More Movement, Smarter Kids

By Rae Pica

Most people can understand how physical activity can impact not only their child's physical development but also his social/emotional development. But intellectual development? What could movement possibly have to do with learning? After all, schools – where most of the child's learning is supposed to take place – are our prime promoters of *in*activity. ("Sit still." "Stop squirming." "Don't run." "Stay in your seat.") If movement were critical to learning, wouldn't the schools be employing it?

Certainly, you'd think so. Those of us who've understood the connection between moving and learning for a very long time have been waiting just as long for the educational "revolution." And yet, not only is movement in the classroom a rarity, but also physical education and recess are being eliminated as though they were completely irrelevant to children's growth and development. Perhaps the revolution will only finally arrive when you, as a parent, become aware of movement's role in cognitive development and learning and begin to insist the schools do what's right for children and not merely what the policy makers think they should be doing.

As Einstein so succinctly pointed out, "Learning is experience. Everything else is just information." Piaget, the noted child development specialist studied by future teachers, labeled this learning *sensorimotor* and determined it was the child's earliest form of learning. Since then, brain research has proven them both right.

But the most recent brain research has done much more than that. It's now understood that, because a child's earliest learning is based on motor development, so too is much of the knowledge that follows. The cerebellum, the part of the brain previously associated with motor control only, is now known to be, as Eric Jensen, author of numerous books on brain-based learning, puts it, a "virtual switchboard of cognitive activity." Study after study has demonstrated a connection between the cerebellum and such cognitive functions as memory, spatial orientation, attention, language, and decision making, among others.

Thanks to advances in brain research, we now know that most of the brain is activated during physical activity – much more so than when doing seatwork. In fact, according to Jensen, sitting for more than 10 minutes at a stretch "reduces our awareness of physical and emotional sensations and increases fatigue." He tells us this results in reduced concentration and, most likely, discipline problems.

Movement, on the other hand, increases blood vessels that allow for the delivery of oxygen, water, and glucose ("brain food") to the brain. And this can't help but optimize the brain's performance!

All of this, of course, contradicts the longstanding and much-loved belief that children learn best when they're sitting still and listening and working quietly at their desks. It also helps us understand why

- one Canadian study showed academic scores went up when a third of the school day was devoted to physical education.
- a Canadian study demonstrated children participating in five hours of vigorous physical activity a week had stronger academic performance in math, English, natural sciences, and French than did children with only two hours of physical activity per week.
- a study of third-grade children participating in dance activities improved their reading skills by 13 percent over six months, while their peers, who were sedentary, showed a decrease of two percent.
- in France, children who spent eight hours a week in physical education demonstrated better academic performance, greater independence, and more maturity than students with only 40 minutes of PE a week.
- children who participate in daily physical education have been shown to perform better academically and to have a better attitude toward school.
- a study conducted by neurophysiologist Carla Hannaford determined that children who spent an extra hour a day exercising did better on exams than students who didn't exercise.
- recent research demonstrates a direct link between fitness and intelligence, particularly in children under 16 and in the elderly.

It is a huge mistake to think the mind and body are separate entities. The truth is that the domains of child development – physical, social, emotional, and cognitive – simply do not mature separately from one another.

There's an overlap and interrelatedness among them. And children do not differentiate among thinking, feeling, and moving. Thus, when a child learns something related to one domain, it impacts the others.

Research shows that movement is the young child's preferred mode of learning – because they best *understand* concepts when they're physically experienced. For example, children need to get high and low, small and large, wide and narrow shapes to truly understand these quantitative concepts. They need to act out simple computation problems (demonstrating the nursery rhyme "Three Little Monkeys" to discover three minus one equals two) to comprehend subtraction. They have to take on the straight and curving lines of the letters of the alphabet to fully grasp the way in which the letters should be printed.

Writing in *Early Childhood Exchange*, developmental and environmental psychologist Anita Rui Olds says:

> Until children have experiences orienting their bodies in space by going up, on, under, beside, inside, and in front of things, it is possible they will have difficulty dealing with letter identification and the orientation of symbols on a page. The only difference between a small "b" and a small "d," for example, both of which are composed of a line and a circle, depends upon orientation, i.e., which side of the circle is the line on?

Eric Jensen labels this kind of hands-on learning *implicit* – like learning to ride a bike. At the opposite end of the spectrum is *explicit* learning – like being told the capital of Peru. He asks, if you hadn't ridden a bike in five years, would you still be able to do it? And if you hadn't heard the capital of Peru for five years, would you still remember what it was? Extrinsic learning may be quicker than learning through exploration and discovery, but the latter has greater meaning for children and stays with them longer. There are plenty of reasons for this, but one of them just may be that intrinsic learning creates more neural networks in the brain. And it's more fun!

Carla Hannaford, in *Smart Moves: Why Learning Is Not All in Your Head*, states, "We have spent years and resources struggling to teach people to learn, and yet the standardized achievement test scores go down and illiteracy rises. Could it be that one of the key elements we've been missing is simply movement?"

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