

THE POWER OF PREDICTABILITY

A quick guide to understanding how predictability impacts your child's state of arousal.

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Why is predictability important?

The brain craves predictability. Using memories, past experiences, and other information, the brain is consistently, subconsciously predicting what will happen next. **This process of prediction helps protect us from threat by letting us know how to respond in a given environment.** Correct predictions contribute to a neuroception of safety and calm, while incorrect predictions, also known as prediction errors, may contribute to the detection of threat and stress.

Correct Prediction: An Example

Imagine you are dropping your child off at daycare. You enter the parking lot and see a few other parents walking their children inside. When you enter the front door, staff smile and greet you and your child. You see and hear other children talking and laughing in classrooms. Your child's teacher is standing in the doorway of his classroom and welcomes him in.

The environment is as you predicted, and your parasympathetic nervous system activates a safety response.

Prediction Error: An Example

Imagine the same scenario. This time, you enter the parking lot and no other cars are present. You look to the building and notice all the lights are off. When you walk up to the front door, you see a sign that says "Closed for Labor Day." You forgot! The environment is not as you predicted. **Your sympathetic nervous system activates a stress response.**

How does prediction error impact my child's behavior?

In adults, the mature prefrontal cortex (PFC) helps us problem solve and adapt/manage our behavior when we encounter an incorrect prediction. In the example above, when you realize your child's daycare was unexpectedly closed, your PFC activates to engage your problem solving and decision making skills. Rather than fully entering a fight or freeze response, your PFC helps keep your stress level manageable, and (after cursing under your breath) you take out your phone to text your boss you are running late, call a friend and ask if they can watch your child for the day, and load your child back in the car. So, although your brain detected a threat and activated the sympathetic nervous response, your PFC worked to problem solve and help you manage your feelings and behaviors when faced with an incorrect prediction.

Children's PFC is not fully developed until early adulthood. Therefore, they often have limited ability to manage the stress response resulting from an incorrect prediction. In the closed daycare example, your child may begin to have an epic meltdown when being loaded back into the car. They predicted they would be going to daycare, which turned out to be incorrect. Like you, their nervous system activates a stress response. However, unlike your adult brain, they do not have the mature PFC to engage in problem solving and decision making, thereby sending them into a defensive response. It is important to remember that each child's nervous system is unique. Some children have a higher threshold for managing incorrect predictions than others. Additionally, several factors may increase nervous system vulnerability and can be either persistent (e.g., trauma history, neurodivergence, or developmental delays) or transient (e.g., hunger, fatigue, or physical discomfort).

How can I help my calm my child's nervous system when it responds defensively to prediction error?

Incorrect predictions are a frequent and unavoidable part of everyday life. **The following strategies may help you support your child and calm their nervous system when incorrect predictions occur.**

- **Clue your child in on what will happen next**, especially for events they may find undesirable. For example, prior to turning their iPad off or leaving the playground, give your child 10, 5, 2, and 1 minute reminders of what will happen next. When faced with an unexpected incorrect prediction (such as the daycare example above) keep your child in the loop. Rather than simply loading them back in the car, let them know what is happening and what will happen next. "Your daycare is closed today. Let's see if our friend Brittany can play with you while Mommy is at work today."
- When unexpected incorrect predictions occur, purposefully **engage your child with cues of safety** to help relax their nervous system. This can include:
 - Making eye contact (if tolerable for your child)
 - Smiling and unfurrowing your brow
 - Using a low, calm tone of voice
 - Relaxing your body
 - Engaging your child in a game or in play (e.g., "Let's see who can get to the car first!")
 - Use activities that encourage deep breathing (e.g., blowing bubbles, blowing out candles, playing a cotton ball race, or blowing a pinwheel)
- **For children prone to fight response, use activities that encourage neurological calm using sensory deactivation** (e.g., use noise-canceling headphones, eliminate unnecessary noise, dim the lights, move the child away from areas with lots of activity)
- **For children prone to freeze response, use activities that encourage neurological calm using sensory activation** (e.g., listening to music, playing with slime or kinetic sand, using a sensory bin, allowing your child to play with a fidget toy)
- If it is tolerable for your child, **engage your child with nurturing physical touch** such as hugging or snuggling, brushing their hair, or gently stroking their face.
- **Provide your child with a weighted item** such as a weighted blanket, vest, or stuffed animal.

References

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