

STAY CALM

EVERYTHING WILL BE

CONTROLLING THE “FIGHT-OR-FLIGHT” RESPONSE DURING HUMAN FLIGHT

By Brian Skyy

It always pays to keep your cool.

This is true whether you're listening to your boss give less than flattering feedback on a project you've poured your everything into, you've just been cut off in traffic, or when your shoe lace snaps with no time left. The lesson is clear. Keeping calm and keeping your wits about you in times of stress is the best strategy.

But when it comes to skydiving, keeping your cool is not always so easy. This is especially true since we're flying our bodies thousands of feet above the earth with nothing between us and terra firma but a matter of seconds. How you handle the stress involved with making one of your first skydives, or effectively executing your emergency procedures to handle a malfunction can literally mean life or death to skydivers. It's important that all skydivers, from students to the most experienced, have the ability to stay calm, act deliberately and intelligently, and not panic when the time comes to deal with the stress response.

What is the Stress Response?

The stress response, commonly referred to as the “fight-or-flight” response is a physiologic animal instinct for self-preservation. The fight-or-flight response was first described by Walter B. Cannon, a Harvard physiologist as the “internal adaptive response of the body to a threat.”

In this response, the body secretes catecholamines, “stress hormones” that immediately arouse key organs, preparing a person or animal under threat to defend himself (fight) or run to escape (flight). Best known of these hormones is epinephrine, more commonly known as adrenaline, which is produced by the adrenal glands, located on top of each kidney. These hormones produce a whole host of physiological effects (see table) that were essential to survival for our ancestors living in a time when humans were routinely faced with physical threats, such as wild animals, that caused immediate life threats that could be dealt with either by fighting or running away. Some of these changes are very useful - up to a point. Beyond this limit, it becomes counter-productive, even destructive.

The stresses we face in modern life are much more likely to be psychological stresses. But in some circumstances we put ourselves in, such as skydiving, the physical threat can be real but fighting or fleeing does not solve the problem. In fact the problem can be made worse by the stress response when the best strategy would be to stay calm and handle the situation in an easy, orderly manner.

Stress and anxiety gone too far is panic. Panic is a state wherein a skydiver replaces rational thought with irrational and potentially dangerous or self-destructive actions. Like someone

whose clothes are on fire and continues to run instead of executing the stop, drop and roll, panic can lead to disaster. Headaches, abdominal pain, palpitations, nausea, vomiting, diarrhea, pins and needles in the extremities, uncontrolled movements and a general feeling of impending doom are all symptoms of a severe anxiety attack and panic. Panic is thought to be a significant contributor to skydiving accidents.

The Stressed-Out Student

For the majority of students it is commonplace to have some feelings of nervousness, fear, anticipation and anxiety. It's really quite natural for us to have these physiological reactions to jumping into the sky 14,000 feet above the ground. It's this ability to overcome our body's ingrained primitive response to freak out that gives us such a feeling of accomplishment and being able to defy and overcome nature. In a sense we are cheating death each time we skydive.

Students are very prone to being affected by a strong stress response and becoming panicked. Many people who try skydiving have never before experienced such strong feelings of anxiety. For them this is the scariest and potentially most dangerous thing they have ever done in their lives. They may experience extreme fear and inability to control their bodies. Some students have reported shakey legs, inability to control their body, a pounding heart, numb or tingly hands or feet, some may even pass out. One student reports, “when we were getting close to jump altitude my body would just start to physically shake, I could not calm down. I felt like a complete and total failure.” In this case, jumping out of the plane is probably the last thing they should do.

It's important that skydiving instructors, who are more likely to maintain a level head, keep tabs on their student's levels of anxiety. Signs to notice that a student is experiencing severe anxiety include rapid & shallow breathing, delayed or inappropriate responses, excessive sweating and jitteriness. We should note that almost all new jumpers will experience some of these symptoms. It's a natural response given the activity. The problem arises if the student's physiological response is so strong that it will impede their abilities to carry out the task at hand and be able to make critical judgments in freefall and during the canopy descent. It's a matter of magnitude. Each individual responds to stressful situations in different ways, some may be slightly jittery and notice their heart rate increasing, while others may find themselves hyperventilating and bracing themselves in the door. At times like these, instructors need to reassure the student that it is common for new jumpers to have some of these symptoms and feelings and to support the decision to postpone the jump and focus on strategies to reduce anxiety (given below).

As we gain more experience skydiving we learn to keep relaxed and do not get the overwhelming rush in anticipation of jumping. But when something goes wrong in the air whether



BE ALRIGHT

during the plane ride, during freefall or under canopy, even highly experienced jumpers can be placed in a situation that causes them to experience the same sort of stress and panic as a student on a first jump.

How to Prevent Adrenaline Overload from Immobilizing you from Performing

As any experienced skydiver is aware, the more you are able to relax in freefall the more control you have. Tension and rigidity are what cause students to not be able to relax their bodies and achieve the stable arch position. When they can't get stable they become more anxious, more rigid, etc.—it's a vicious cycle. There are several strategies that can be followed to minimize the negative effects of stress, which can lead to panic.

If you're a nervous student riding up for a jump, start by concentrating on one thing. **Breathing.** It should be deep and slow. When you are able to control your breathing you will be able to gain control of your anxiety. **Smile.** Smiling releases chemicals in the brain that make us feel better and calmer. **Visualisation.** Visualise a successful jump days, hours and immediately before your actual jump. Picture yourself confidently going through each phase of the jump from boarding the plane to feeling the air on your body, to touching down to a perfect toe-touch on-target landing. Visualise yourself smiling and how good it feels. **Confidence.** Have confidence that you have thoroughly trained for this, you know what you're doing. You are as prepared as you can be. If you don't feel this is true then don't jump until you have undergone more training and have had all questions answered and skills rehearsed. You need to know at your gut level that you will perform exactly as you trained to, no matter what situation you encounter. For some people this may involve more training and review than others. Don't feel obligated to stick to the DZs progression timeline if it isn't right for you. Finally, realise that you are skydiving for **fun**. If anxiety has become so strong that you aren't even able to enjoy the activity, maybe it's time to reconsider what you're doing it for. And sometimes it just isn't your time to jump - and that's okay. Ride the plane down. Nobody will ever ridicule you for making a smart judgment call.

All skydivers should continually rehearse problem scenarios in their minds. Visualise yourself calmly and perfectly handling any difficulty that could arise, all while keeping cool and in control. When we mentally rehearse things over and over our brain makes real changes as though we had actually experienced the situation. It's important to mentally rehearse every possible scenario you can think of and do it often.

For those individuals who have tried the above approaches and are still experiencing overactive stress responses and panic, treatment strategies do exist. These individuals may benefit from biofeedback therapy, which involves physiological monitoring during simulated provocations e.g. imagining or

watching video of the events that cause the fight-or-flight response. During these sessions you learn to be desensitised to the provocateur as well as to control and manage the symptoms so they don't manage you.

Be Prepared

In skydiving, as in many aspects of life, being prepared is essential. In concept, what we have to do is quite simple. But as someone once said, in skydiving it's not what you have to do that's tough, it's where you have to do it. We must continue to mentally and physically rehearse all skydiving scenarios and to expect the unexpected so that when they do occur we can stay calm, act deliberately and intelligently, and not let panic overtake us. If we keep our cool in trying times we'll live to tell some great stories and continue to enjoy the most exhilarating sport on earth (and above).

Physiological Effects of the Fight-or-Flight Response

- Pupils dilate to let in more light, thereby improving vision
- Increased activity in the reticular formation of the brain (increase alert, aroused state)
- Heart rate and blood pressure increases (to provide more blood to the muscles)
- Constriction of blood vessels of the skin (to limit bleeding if wounded)
- Blood sugars rise (stored energy is released to be made available to the muscles, brain and other tissues and organs)
- Blood flow is redirected out to the muscles away from the digestive system
- Breathing and heart rate increase
- Stress hormones such as adrenaline and cortisol are activated;
- The immune system, restorative healing processes, digestion and sexual interest become reduced or suspended.
- Vision and hearing sharpen
- Pain killing endorphins flood the body
- Feelings of "butterflies" in the stomach, nausea, vomiting or diarrhea

About the Author: *Dr. Brian Skyy, DPT, is a physical therapist in the United States that specializes in peak human performance. He has been skydiving since 1996. Brian has learned to keep his cool in dealing with emergency situations through his experiences as an EMT and volunteer firefighter.*