

# Information Handout

Professional Version | US English

# Your Stone Age Brain



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## Description

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The freeze-flight-fight response is a set of evolutionary adaptations that increase the chances of survival in threatening situations. Consciously or unconsciously appraising an event as dangerous triggers an automatic defense cascade of physiological and cognitive responses that prepare the individual to freeze, flee, or fight (Bracha et al, 2004; Kozłowska et al, 2015). These responses are present in many other species (Canon, 1929), and the 'hardware' underlying them in modern humans is thought to be unchanged in the last 200,000 years (Nitecki & Nitecki, 1994). Psychologists often use the 'Caveman metaphor' to illustrate how ingrained these responses are.

Freeze-flight-fight responses are associated with activity in the autonomic nervous system (ANS). Fight and flight are supported by increased activity in the sympathetic branch of the ANS, which increases heart rate, blood pressure, respiration, and muscle tone, and inhibits digestive function. Freezing is associated with activity in both the sympathetic and parasympathetic branches of the ANS (Roelofs, 2017).

An overly sensitive freeze-flight-fight response can be a key part of multiple anxiety disorders, resulting in overly frequent or intense experiences of anxiety (Andrews et al, 2003). The clearest example is panic: the cognitive model of panic suggests that misinterpreting benign body symptoms as a threat leads to activation of the freeze-flight-fight system, and often exacerbates the body sensations about which the individual is concerned (Clark, 1996).

Important elements of psychoeducation for anxious clients include helping them to understand:

- Why people have a threat-detection system which is 'programmed' to respond with freeze-flight-fight.
- What kinds of threats that this system is designed to detect (e.g. physiological threats such as cold & hunger, physical threats such as attack, social threats such as exclusion or changes in social status).
- That freeze-flight-fight reactions, although sometimes uncomfortable, are not dangerous.
- That these reactions and feelings are often automatic, not the person's fault, and nothing to be ashamed of.
- That the freeze-flight-fight response has a bias toward caution: it would rather set off a false alarm than miss a real danger.
- The threat detection system can fail to distinguish between real threats 'out there' in the world vs. imagined threats.

*Your Stone Age Brain* is an information handout which describes some of the evolutionary pressures exerted on early modern humans. It explains why a well-developed freeze-flight-fight system helped our ancestors to survive, and the consequences of living in the present day in a body that has the same 'programming'. It also describes some of the negative consequences of living with a sensitive threat detection system.

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# Instructions

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## Suggested Question



*Did you know that what we feel anxious about, and the way we feel anxious in our bodies and minds, has to do with our Stone Age ancestors? Would you be willing to explore this with me?*

Review the types of situations that our ancestors found threatening. These include physiological threats (e.g. cold, hunger, thirst), physical threats (e.g. attack, capture), and social threats (e.g. threat to social rank, exclusion from the group). After reviewing them, consider asking:

- What would have happened to Stone Age people that didn't notice these kinds of dangers?
- Are you ever bothered by any of the same threats?
- What kinds of body / physical / social threats bother you?
- Do you ever worry about any of these things?
- What do you feel in your body when you encounter threats?
- Can you tell me about a time when you thought you were in danger? What did you notice? What was going through your mind? What did you feel in your body?

Review the automatic ways in which our 'programming' helps us to behave when we feel threatened. These include freezing or hiding, fleeing or escaping, and fighting or acting aggressively. After reviewing these types of situations, consider asking:

- If a person or animal was in danger, why might it be helpful for them to react by freezing / escaping / fighting?
- If you encountered a dangerous animal, why might it be a good idea to back off or run away?
- Have you ever reacted to a danger by freezing, escaping, or becoming aggressive? Tell me about it.
- Could you tell me about any of your reactions that are similar?
- When you react in these ways, what are you feeling in your body and mind?

Review ways in which having a threat detection system has negative consequences:

- Have you ever had a freeze-flight-fight reaction in a situation that wasn't really dangerous?
- Sometimes people liken their freeze-flight-fight reaction to an over-sensitive smoke alarm or car alarm. Do you think yours is like that sometimes?
- Do you ever feel anxious when you are just thinking about something that worries or scares you? What reactions do you notice in your body?

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## References

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- Andrews, G., Creamer, M., Crino, R., Page, A., Hunt, C., & Lampe, L. (2003). *The treatment of anxiety disorders: Clinician guides and patient manuals*. Cambridge University Press.
- Bracha, S., Williams, A. E., & Bracha, A. S. (2004). Does "fight or flight" need updating?. *Psychosomatics*, 45(5), 448-449.
- Cannon, W.B. (1929). *Bodily Changes in Pain, Hunger, Fear and Rage: An Account of Recent Research Into the Function of Emotional Excitement*. New York: Appleton-Century-Crofts.
- Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, 24(4), 461-470.
- Kozłowska, K., Walker, P., McLean, L., & Carrive, P. (2015). Fear and the Defense Cascade. *Harvard Review of Psychiatry*, 23(4), 263–287.
- Nitecki, M. H., Nitecki, D. V. (1994). *Origins of anatomically modern humans*. New York: Plenum Press.
- Roelofs, K. (2017). Freeze for action: neurobiological mechanisms in animal and human freezing. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 372(1718), 20160206.

## Your Stone Age Brain

Modern humans originated in Africa within the past 200,000 years. Life could be hard, and many people died young. If you were born 200,000 years ago you would have lived in a small group and would know most of the people in your tribe. Being part of a group meant safety in numbers.

Dangers or threats in those times included:



Cold



Hunger



Other people



Dangerous animals



Being excluded from your group

Our brains haven't changed much since the Stone Age, and they are well-designed to detect these kinds of real-world threats. We still have much of the same programming that developed to help our ancestors to survive in those times. This programming makes it easy for us to feel afraid and respond to danger by:



Freezing, hiding, or 'playing dead'



Running away



Fighting or acting aggressively

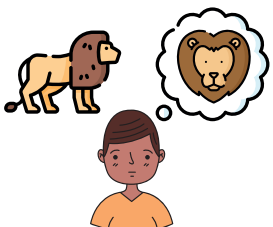
The changes that happen in your brain and body which get you ready to act in these ways are called the **fight or flight response**. Being programmed to respond in these ways helped your ancestors to survive by prompting them to act quickly and automatically when danger was near. We all still have the same programming, and we all have the urge to react in these ways when we sense a danger.

### Modern downsides of your Stone Age brain

Your Stone Age brain is incredibly well-evolved for detecting threats and setting off your fight or flight response. However, it comes with a couple of downsides:



**Better safe than sorry.** Your brain operates on the *better safe than sorry principle*. It would rather set off ten 'false alarms' than miss one real danger. This means that you are prone to suddenly feeling afraid, even when there is no real danger.



**Reality vs. imagination.** Your brain isn't very good at telling the difference between real threats in the world vs. imagined threats that you are just thinking about. Sometimes it will set off the fight or flight response for imagined threats.

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