

# All Work and Some Play

Working the muscles helps regulate the brain.

**W**hat can get a child's nervous system in gear? Heavy work! That's right. It actually helps maximize attention and behavior.

The tactile (touch) system is powerful. It helps one learn about the world and integrate that knowledge with other systems.

There are two types of touch information: protective and discriminative. The protective system alerts one to danger, as when getting chilled gives you goose bumps or sensing danger makes your "hair stand on end." You retract your hand quickly when it touches a hot surface.

The discriminative system denotes objects by size, shape or texture so that one can locate them without using vision (Have you ever searched in your purse for your car keys without actually looking into it?). This system tells you when anything comes in contact with a part of your body.

Meanwhile, proprioceptors within the muscles, joints and tendons send tactile information internally. The proprioceptive system tells the brain where each part of the body is, and the position of the joints. The most effective way to activate the proprioceptors is to actively engage in a resistive activity. Heavy work activities are considered resistive because they involve elements of "push, pull, lift and carry."

The vestibular system receives information peripherally, from receptors in the inner ear, and centrally, by working closely with the visual, auditory and proprioceptive systems. This is what gives you your sense of balance and allows the body to adjust to changes in the position of the head, neck and eyes. It also provides a feeling of stability and security when you are moving against the pull of gravity, allowing one to run, jump, play and catch his balance when he trips.

The brain also has a complex system of regulating its own activity, referred to as "sensory modulation." The brain decides whether to "act upon" (facilitate) or "inhibit" information to prevent action. This process of facilitation and inhibition affects at-

tention and behavior. When the process is faulty, children may have difficulty modulating sensations to act appropriately in a given situation.

Lack of inhibition can result in heightened sensitivity to touch, sound, vision, taste and/or smell.

Children whose brains lack the ability to inhibit may, at times, appear disruptive. Children who do not have the ability to act upon sensory information may appear bored or disinterested in tasks.

When the ability to modulate the nervous system is not functioning at full capacity, children frequently experience delays or lack of quality in various areas of development, including gross-motor and fine-motor skills, visual motor integration, attention, emotional maturity, behavior, sleep, eating, elimination, language and cognition.

For instance, a child in a less alert state may appear hyperactive or zoned out, but after achieving the right state of readiness will be able to participate appropriately in classroom activities.

Mary Sue Williams and Sherry Shellenberger designed an excellent program to teach children and adults how to modulate their nervous systems. Their book is called *How Does Your Engine Run? A Leader's Guide to the Alert Program for Self-Regulation* (1994).

There are many kinds of heavy-labor activities that kids can do in the settings in which they live and play every day. By adapting their toys or games or giving them household chores to do, parents can help their children regulate their own behavior and improve outcomes in school. ■

References available at [www.advanceforot.com](http://www.advanceforot.com), or upon request.

Elizabeth Haber-Lopez, MS, OTR/L, is a pediatric OT in private practice in Bakersfield, CA. Readers can contact her at [eahaber@aol.com](mailto:eahaber@aol.com). Deanna Iris Sava, MS, OTR/L, is a staff OT for a school system in Illinois. She can be contacted at [deannasava11@msn.com](mailto:deannasava11@msn.com).

