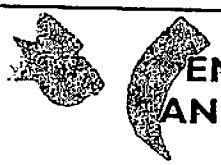
EMOTION REGULATION HANDOUT 5

What Good Are Emotions?

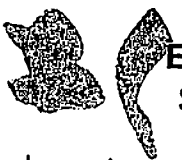
EMOTIONS COMMUNICATE TO (AND INFLUENCE) OTHERS.

- Facial expressions are a hard-wired part of emotions. In primitive societies and among animals, facial expressions communicate like words. Even in modern societies, facial expressions communicate faster than words.
- When it is important to us to communicate to others, or send them a message, it can be very hard for us to change our emotions.
- Whether we intend it or not, the communication of emotions influences others.



EMOTIONS ORGANIZE AND MOTIVATE ACTION.

- Emotions motivate our behavior. The action urge connected to specific emotions is often "hard-wired." Emotions prepare us for action.
- Emotions save time in getting us to act in important situations. We don't have to think everything through.
- Strong emotions help us overcome obstacles—in our mind and in the environment.



EMOTIONS CAN BE SELF-VALIDATING.

- Our emotional reactions to other people and to events can give us information about the situation. Emotions can be signals or alarms that something is happening.
- When this is carried to an extreme, emotions are treated as facts: "If I feel incompetent, I am." "If I get depressed when left alone, I shouldn't be left alone." "If I feel right about something, it is right." "If I'm afraid, it is threatening." "I love him, so he must be OK."

types of triggers time after time, such as work responsibilities or family events? Do the same types of thoughts tend to come to mind when you are anxious, or are they varied? What time of day or day of the week do you experience the most anxiety? It may be too early to detect patterns, or it may not. Also, now that you have kept a full week of records, the summary can be added to the Progress Record. Fill in the number of anxiety episodes that you experienced over the past week (by counting the number of Worry Records) and the average maximum anxiety rating (by averaging the maximum anxiety ratings you made each day on the Daily Mood form). Of course, you may add other summaries to your Progress Record as well.

Looking for patterns in the triggers and the way you experience anxiety is the first step toward learning that anxiety is a reaction. Although it may feel as if it is out of your control, anxiety is a reaction to something. There are ways of changing or learning to react differently, once you know what the triggers are. Let's examine the nature of anxiety and discuss specifically the process of worry—why it begins in the first place, and how it keeps going.

The State of Anxiety

Anxiety is a natural state that is experienced by everybody. In many cases, anxiety is a productive, driving force. Think of performers, who have to get up on stage in front of a large crowd; having some anxiety will motivate them to perform at their best. Years of research have shown over and over again that having some anxiety enhances performance: that is, you do better at what you're doing, whether in the classroom, at a business meeting, or on the tennis court, when anxiety rises to a certain optimal level.

Anxiety has one overriding purpose, and that is protection and preparation. Anxiety prepares you to deal with threats or dangers that could happen at any minute. When you think a threat or danger is about to occur, anxiety helps you to shift into a state of fearful fight or flight (the natural reaction to immediate danger). While anxiety is similar to fear, the two are somewhat different. Anxiety is the state of preparation for danger that could occur in the future. Fear is the response that occurs when the threat or danger is perceived as being immediately present. Anxiety makes the activation of fear easier. For instance, imagine that you are walking through a jungle and are concerned that a lion may be hiding behind the trees. You would

be in a state of anxiety, and as a result, you would be on guard, watching for any signs of possible lion attack. Your body would be geared up and ready to take action, if necessary. If a lion suddenly emerged from the trees and ran toward you, the emotion of fear and the associated "fight-or-flight" response would take over so that you would either run away or face the danger. The bottom line is that fear and anxiety are protective.

When anxiety is chronic, however, it is as if you are in a state of constant preparation for threat or danger. Importantly, the threat does not have to be real, since anxiety can occur when you only think that danger or threat could happen. The danger or threat does not have to mean something as severe as your life being threatened by a killer. It can be anything that is negative, ranging from the threat of death to the threat of ridicule or failure. A successful business executive who is challenged by a new assignment or project may experience considerable stress and anxiety and may be driven to work long hours in order to avoid failure, criticism, and a sense of loss of mastery and control. Or, a mother of three children may be challenged by the demands of school and may become anxious that her children will fail. From this, it should be clear that different people find different things threatening or challenging.

Let's look at some examples. Suppose you are having a hard day at the office and you have a deadline to meet by 5:00 P.M. or your boss will be upset. Or, suppose your sister-in-law is picking you up in 15 minutes to go to a meeting. Your young children aren't cooperating, and you're not close to being ready. You know that your sister-in-law will be annoyed and that you'll be late for the meeting. Here, the threats are less obvious, but they are still present. You may fail to meet your deadline and be criticized by your boss, a person who is important to you, or you may upset your sister-in-law and interrupt a meeting by entering after it has begun. If you did not care at all about the task at work or the meeting, or about the reaction of your boss or your sister-in-law, you would most likely feel no anxiety.

In these examples, the deadlines and timelines clearly are the immediate triggers for anxiety. As we mentioned earlier, many times, it is unclear what is triggering anxiety, and one of the first goals of this program is to discover those triggers.

Continuing with our examples, if the anxiety were severe enough, and you became convinced that the worst you imagined was about to come true

(that you would be fired or that your children would be harmed, for example), you might experience the fearful fight-or-flight response right in your office or at home. This fear response would occur, even though there was no real, immediate danger. You might experience a panic attack and feel as if you were losing control, having a heart attack, or suffocating. Then, you would feel like escaping or "getting out," even though you knew there was really nothing to be afraid of. On the other hand, you might experience the "fight" response, lash out, and slap your kids, or lose your temper with the workers in your office, almost before you realized it was happening.

Now that the nature of anxiety has been described, it is important to recognize that, although it is a natural response when threat is perceived, anxiety becomes problematic if it is experienced too frequently or too intensely. Anxiety can vary tremendously in severity, from mild uneasiness to extreme distress, and it can vary in frequency, from occasional to seemingly constant unease. When anxiety is very intense or very frequent, it can interfere with your life and feel as if it is out of control. The goal of this program is to help you learn to reduce the frequency or intensity of your anxiety, but not to remove anxiety altogether, because that would be not only impossible, but also undesirable. A little anxiety is needed to motivate performance, and a lot of anxiety is needed when there are real threats.

Components of Anxiety

Anxiety is difficult to manage when viewed as a whole, since the global approach does not provide clues for controlling anxiety. How many times have you said to yourself (or heard others say to you), "Just calm down. Stop being so anxious." How many times has that statement been effective in calming you? It probably hasn't worked very well because telling yourself to be less anxious does not tell you *how* to do it. Thinking about anxiety in terms of its components takes away a lot of its mystery and its seemingly uncontrollable quality. In addition, thinking about anxiety in terms of its parts helps you to identify ways to learn to be less anxious. Scientists often break anxiety down into three components: physical, cognitive (thoughts), and behavioral. That is why you have begun to record your physical symptoms, your thoughts, and your behaviors. Let's spend some time understanding these different components.

Physical Component

The physical component involves physical sensations or symptoms, such as muscular tension, irritability, fatigue, restlessness, and difficulty concentrating. The nervous system causes various physical effects during states of anxiety and fear, and since some of the symptoms seem unexplainable or unusual (such as blurry vision or pressure in your head), they can also provoke anxiety. However, remember that the physical symptoms are the side effects of a response that is meant to protect you as your body prepares for danger or threat. Although the symptoms may seem frightening, they are actually part of a self-protective system and are not dangerous at all.

When danger or threat is perceived, the brain sends messages to a section of your nerves called the "autonomic nervous system." The autonomic nervous system has two branches, called the "sympathetic nervous system" and the "parasympathetic nervous system." These two branches of the nervous system are directly involved in controlling the body's energy levels when preparing for action. Simply put, the sympathetic nervous system is the one that prepares the body for threat or danger by making it ready for the fight-or-flight response: it primes the body for action. The parasympathetic system is responsible for regaining balance and restoring the system to a normal resting state. However, these two systems do not always work in unison. A useful analogy is the accelerator (representing the sympathetic nervous system) and brake (representing the parasympathetic nervous system) pedals in a car; at any given second, only the accelerator, only the brakes, both the accelerator and the brakes, or neither may be in use.

Recent research indicates that chronic worry and anxiety are associated more with low levels of parasympathetic activity than with high levels of sympathetic arousal. Low levels of parasympathetic control mean that the brakes are used less of the time; the accelerator may not be in full throttle, but nonetheless, it is not being controlled by the brakes as well as it could be. The result is a sustained physiological response, without a lot of change. This may explain the chronic symptoms of GAD, such as muscle tension, backache, headache, poor sleep, irritability, and difficulty relaxing. In contrast, the physiology associated with specific fears leads to physical symptoms that increase quickly and then decrease in the presence and absence, respectively, of the anxiety-producing object.

Fortunately, some of our own research has shown that low levels of parasympathetic activation can be corrected with the type of treatment that is described in this workbook.

In contrast to chronic worry and anxiety is the physiology of fear, which is brought on by a perceived immediate threat. Under such conditions, the sympathetic nervous system takes charge and releases two chemicals from the adrenal glands of the kidney. These chemicals are called "adrenaline" and "noradrenaline." They are used as messengers by the sympathetic nervous system to tell the rest of the body to prepare for fight or flight. Other chemicals in the body eventually destroy adrenaline and noradrenaline, so the fight-or-flight arousal cannot continue forever, although the response may continue to rise and fall, and even after the immediate danger and the surge of emotion have passed, you are likely to feel keyed up for some time. This is perfectly natural. In fact, this prolonged response has an adaptive function, because in the wild, danger has a habit of returning, and it is useful for the organism to remain in a prepared state to reactivate the emergency response (fear), if necessary.

The chemical changes that activate the fight-or-flight response produce various symptoms. For example, the heart rate increases, which helps to speed up blood flow, thus improving the delivery of oxygen to and removal of waste products from the tissues. When this occurs, it is common to feel as if your heart is racing or pounding very hard. There is also a change in blood flow. Basically, blood is redirected away from the places where it is not needed, such as the skin, fingers, and toes, and toward the places where it is needed, such as the large muscles in the arms, legs, and chest, by an expansion and constriction of the different blood vessels. When this occurs, it is common to feel your feet and hands becoming cold, and even numb or tingly. In addition, breathing usually becomes faster. This has obvious importance for the body's self-defense, since the tissues need to get more oxygen so that you can move more quickly. In turn, you might feel breathless, a sensation of being smothered, or discomfort, or even pain, in your chest. One side effect of an increased breathing rate and hyperventilation (when the oxygen is not actually consumed at the rate at which it is taken in) is that the blood supply to the brain is actually reduced. While it is only slightly reduced and is not dangerous, it produces a collection of unpleasant symptoms, including dizziness, blurred vision, confusion, a feeling of unreality, and perhaps a sensation of not getting enough air. Usually, sweat

gland activity also increases, as a way of cooling the body and preventing overheating, should you have to fight or flee.

Various other physical changes take place during fear, or the fight-or-flight response, including widening of the pupils, which might result in various strange visual effects (such as increased intensity of visual stimulation or blurred vision). A decrease in salivation also occurs, causing dry mouth, as well as a decrease in activity in the digestive system, which often produces a heavy feeling in the stomach.

As you can see, whereas the physiology of worry and chronic anxiety (about future uncertain or threatening events) involves chronically elevated muscle tension and restlessness, with little change, the physiology of fear (when one feels immediately threatened) is associated with a distinct peak in sympathetic nervous system arousal. You might feel the physical effects of chronic anxiety most of the time and feel the effects of fear occasionally, especially at those moments when you become convinced that what you are most worried about is actually going to come true. This distinction between anxiety and fear is important because the state of anxiety and worry may actually block the physiological experience of fear. In other words, worrying may block the physiological reactions associated with being afraid. As described later, it may even be the case that worry will continue because it feels better than being afraid. For example, feeling tense and irritable, with difficulty sleeping, is better than feeling short of breath, dizzy, or disoriented, with your heart racing. In this way, anxiety and worry may become a way of avoiding fear. One of the goals of this program is to learn to face the fear, so that it has a chance to subside, and thereby lessen the need for worry.

Thinking Component

Similar to the body's preparation for a threat or danger, the mind also prepares, when in an anxious state. One of the major effects of feeling anxious is a shift of attention toward the source of threat. Thoughts or images become focused on a sense of impending doom, thoughts that something bad is about to happen, or nervous wondering about what is going to happen. There is usually a tendency to believe that negative events are particularly likely to happen, even though their actual probability is very low. There is also a tendency to focus exclusively on the worst possible outcome, instead of the more positive outcomes.

When we feel anxiety, our minds naturally scan our environment for possible signs of threat. This is valuable in terms of survival, because it means that you will notice danger very quickly, if it does exist. However, if you are chronically anxious, your persistent focus on the possibility of a threat, or of things going wrong in the future, is likely to interfere with your attention to things going on right in front of you, such as the conversations happening at the moment or your current job tasks. You are more likely to be distracted.

Anxious thoughts (the ones that have to do with all of the possible negative outcomes) are referred to as "worry," which is a main feature of GAD. We will spend some time discussing the role of worry. At this point, it is important for you to recognize that anxious thoughts or images are one component of your anxiety. In addition, worrisome thoughts can contribute to other components of anxiety (such as the physiology and behaviors), and the physiology and behaviors of anxiety can also contribute to worrisome thoughts. The interactions among thoughts, behaviors, and physiology are described in more detail later in this chapter.

There are a number of common themes in chronic worry:

1. *Health.* This can include worries about your own health or the health of family and friends, images of sickness and disease, and your own inability to cope, should you or somebody close to you become sick. You may become anxious when hearing about others falling ill because it reminds you of the possibility that you or a loved one might become sick.

2. *Friends/family.* This can include worries about being a good parent or friend, the general happiness and well-being of your family and friends, their safety, and whether you are saying or doing the right things by them.

3. *Work/school.* This is another area that is often a source of worry. For example, you might worry about completing all of the tasks for the day or the week, wonder whether you are performing at the level that is expected or making mistakes, or wonder whether the entire office for which you are responsible is working in the way that it should.

4. *Finances.* Sometimes people worry about paying their bills or having enough money for the future, even though they do have enough money to cover their expenses.

5. *Daily life.* These worries include thinking that a negative outcome is lurking around every corner, including constant worry about day-to-day activities, such as being on time, traffic, presenting a good appearance, chores, and so on.

Although people who are chronic worriers tend to worry about the same kinds of things as people who are not chronic worriers, chronic worry is characterized by an added dimension of not being able to stop the worry. The chronic worrier may lie in bed at night, worrying about upcoming events during the week or the years to come, despite the desire to stop worrying, whereas others are more easily able to dismiss their worries. Similarly, the chronic worrier may bring work-related worries home, instead of being able to "turn them off." A good deal of this program is aimed at helping you to learn how to "turn off" worries.

Several underlying beliefs are associated with chronic worry; and these beliefs may explain, in large part, why it is so difficult to turn off the worry.

1. *Perfectionism,* or the underlying belief that one cannot, and should not, make mistakes, and that to make mistakes, in judgment, decision-making, parenting, work, or wherever, represents incompetence in managing life.

2. *Responsibility,* or the underlying belief that it is irresponsible not to attend to negative possibilities, that worries that pop up in one's mind should not be ignored, and that worrying means that you are being responsible, whereas not worrying is to be irresponsible.

3. *Controllability,* or the underlying belief that worry is a way of gaining control and preventing negative possibilities from coming true. In other words, "I am glad I worried about my daughter because she made it home safely from her trip," or conversely, "I am worried that I am not worrying."

4. *Negative beliefs about worry,* or the belief that worry itself may drive you crazy, or that worrying indicates that you have lost your mind or are incapable of functioning.

These underlying beliefs either drive you to continue to worry (because worry means that "you are less likely to make mistakes," "that you are being responsible," and that "you are preventing negative events from coming true") or drive you to do things to stop yourself from worrying, such as dis-

tracting yourself or always being fully prepared for the next workday so that you won't have to worry throughout the night about not being fully prepared (because excessive worry during the night might "make you lose your mind"). Either way, these underlying beliefs perpetuate worry.

Behavioral Component

The thinking and physical state of being prepared for danger or a threat (anxiety) obviously has certain behavioral features that accompany it. Some of the behaviors are directly produced by high levels of physical tension. These include restlessness, poor concentration on other tasks, and irritability.

Other behaviors include those that are designed to lessen the amount of worrying, such as always being fully prepared for the next day at work so as to avoid worrying throughout the night about not being prepared, or refusing to take on a task to avoid worrying about its completion.

Other behaviors are designed to prevent the chances of negative outcomes, and of course, these overlap with the behaviors designed to prevent worry in the first place. For example, being overly prepared for the next day of work not only helps to eliminate worry about not being prepared, but also, in your mind, may help decrease the chances of being criticized at work the next day. The same applies to going overboard to ensure that everything gets done on time at work or at home. Similarly, working to have your house in perfect order before a social gathering at home serves not only to decrease your worry about the order of your house, but also, in your mind, decreases the chances of negative judgments from your guests.

Related to this are "safety-check" types of behaviors, designed to ensure that "everything is OK." These can include things such as calling your husband or wife at work each day to be reassured that he or she is safe, checking the news reports for weather conditions in the areas in which your family members are driving, and being overly protective of your children. Of course, these types of safety checks are common for a lot of people, but you may do them more frequently than others, and the immediate relief that they provide, unfortunately, contributes to anxiety.

As you will learn, all of the behaviors that are designed to eliminate worry or prevent negative events contribute to your chronic worry in the long run. We will help you let go of these behaviors.

Your Three Anxiety Components

Now that each of the components of anxiety has been described, it is time for you to recognize the physical symptoms, thoughts or images, and behaviors that occur when you are anxious. Remember, an initial step toward change is to become an objective observer of your own reactions. Using the Worry Records that you completed over the last week, list your most typical physical symptoms, thoughts, and behaviors. In the following example, when James is anxious, he is most aware of jittery legs, an upset stomach, and muscle tension. His thoughts are mostly related to making mistakes at work and losing his job, not getting everything at work done on time, and his future. His major behaviors include irritability with others at work and at home, procrastination about big tasks, and frequent reviews of his work.

Now, record the types of symptoms, thoughts, and behaviors that you most commonly experience when you are anxious and worried about future events or uncertainties. Use your record-keeping over the past week to help you. Remember, your physical symptoms, behaviors, and thoughts are likely to differ, depending on whether you are in a state of anxiety or a state of fear (the actual fight-or-flight response). For example, although you might feel jittery, tense, and irritable when you are worried about the future, the most noticeable symptoms when you are afraid might be a racing heart and un-

Anxiety Components for James

Major physical symptoms: Jittery, tense legs
knot in stomach
tension, especially head & neck

Major thoughts/images: Errors at work, lose job
Not getting things done
Future of family

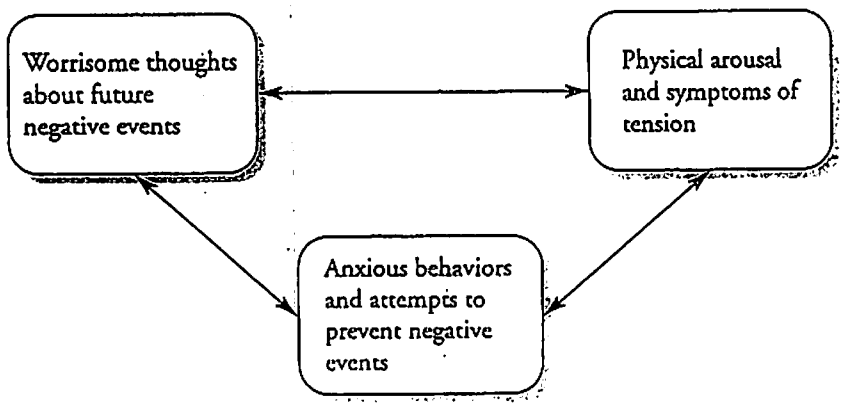
Major behaviors: Irritable with colleagues & family
Procrastinate about starting big jobs
Review my work over and over

steadiness or faintness. Similarly, when you are worried about the future, your behaviors might be to work extra hard to prevent negative events (such as being fired from your job), whereas you might just leave or escape a situation when you feel very frightened. Finally, the major thought when you are anxious is likely to pertain to possible future events ("what if") whereas your strongest thoughts when you are afraid are likely to relate to the perception of immediate danger ("It is happening. I am about to die"). For this particular exercise, write down the symptoms, thoughts, and behaviors that occur when you are anxious and worried about future events.

The Anxiety Component Cycle

The three components of anxiety not only define the experience of anxiety, but also influence each other in a way that can increase or decrease the overall experience of anxiety. Let's examine the escalating cycle first. At times, worrisome thoughts may bring about increased physical tension, which may, in turn, interfere with your behavior. For example, worrying about the safety of your friends or family may result in agitation and restlessness to a level that interferes with your concentration at work. In turn, high levels of physical tension most likely contribute to having worrisome thoughts or images. This type of interaction, where one component of anxiety intensifies another component, is called a "positive feedback loop." Another example of a positive feedback loop is when worrying about receiving a negative review at work produces increased muscle tension and difficulty concentrating, which produce more anxious thoughts about being fired, which contribute

The Anxiety Component Cycle



to even higher levels of physical tension and overwhelming fatigue, which lead to procrastination about starting a new project at work, which intensifies worries about being fired, and the cycle goes on. Therefore, while representing separate components, the thoughts, behaviors, and physiology can interact in ways that actually cause further anxiety, as shown.

Let's take another example. James was at his computer programming work one Friday morning, anxiously worrying about renovations that were being made at his bed and breakfast inn. His worry had been relatively mild, until he overheard a co-worker talking about problems he'd had with a plumber in his own home. The plumber did not show up on time, and as a result, the kitchen sink was still clogged and would remain so until the plumber returned that evening. When James heard this account, he began to worry that the renovations to his inn would not be completed by the evening. If that happened, it would be a disaster because the customers who were coming for the weekend would be disappointed with the condition of the inn. As he continued to worry, James began to feel tense and restless. He called the company responsible for the renovations, but the person in charge was out of the office. This led James to feel even more worried, and he became increasingly convinced that the workers had not shown up at all. He tried to focus on his work, but found it very difficult to stop thinking about the renovations, because he was very agitated and was experiencing some stomach distress. As a result, he began to worry about others noticing him at work. He worried that they would think that he was not getting his work done. This led to other worries about being fired from his job and being in the horrible position of not being able to pay the bills.

In fact, most of the renovations went according to plan, and even though every last detail was not finished, the customers still seemed very pleased with the inn. As usual, the result was very different from the images of disaster that James was preoccupied with while at work. In this case, a specific piece of information led to worrisome thoughts and images, as well as physical tension, safety checking behaviors, task interference, and so on. Therefore, a feedback cycle was operating, whereby negative thoughts provoked physical tension and behaviors, which provoked more negative thoughts, and so on.

Now it's time for you to describe one of your own recent episodes of anxiety in the same way. What was the sequence of events? Understanding your

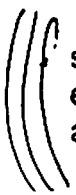
THE PHYSIOLOGY AND PSYCHOLOGY OF FEAR AND ANXIETY

While an actual definition of anxiety that covers all aspects is very difficult to provide (indeed whole books have been written on the subject), everyone knows the feeling we call anxiety. There is not a person who has not experienced some degree of anxiety whether it is the feeling upon entering a school room just before an exam or the feeling when one wakes in the middle of the night certain that he/she heard a strange sound outside. What is less known, however, is that sensations such as extreme dizziness, spots and blurring of the eyes, numbness and tingling, stiff, almost paralyzed muscles, and feelings of breathlessness extending to choking or smothering can also be a part of anxiety. When these sensations occur and people do not understand why, anxiety can increase to levels of panic, since people imagine that they must have some disease.

Anxiety is a response to danger or threat. Scientifically, immediate- or short-term anxiety is termed the fight-flight response. It is so named because all of its effects are aimed toward either fighting or fleeing the danger. Thus, the number one purpose for anxiety is to protect the organism. When our ancestors lived in caves, it was vital that when faced with some danger, an automatic response would take over causing them to take immediate action (attack or run). Even in today's hectic world this is a necessary mechanism. Just imagine if you were crossing a street when suddenly a car sped toward you blasting its horn. If you experienced absolutely no anxiety, you would be killed. However, more probably your fight-flight response would take over and you would run out of the way to be safe. The moral of this story is a simple one - the purpose of anxiety is to protect the organism, not to harm it. It would be totally ridiculous for nature to develop a mechanism whose purpose is to protect an organism and yet, in doing so, harms it.

The best way to think of all of the systems of the fight-flight response (anxiety) is to remember that all are aimed at getting the organism prepared for immediate action and that their purpose is to protect the organism.

When some sort of danger is perceived or anticipated, the brain sends messages to a section of your nerves called the autonomic nervous system. The autonomic nervous system has two subsections or branches called the sympathetic nervous system and the parasympathetic nervous system. It is these two branches of the nervous system that are directly involved in controlling the body's energy levels and preparation for action. Very simply put, the sympathetic nervous system is the *fight-flight* system which releases energy and gets the body primed for action while the parasympathetic nervous system is the restoring system which returns the body to a normal state.



One important point is that the sympathetic nervous system tends to be largely an all-or-none system. That is, when it is activated, all of its parts respond. In other words, either all symptoms are experienced or no symptoms are experienced; it is rare for changes to occur in one part of the body alone. This may explain why most panic attacks involve many symptoms and not just one or two.

One of the major effects of the sympathetic nervous system is that it releases two chemicals, called adrenalin and noradrenalin, from the adrenal glands on the kidneys. These chemicals, in turn, are used as messengers by the sympathetic nervous system to continue activity so that once activity in the sympathetic nervous system begins, it often continues and increases for some time. However, it is very important to note that sympathetic nervous system activity is stopped in two ways. First, the chemical messengers - adrenalin and noradrenalin - are eventually destroyed by other chemicals in the body. Second, the parasympathetic nervous system (which generally has opposing effects to the sympathetic nervous system) becomes activated and restores a relaxed feeling. It is very important to realize that eventually the body will have enough of the fight-flight response and will activate the parasympathetic nervous system to restore a relaxed feeling. In other words, **anxiety cannot continue forever or spiral to ever-increasing and possibly damaging levels**. The parasympathetic nervous system is a built-in protector that stops the sympathetic nervous system from getting carried away. Another important point is that the chemical messengers, adrenalin and noradrenalin, take some time to be destroyed. Thus, even after the danger has passed and your sympathetic nervous system has stopped responding, you are likely to feel keyed up or apprehensive for some time because the chemicals are still floating around in your system. You must remind yourself that this is perfectly natural and harmless. In fact, this is an adaptive function because, in the wilds, danger often has a habit of returning and it is useful for the organism to be prepared to activate the fight-flight response.

Activity in the sympathetic nervous system produces an increase in the heartbeat. This is vital to preparation for activity since it helps speed up the blood flow thus improving delivery of oxygen to the tissues and removal of waste products from the tissues. This is why a racing or pounding heart is typically experienced during periods of high anxiety or panic. In addition to increased activity in the heart, there is also a change in the blood flow. Basically, blood is redirected away from the places where it is not needed (by a tightening of the blood vessels) and toward the places where it is needed more (by an expansion of the blood vessels). For example, blood is taken away from the skin, fingers and toes. This is useful because if the organism is attacked and cut in some way, it is less likely to bleed to death. Hence, during anxiety the skin looks pale and feels cold, and fingers and toes become cold and sometimes experience numbness and tingling. In addition, the blood is moved to the large muscles such as the thighs and biceps, which helps the body prepare for action.

The fight-flight response is associated with an increase in the speed and depth of breathing. This has obvious importance for the defense of the organism since the tissues need to get more oxygen in order to prepare for action. The feelings produced by this increase in breathing however can include breathlessness, choking or smothering feelings and even pains or tightness in the chest. Importantly a side effect of increased breathing, especially if no actual activity occurs, is that blood supply to the head is actually decreased. While this is only a small amount and is not at all dangerous, it produces a collection of unpleasant (but harmless) symptoms including dizziness, blurred vision, confusion, unreality, and hot flushes.

Activation of the fight-flight response produces an increase in sweating. This has important adaptive functions such as making the skin more slippery so that it is harder for a predator to grab and cooling the body to stop it from overheating.

Activation of the sympathetic nervous system produces a number of other effects, none of which are in any way harmful. For example, the pupils widen to let in more light, which may result in blurred vision, spots in front of the eyes, and so on. There is a decrease in salivation, resulting in a dry mouth. There is decreased activity in the digestive system which often produces nausea, a heavy feeling in the stomach and even constipation. Finally, many of the muscle groups tense up in

preparation for fight or flight and this results in subjective feelings of tension, sometimes extending to actual aches and pains as well as to trembling and shaking.

Overall, the fight-flight response results in a general activation of the whole bodily metabolism. Thus, one often feels hot and flushed and, because this process takes a lot of energy, afterwards one generally feels tired, drained, and washed out.

As mentioned before, the fight-flight response prepares the body for action - either to attack or to run. Thus, it is no surprise that the overwhelming urges associated with this response are those of aggression and a desire to escape. When this is not possible (due to social constraints), the urges will often be expressed by such behaviors as foot tapping, pacing, or snapping at people. Overall, the feelings produced are those of being trapped and needing to escape.

The number one effect of the fight-flight response is to alert the organism to the possible existence of danger. Thus, there is an immediate and automatic shift in attention to search the surroundings for potential threat. It becomes very difficult to concentrate on daily tasks when one is anxious. People who are anxious often complain that they are easily distracted from daily chores, that they cannot concentrate and that they have trouble with their memory. Sometimes an obvious threat cannot be found. Unfortunately, most people cannot accept having no explanation for something. Therefore, in many cases, when people cannot find an explanation for their sensations, they turn their search to themselves. In other words, "if nothing out there is making me feel anxious, there must be something wrong with me." In this case, the brain invents an explanation such as "I must be dying, loosing control, or going crazy." As we have now seen, nothing could be further from the truth since the purpose of the fight-flight response is to protect the organism not to harm it. Nevertheless, these are understandable thoughts.

Until now we have looked at the features and components of general anxiety or the fight-flight response. However, you may be wondering how all this applies to panic attacks. After all, why should the fight-flight response be activated during panic attacks since there is apparently nothing to be frightened of?

Following extensive research, it appears that people with panic attacks are frightened of (i.e. what causes the panic) the actual physical sensations of the fight-flight response. Thus, panic attacks can be seen as a set of unexpected physical symptoms and a response of panic or fear of the symptoms. The second part of this model is easy to understand. As discussed earlier, the fight-flight response (of which the physical symptoms are a part) causes the brain to search for danger. When the brain cannot find any obvious danger, it turns its search inward and invents a danger such as "I am dying, losing control, etc." Since such interpretations of the physical symptoms are very frightening, it is understandable that fear and panic result . In turn, fear and panic produce more physical symptoms and therefore a cycle of symptoms, fear, symptoms, fear, and so on, is produced. The first part of the model is harder to understand. Why do you experience the physical symptoms of the fight-flight response if you are not frightened to begin with? There are many ways these symptoms can be produced, not just through fear. For example, it may be that you have become generally stressed in your life and this stress results in an increase in the production of adrenalin and other chemicals that from time to time, produce symptoms. This increased adrenalin could presumably be maintained chemically in the body even after the stressor has long gone. Another possibility is that you tend to breathe a little too fast (subtle hyperventilation) due to a learned habit, and this also can produce symptoms. Because the overbreathing is very slight, you easily become used to this level of breathing and do not notice that you are hyperventilating. A third possibility is that you are experiencing normal changes in your body (which everyone experiences but most don't notice) and,

because you are constantly monitoring and keeping a check on your body, you notice these sensations far more than most people do. In addition to the two reasons already described for experiencing physical symptoms (i.e. stress and overbreathing), you might become conscious of these physical symptoms as a result of a process called interoceptive conditioning. Since the physical symptoms have been associated with the trauma of panicking, they have become meaningful signals of threat and danger to you (that is, they have become conditioned stimuli). As a result, it is very likely that you are highly sensitive to these symptoms and react fearfully simply because of the past experiences of panic with which they have been associated. As a consequence of this type of conditioned association, it is possible that symptoms produced by regular activities can also lead to your becoming panicky. For example, the breathless and sweaty feelings produced by physical exercise, the jittery feeling produced by drinking coffee, or the heat produced by overcrowded stores may all lead you to feel panicky.

Even if we are not certain why one experiences the initial symptoms, be assured that they are a part of the fight-flight response and therefore are harmless.

Obviously, then, once you truly believe (100%) that the physical sensations are not dangerous, the fear and panic will no longer occur and you will no longer experience panic attacks. Of course, once you have had a number of panic attacks and you have misinterpreted the symptoms many times, this misinterpretation becomes quite automatic and it becomes very difficult to consciously convince yourself during a panic attack that the symptoms are harmless.

In summary, anxiety is scientifically known as the fight-flight response since its primary purpose is to activate the organism and protect it from harm. Associated with this response are a number of physical, behavioral, and mental changes. Importantly, once the danger has gone, many of these changes (especially the physical ones) can continue, almost with a mind of their own, due to learning and other longer-term bodily changes. When the physical symptoms occur in the absence of an obvious explanation, people often misinterpret the normal fight-flight symptoms as indicating a serious physical or mental problem. In this case, the sensations themselves can often become threatening and can begin the whole fight-flight response again. Many people, when they experience the physical symptoms of the fight-flight response, believe they are "going crazy." They are most likely referring to a severe mental disorder known as schizophrenia. Let us look at schizophrenia to see how likely this is.

Schizophrenia is a major disorder characterized by such severe symptoms as disjointed thoughts and speech, sometimes extending to babbling, delusions, or strong beliefs (e.g. that messages are being received from outer space) and hallucinations (e.g. that there are voices in one's head). Furthermore schizophrenia appears to be largely a genetically based disorder, running strongly in families.

Schizophrenia generally begins very gradually and not suddenly (as during a panic attack). Additionally, because it runs in families, only a certain proportion of people can become schizophrenic and, in other people, no amount of stress will cause the disorder. A third important point is that people who become schizophrenic usually show some mild symptoms for most of their life (i.e. unusual thoughts and flowery speech). Thus, if this has not been noticed in you yet, the chances are you will not become schizophrenic. This is especially true if you are over 25, since schizophrenia generally first appears in the late teens to early 20s. Finally, if you have been through interviews with a psychologist or psychiatrist, you can be fairly certain that they would have known if you were likely to become schizophrenic.

Some people believe they are going to "lose control" when they panic. Presumably they mean that they will either become totally paralyzed and not be able to move, or that they will not know what they are doing and will run around wildly killing people or yelling out obscenities and embarrassing themselves. Alternatively, they may not know what to expect but may just experience an overwhelming feeling of "impending doom."

From our earlier discussion, we now know where this feeling comes from. During anxiety the entire body is prepared for action and there is an overwhelming desire to escape. However, the fight-flight response is not aimed at hurting other people (who are not a threat) and it will not produce paralysis. Rather, the entire response is simply aimed at getting the organism away. In addition, there has never been a recorded case of someone going wild during a panic attack. Even though the fight-flight response makes you feel somewhat confused, unreal, and distracted, you are still able to think and function normally. Simply think of how often other people even notice that you are having a panic attack.

Many people are frightened about what might happen to them as a result of their symptoms, perhaps because of some belief that their nerves might become exhausted and they may collapse. As discussed earlier, the fight-flight response is produced chiefly through activity in the sympathetic nervous system which is counteracted by the parasympathetic nervous system. The parasympathetic nervous system is, in a sense, a safeguard against the possibility that the sympathetic nervous system may become "worn out." Nerves are not like electrical wires and anxiety cannot wear out, damage, or use up nerves. The absolute worst that could happen during a panic attack is that an individual could pass out, at which point the sympathetic nervous system would stop its activity and the person would regain consciousness within a few seconds. However, actually passing out as a result of the fight-flight response is extremely rare and if it does occur, it is an adaptive way of stopping the sympathetic nervous system from going out of control.

Many people misinterpret the symptoms of the fight-flight response and believe they must be dying of a heart attack. This is probably because many people do not have enough knowledge about heart attacks. Let us look at the facts of heart disease and see how this differs from panic attacks.

The major symptoms of heart disease are breathlessness and chest pain as well as occasional palpitations and fainting. The symptoms in heart disease are generally directly related to effort. That is, the harder you exercise, the worse the symptoms and the less you exercise, the better. The symptoms will usually go away fairly quickly with rest. This is very different from the symptoms associated with panic attacks, which often occur at rest and seem to have a mind of their own. Certainly, panic symptoms can occur during exercise or can be made worse during exercise, but they are different from the symptoms of a heart attack since they can occur equally often at rest. Of most importance, heart disease will almost always produce major electrical changes in the heart, which are picked up by the electrocardiogram (EKG). In panic attacks, the only change that shows up on the EKG is a slight increase in heart rate. Thus, if you have had an EKG and the doctor has given you the all-clear, you can safely assume you do not have heart disease. Also, if your symptoms occur any time and not only upon exertion, this is additional evidence against a heart attack.

Source: *Clinical Handbook of Psychological Disorders,* Ed. by David H. Barlow. Guilford Press. 1993.