, however, is one thing you should pay attention to.

Ever had a headache? Ever had a REALLY BAD headache? Ever had one while lifting? If you've been lifting even for a moderate amount of time, I would suspect the answers to all three of these questions would be "yes" for most people.

The human brain is a fascinating thing. It is the most important organ we have. It has a complicated network of blood vessels that supply it and has a great ability to repair itself and deal with physiologic insults to it. What's more, it is the thing that allows us to feel, yet it has no "feeling" in and of itself per se. Why then, would we get a headache?

This is an extremely complicated question that is beyond the scope of this article. There are many different types of headaches and they all have different causes. However, one thing that lifters should be attuned to is the lifter's headache, also known as lifter's cephalgia and benign exertional headache.

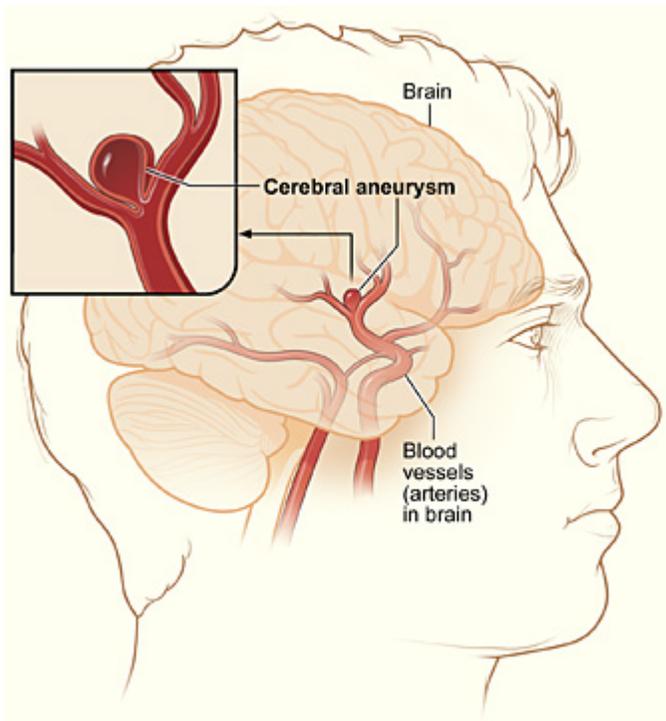
A lifter's headache is often found in newer trainees, but can be intermittent in even the most experienced of lifters. Typically, a lifter's headache is thought to originate from a mild pull in some of the smaller muscles at the base of the skull, causing pain often to originate there and move throughout the head. Often, individuals describe sudden onset of pain with exertion. Not everybody reads the symptom book, and symptoms do vary, but these are the most typical descriptions.

What about the subarachnoid hemorrhage? What's that all about? Well, a subarachnoid hemorrhage basically means a bleed into the brain in a certain space called the "subarachnoid space". Essentially, this is where blood layers in the brain when an aneurysm inside the brain bursts.

Sport	Injuries per 100 participation hours
School Age Soccer	6.2
U.K. rugby	1.92
U.S. basketball	1.03
U.S. track and field	0.57
Squash	0.10
Badminton	0.05
Powerlifting	0.0027
U.S. tennis	0.001
Weightlifting	0.0017

*Adopted from Hamill (15).

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F, initially thinking that patient had meningitis, or a brain infection. However, the patient’s CAT scan demonstrated a subarachnoid bleed. The auto-regulatory mechanisms in the brain of this person had gone caput. What does this ultimately lead to? Well, if the patient doesn’t vomit and aspirate stomach acid into their lungs, leading to cardiovascular collapse and death, then they usually get a nice trip eventually to a long term care facility where they have a machine breathing for them and a tube supplying food to their stomach. That is, until the family decides to withdraw care of that individual. Not to say that the extent of all subarachnoid hemorrhages are that severe, but they are often times not good.

I alluded to this, so realize that a subarachnoid hemorrhage is diagnosed with a cat scan. If the subarachnoid is small, or in certain other instances, a lumbar puncture, or “spinal tap” may be required if the cat scan is negative, so as to analyze the fluid around the brain and spinal cord for the presence of blood where it is not supposed to be.

So then what are the symptoms of an aneurysm? Well, they vary, but often people describe sudden onset of pain in the back of the head, moving throughout the head. It is not always related to exertion but often is. It can be initiated by coughing, sneezing, and intercourse as well.

Now, take a look back earlier in the article and look at the description of a lifter’s headache based on the symptoms alone. The symptoms are eerily similar. (See table below)

I’m sure most readers have a vague idea of what an aneurysm is, but let’s get a little more specific:

Normal arteries experience flow which enables a smooth transition of blood to supply the body’s tissues, in this case, the brain. Aneurysms do not experience the same smooth flow and tend to expand over time and can “pop” like a balloon. It serves to reason that anything that would increase blood flow to the aneurysm would cause that balloon to pop faster. As it turns out, lifting heavy things may do that. So might coughing, sneezing, and defecating.

Brain tissue does not like blood in the wrong place. Brain tissue likes blood in the arteries and capillaries where it is supposed to be. A bleed into the subarachnoid space causes severe irritation and excitability to brain cells, which can lead to seizures and cell death. Some of the worst seizures I have seen as a practicing physician have been with subarachnoid hemorrhages. Some of these patients completely lose control of the brain’s innate ability to regulate itself. For example, I once treated a patient with seizures and a fever of 110 deg.

	Benign Exertional Headache	Subarachnoid Hemorrhage
Location	Mostly occipital (back of the head)	Often occipital, but may be anywhere in the head
Severity	Can be mild to severe	Can be mild to severe
Quality	Sharp	Sharp, dull, achy
Radiation	Throughout head	Throughout head
Vomiting	Sometimes present	Often present
Timing	Can be sudden in onset or indolent, must be associated with exertion	Often sudden in onset, sometimes associate with valsalva
Vision Changes	May or may not be present	Often present

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As it turns out, no symptom is completely diagnostic or differentiating in a patient for benign exertional headache and subarachnoid hemorrhage, and studies would confirm this [2].

Why do we care? I mean, aneurysms can't be that common, right?

Turns out they are. One of the first facts noted on the brain aneurysm foundation's site are that 1 in 50 people probably have an unruptured aneurysm in their brain right now [3]. ONE in FIFTY. Ever been to a meet with a hundred people? That means two of them are likely to have an aneurysm.

Why, then, are we not seeing "powerlifting fail" YouTube compilations of USAPL Raw Nationals every year featuring about 10 lifters dropping like flies on the platform having seizures?

An eloquent study by Dickerman RD, et al, may answer this question quite well. See sources for link [4].

This article may be a little complicated, but let's break this down.

1. The authors state that weight lifting can increase blood pressures to 450/380 mmHg (!?!) temporarily.
2. Cerebral blood flow velocity (CBFV, the speed at which blood flows through arteries in the brain) does actually decrease with valsalva, which is performed with nearly every weightlifting motion.
3. Elite powerlifters were shown to have even less CBFV during a maximal lift than with a simple valsalva, meaning complicated adaptations occur within the brain of trained powerlifters.

So, lifters eventually adapt to the point where there is minimal concern of rupture of an aneurysm. I did not say NO CONCERN, I said minimal concern.

Now, don't take this information and go and say that there is never a reason to worry about a headache with lifting. There is. If you have new, severe, sudden onset of pain, DO NOT ignore it. Absolutely, 1000%, do NOT ignore it. Never take the gamble that it is likely to be a lifter's headache if it is a different headache that was sudden onset and severe or the worst headache of your life. This headache should always be presumed to be a subarachnoid hemorrhage until proven otherwise.

If you find that you have a severe, sudden onset of a headache, which may or may not be associated to lifting, it should be investigated. Every person is different and everyone experiences every possible type of pathology different, but please do not ignore a headache that is different than one you have had

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before, especially if it is sudden in onset. If this is experienced and you have any concern, visit your nearest emergency department or call your physician for guidance. Also, while waiting for guidance, avoid any types of nonsteroidal anti-inflammatory drugs, such as aspirin, ibuprofen, or aleve. These drugs actually promote bleeding, so if there is an undiagnosed subarachnoid hemorrhage, it might worsen if one consumes these drugs in the interim.

The culture of powerlifting promotes toughness. We always grind through one more rep to try to lift five more pounds than last week. This is how PR's are broken and meets are won. I implore you; please do not ignore a sudden onset of headache, no matter how tough you think you need to be. The next set can wait on at least getting medical advice first, but it may not be waiting in this instance if you simply "tough it out" and wait for a subarachnoid bleed to get worse.

About the Author

Dr. Kristopher Hunt is a lifetime drug free powerlifter. He presently holds the raw American Record in squat at 198 with 611lbs. He completed residency at Beth Israel Medical center, where he was named Chief Resident, Senior Resident of the Year, and achieved the Resident Scholarly Activity award. He presently works as an Emergency Physician with St. Vincent Emergency Physicians in Indianapolis, IN.

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