OPINION

MAY 13, 2024

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Meeting Developmental Milestones Early Doesn’t Always Predict Success

Developmental milestones help us understand when a child needs help, but meeting them early doesn’t necessarily predict long-term success

BY CHRIS SHELDRICK

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Children

Opinion

This piece is part of Scientific American's column The Science of Parenting. For more, go here.

For about 24 hours around a decade ago, I was in a panic. My son was about eight months old and had just begun to crawl. This is common for children his age, but the *way* he crawled looked unusual to me—he scootched along on his belly, kind of like a soldier crawling under barbed wire. I soon learned that my impression wasn’t far off—I looked at the scientific literature and found that people call this “commando crawling.” I also learned that it is incredibly common among people with achondroplasia, a severe growth disorder that leads to short stature, which spurred my daylong panic.

One study of children with achondroplasia found that 100 percent of them commando crawled when they first started crawling. As a parent, I didn’t know what to think. I felt more than a little scared, and I had no idea what to do. Developmental milestones, like crawling, seemed so straightforward—but only as long as my son was passing them.

Did my son absolutely have achondroplasia? Science couldn’t definitively answer all my questions, but it offered some answers about developmental milestones. Simply put, these markers help us to compare our child’s development to others of the same age. On the plus side, this can help us identify problems early enough to help. But there are drawbacks, too. Developmental milestones do not support definitive predictions, so they need to be interpreted carefully.

First I began to think through how well commando crawling might predict achondroplasia.

Fewer than one in 20,000 children have this disorder. Let’s assume that all of them commando crawl. I asked myself: How many of those other 19,999 children also commando crawl? If its even as few as four, then among children who commando crawl, only 20 percent will have achondroplasia. As I learned, milestones do not support definitive predictions.

Besides, was I sure that achondroplasia was as bad as I thought? Studies that follow people over a period of time demonstrate that people’s perspectives often change, often as a result of decision-making. As a common example, I don’t always come home from shopping with the things I left the house to buy, but I am often just as happy (or happier) anyway. Similarly, many parents of children with disabilities report that their lives are richer in ways they never expected. I did not romanticize the possibility of achondroplasia, but I certainly began to feel better.

Finally I did the obvious thing: I talked to my pediatrician—a course of action with no real risk and with potential for significant benefit. And fortunately, she was quite astute. As I watched her work, I imagined her wondering whether my son was the one in five with achondroplasia or among the other four who just commando crawled. She looked carefully at my son. Then she turned gave me a long look. “Do a lot of people in your family have big heads?” she asked.

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“Yes,” I admitted, “my son and I come from a whole family of people with big heads.” (Here I welcome readers to supply a punchline, if they wish.) As it turns out, large craniums are heavy and can make normal crawling difficult. This insight suggested that my son might be among the four (which it turned out he was). Thankfully our pediatrician knew how to interpret developmental milestones carefully.

If you are the parent of a young child, you likely have your own experiences with developmental milestones. You probably hear questions like, “Is your little one crawling yet? Walking? Talking? Drawing?” If you think your child is developing well, questions like these can be reassuring. But sometimes they can cause intense anxiety.

How do you know if there is cause for concern? Information is readily available, for example through the Center for Disease Control’s website or your local pediatrician. But it is also important to understand the science behind developmental milestones.

First, where does this term even come from? Milestones are actual stones laid out every mile to mark a journey. Developmental milestones serve a similar role for children’s development. Obviously, developmental milestones aren’t actual stones—but there are bigger differences worth considering

To complete a walk along a two-mile path, *everyone* must pass a milestone halfway. But some children clearly don’t pass every developmental milestone. For example, some children never learn to walk or talk. People agree that these are essential milestones, and we often say that those children who never pass them have a disability. Developmental milestones are important because they help us identify these children early enough so that they can benefit from special services. But is the same true for *all* milestones, like the ability to draw a circle or a stick figure? It is less clear that every child must pass *every* developmental milestone—especially if they are passing other, concurrent milestones.

Thinking again about our two-mile path, we noted that all must pass a milestone *halfway*. Do all children pass developmental milestones at the same age? Certainly not! When scientists ask lots of parents, they find that the proportion of children who have passed any given milestone increases with age, typically forming an S-shaped curve. If we say that using sentences is a 24-month milestone, it is because most children speak simple sentences by this age. Some do so earlier, some later.

But if children don’t pass milestones at the same age, couldn’t it still be true that they pass milestones at the same point in their development? That is, are children who talk earlier developing more quickly than those who talk later? On a simple level, of course the answer is yes—passing a developmental milestone early means that a child developed at least one skill more quickly than most others. The bigger question is how much this matters.

As it turns out, several research studies find links between early milestones and adult abilities. For example, parents’ reports of things like forming sentences by two years are associated with higher adult IQ. Children of parents who report that they stand, walk and talk earlier tend to go farther in school. Also, adult participation in sports seems to be linked to the age at which children walk. But there is a big caveat: these relationships are quite small.

So, yes, milestones are important, but they do not support definitive predictions. For example, most developmental scientists would say that delays in verbal and nonverbal communication warrant a closer look, at least to be on the safe side. But before panicking, remember that only some late talkers have disabilities. Albert Einstein said that he didn’t talk until at least age three, yet he had enough of an IQ to win a Nobel Prize.

So why not measure multiple milestones at once? Great idea! Pediatricians routinely ask about a range of milestones. But here the science gets complicated. Let’s say a child is behind on three milestones but seems fine on two others. Is that a problem? To supplement pediatricians’ clinical judgement, developmental screening questionnaires generate scores based on multiple milestones and then compare those scores to tests of developmental disabilities and/or later achievement. But the *science of screening* is another story.

The bottom line: On the one hand, milestones are important because they can help

identify problems early. On the other hand, delays in reaching developmental milestones can be anxiety-provoking and tricky to interpret. When it comes to success in life, milestones are not destiny. I’m happy to report that my son who once struggled to crawl now bounds joyfully up and down soccer fields. I understand that Einstein met with some success, too. So if you find yourself struggling to understand your child’s developmental milestones, don’t hesitate to ask for help. I’m glad I did.

This is an opinion and analysis article, and the views expressed by the author or authors are not necessarily those of Scientific American.

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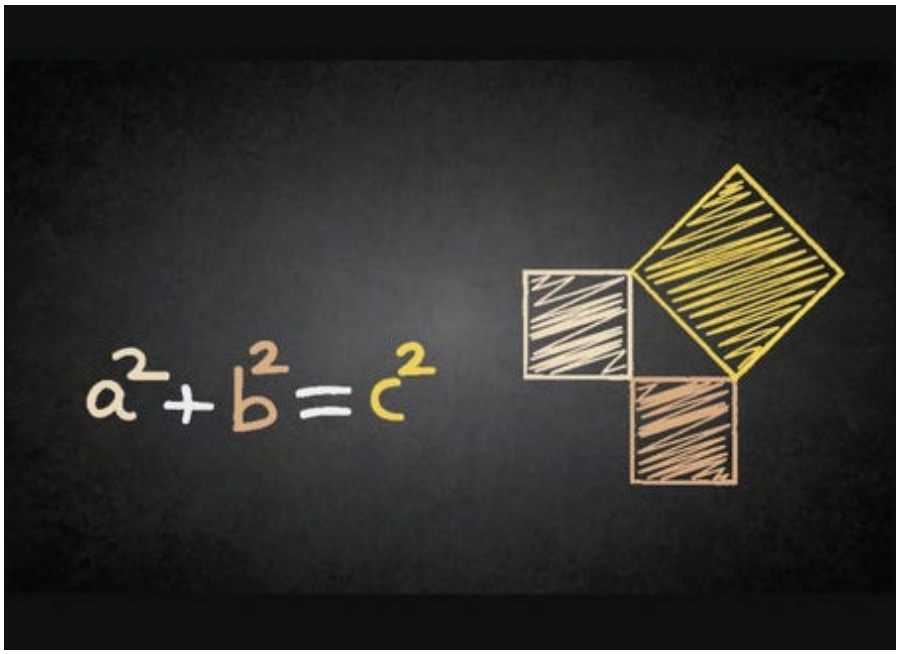

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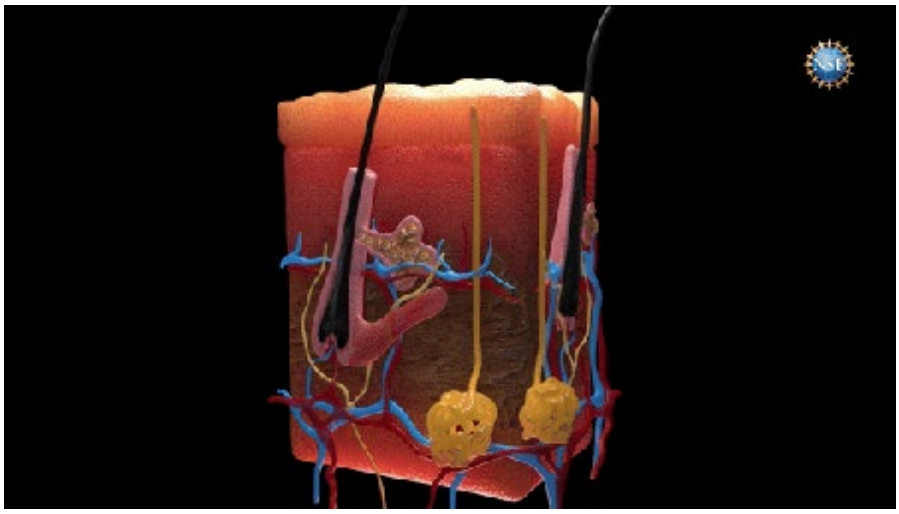

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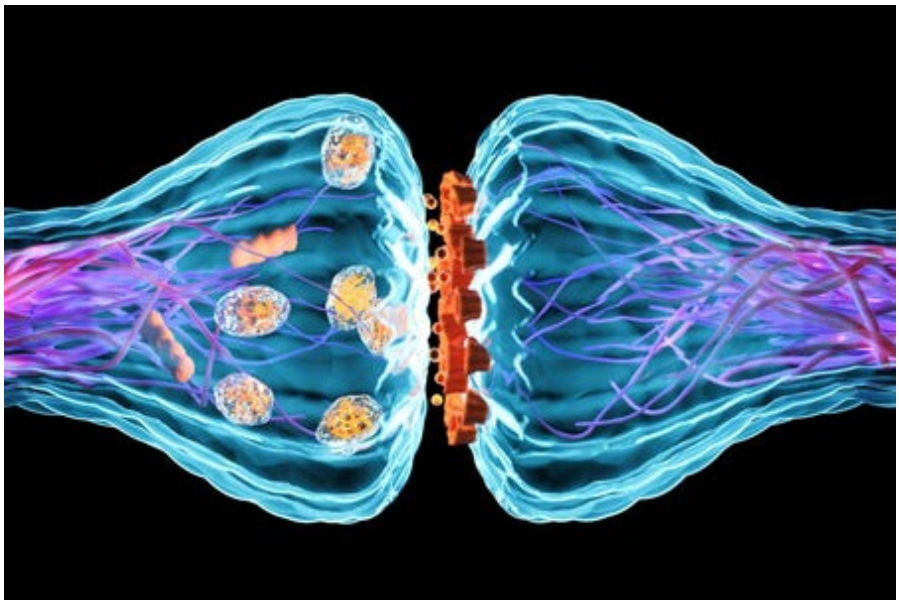

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