Information Handout

Professional Version | US English

Fight Or Flight Response

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Description

The fight or flight response is an automatic physiological reaction to an event that is perceived as stressful or frightening. The perception of threat activates the sympathetic nervous system and triggers an acute stress response that prepares the body to fight or flee. These responses are evolutionary adaptations to increase chances of survival in threatening situations. Overly frequent, intense, or inappropriate activation of the fight or flight response is implicated in a range of clinical conditions including most anxiety disorders. A helpful part of treatment for anxiety is an improved understanding of the purpose and function of the fight or flight response. This information handout describes the bodily consequences of the fight or flight response.

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Physiological responses

The fight or flight reaction is associated with activation of the sympathetic nervous system. The chain reaction brought about by the fight or flight response can result in the following physical effects:

Body System	Physiological effect	Consequence
Heart	Increased heart rate. Dilation of coronary blood vessels.	Increase in blood flow. Increased availability of oxygen and energy to the heart.
Circulation	Dilation of blood vessels serving muscles. Constriction of blood vessels serving digestion.	Increased availability of oxygen to skeletal muscles. Blood shunted to skeletal muscles and brain.
Lungs	Dilation of bronchi. Increased respiration rate.	Increased availability of oxygen in the blood.
Liver	Increased conversion of glycogen to glucose.	Increased availability of glucose in skeletal muscle and brain cells.
Skin	Skin becomes pale or flushed as blood flow is reduced.	Increased blood flow to muscles and away from non-essential parts of the body such as the periphery.
Eyes	Dilation of the pupils.	Allows in more light so that visual acuity is improved to scan nearby surroundings.

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Psychological responses

In addition to physiological reactions there is also a psychological component to the fight or flight response. Automatic reactions include a quickening of thought and an attentional focus on salient targets such as the source of the threat and potential avenues for escape. Secondary psychological responses can include appraisals about the meaning of the body reactions. For example, patients with panic disorder often misinterpret fight or flight responses as signs of impending catastrophe ("I'm having a heart attack", "If this carries on I'll go mad").

History of the fight or flight response

The fight or flight response was originally described by American physiologist Walter Bradford Cannon in the book *Bodily changes in pain, hunger, fear and rage* (1915). He noted that when animals were threatened, by exposure to a predator for example, their bodies released the hormone adrenaline / epinephrine which would lead to a series of bodily changes including increased heart rate and respiration. The consequences of these changes are increases in the flow of oxygen and energy to the muscles. Canon's interpretation of this data was that there were emergency functions of these changes. He noted that they happened automatically and they served the function of helping the animal to survive threatening situations by readying the body for fighting or running.

A more modern understanding of the fight or flight response is reflected in the work of Schauer & Elbert (2010). Their more elaborated model of physiological / psychological / behavioral responses to threat is termed the 'defense cascade'. They describe a series of stages which individuals exposed to threat or trauma may go through, including: freeze, flight, fight, fright, flag, and faint.

Why the fight or flight response is important

The physiological responses associated with fight or flight can play a critical role in surviving truly threatening situations. However, many patients suffering from anxiety disorders or other conditions may have threat systems which have become over-active, or which are insufficiently counterbalanced by activity in the parasympathetic nervous system.

Practically, many patients who suffer from anxiety will benefit from a deeper understanding of the fight or flight response. For example, patients with panic attacks or panic disorder often misinterpret the bodily signs associated with fight or flight as signs of impending catastrophe and understanding the fight or flight response is therefore a helpful 'decatastrophizing' technique. Similarly, patients with post-traumatic stress disorder (PTSD) may mistake the increased physiological arousal as an indicator that there is a genuine threat present: understanding more about the fight or flight response can help them to feel safer, and to implement relaxation and grounding strategies.

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Instructions

This is a Psychology Tools information handout.
Suggested uses include:

- Client handout – use as a psychoeducation resource.
- Discussion point – use to provoke a discussion and explore client beliefs.
- Therapist learning tool – improve your familiarity with a psychological construct.
- Teaching resource – use as a learning tool during training.

References

Cannon, W. B. (1915). *Bodily changes in pain, hunger, fear, and rage.* New York: Appleton-Century-Crofts.

Schauer, M., & Elbert, T. (2010). Dissociation following traumatic stress. *Journal of Psychology*, 218, 109-127.

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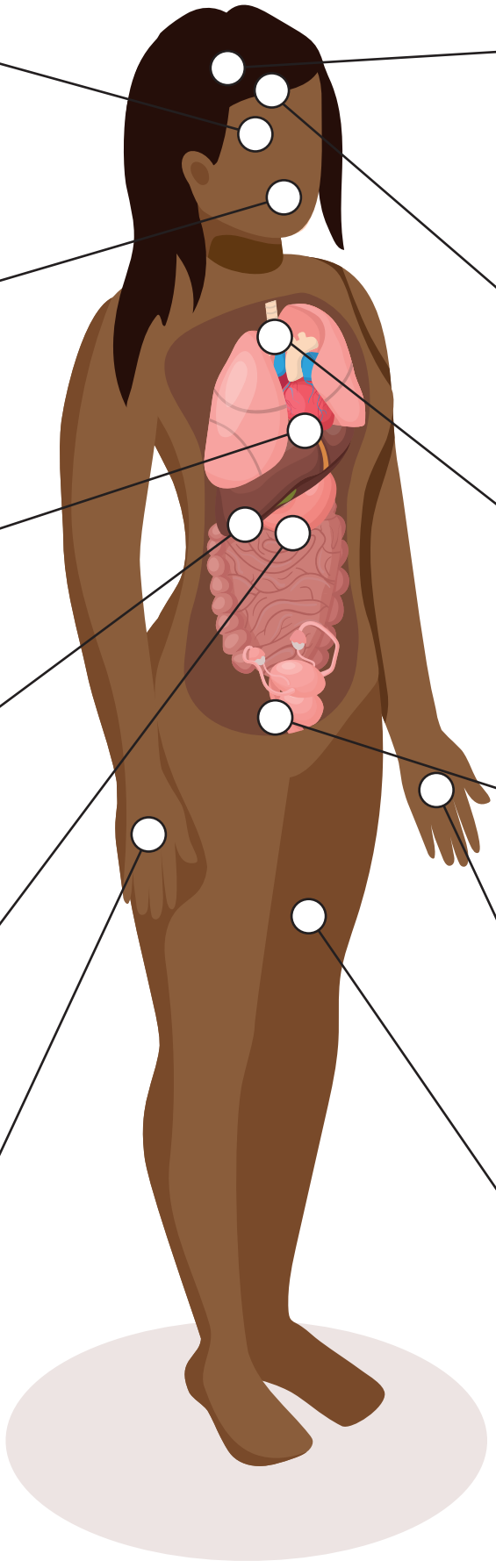
When faced with a life-threatening danger it often makes sense to run away or, if that is not possible, to fight. The *fight or flight response* is an *automatic* survival mechanism which prepares the body to take these actions. All of the body sensations produced are happening for good reasons – to prepare your body to run away or fight – but may be experienced as uncomfortable when you do not know why they are happening.



Changes to vision
Vision can become acute so that more attention can be paid to danger. You might notice 'tunnel vision', or vision becoming 'sharper'.

Dry mouth
The mouth is part of the digestive system. Digestion shuts down during dangerous situations as energy is diverted towards the muscles.

Heart beats faster
A faster heartbeat feeds more blood to the muscles and enhances your ability to run away or fight.

Adrenal glands release epinephrine
The epinephrine quickly signals other parts of the body to get ready to respond to danger.

Nausea and 'butterflies' in the stomach
Blood is diverted away from the digestive system which can lead to feelings of nausea or 'butterflies'.

Hands get cold
Blood vessels in the skin contract to force blood towards major muscle groups.

Thoughts racing
Quicker thinking helps us to evaluate danger and make rapid decisions. It can be very difficult to concentrate on anything apart from the danger (or escape routes) when the fight or flight response is active.

Dizzy or lightheaded
If we don't exercise (e.g. run away or fight) to use up the extra oxygen then we can quickly start to feel dizzy or lightheaded.

Breathing becomes quicker and shallower
Quicker breathing takes in more oxygen to power the muscles. This makes the body more able to fight or run away.

Bladder urgency
Muscles in the bladder sometimes relax in response to extreme stress.

Palms become sweaty
When in danger the body sweats to keep cool. A cool machine is an efficient machine, so sweating makes the body more likely to survive a dangerous event.

Muscles tense
Muscles all over the body tense in order to get you ready to run away or fight. Muscles may also shake or tremble, particularly if you stay still, as a way of staying 'ready for action'.

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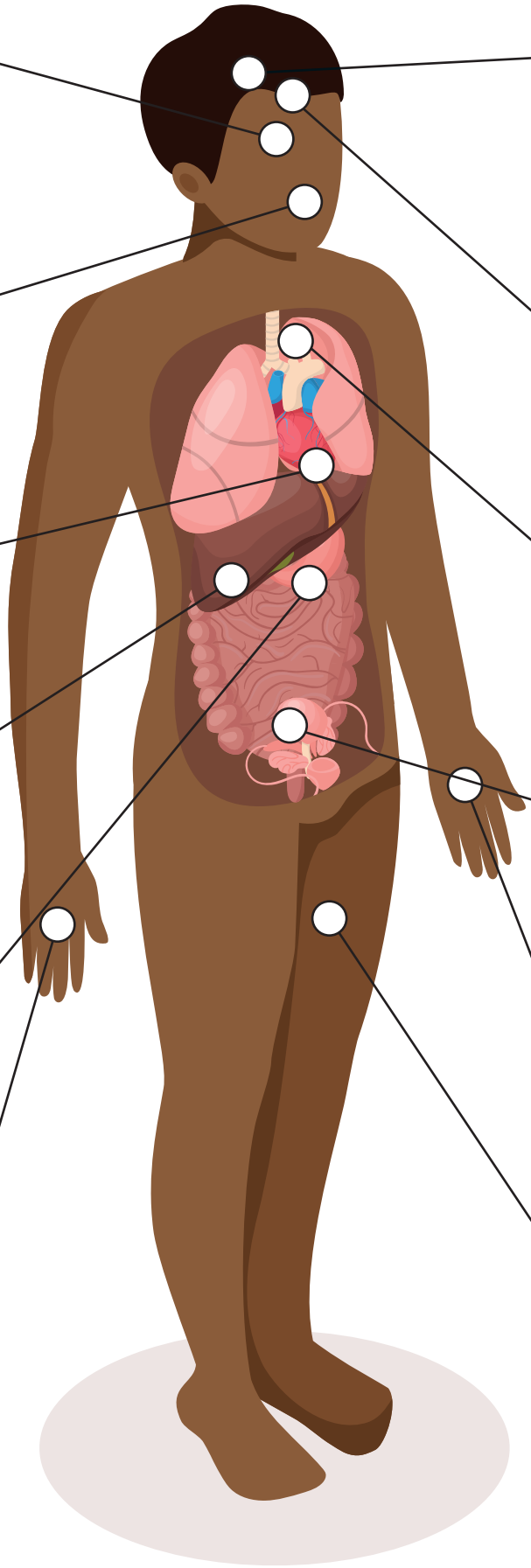

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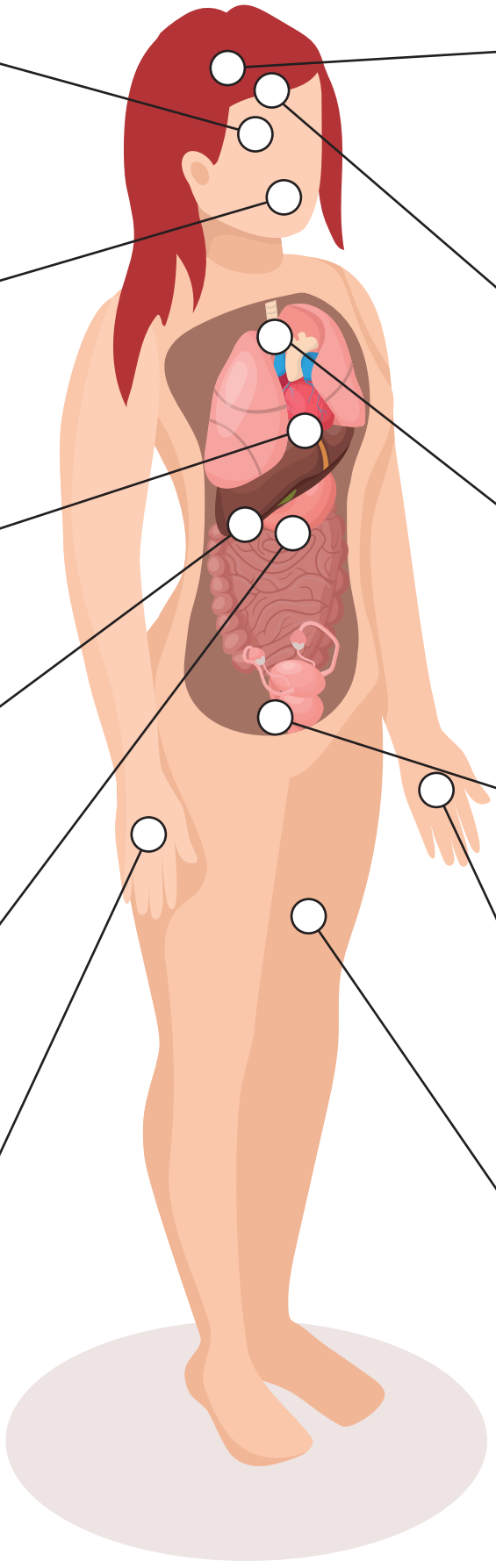

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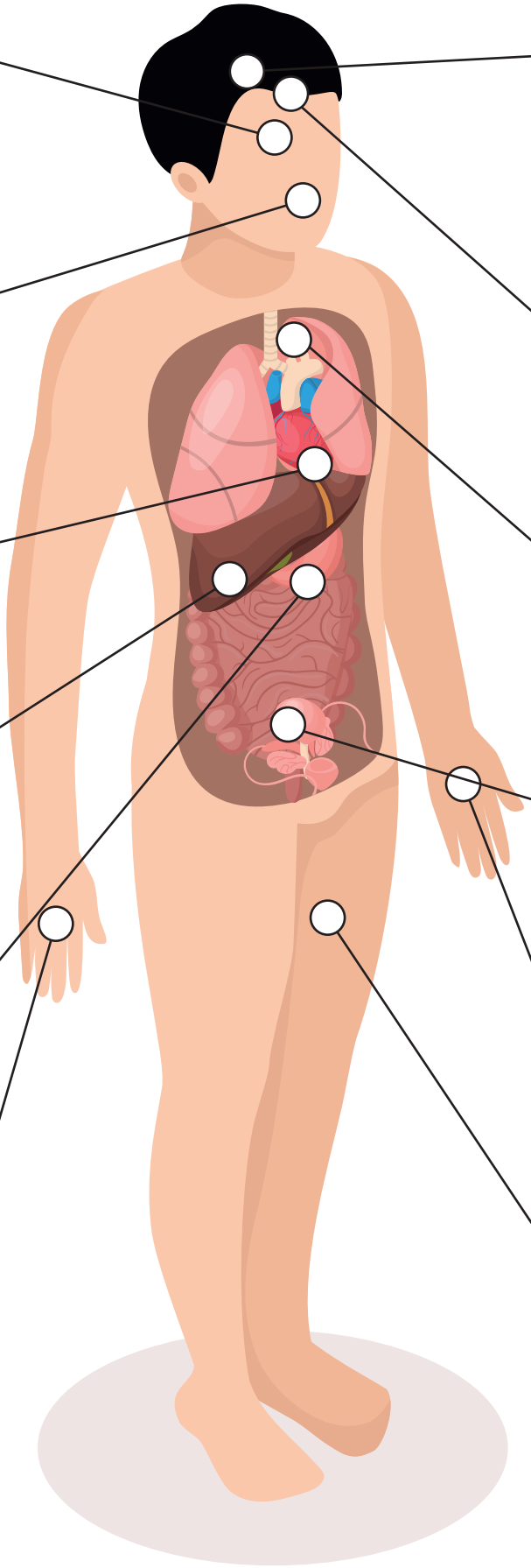

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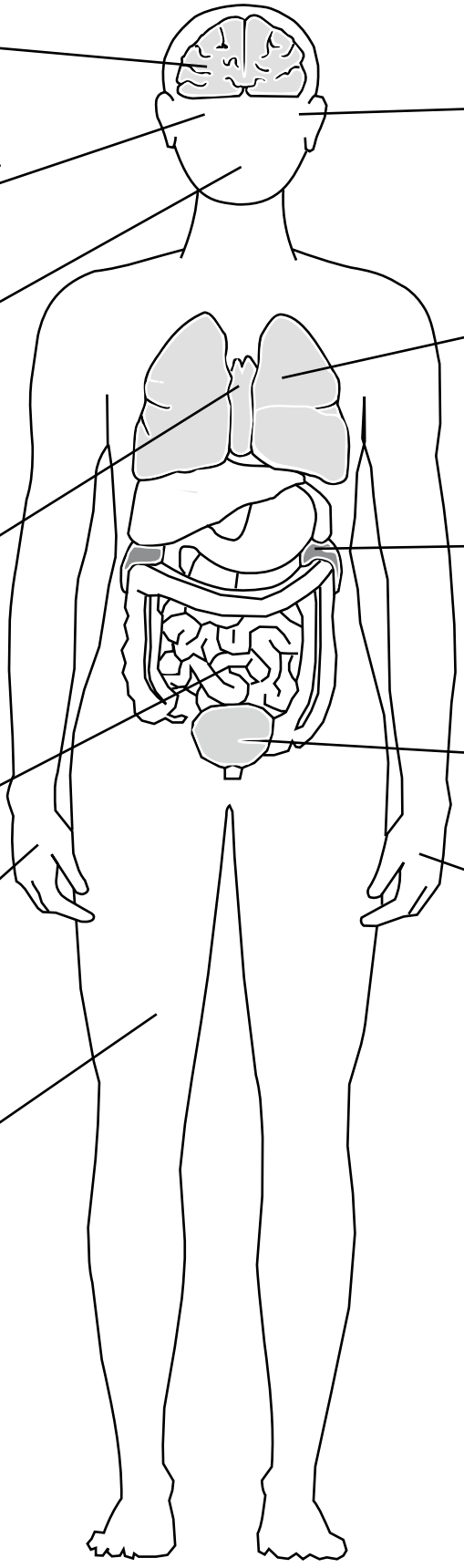

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