The importance of touch
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All learning occurs in the brain, but the body is the vehicle for acquiring knowledge
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Introduction
The brain (as wonderful as it is) is not capable of generating its own information; it relies on the senses to provide it with information. The brain, senses and muscles are all linked together by the Central Nervous System (CNS), but the brain and muscles rely on the senses for input.

The senses (both near and far) get stimulated by something or somebody and send its information to the brain via the emotional centers, to learn about the something or somebody and to be able to respond using muscle reactions. For example, when a baby smells mommy the receptors in the nose get excited and send the information to the brain. The brain responds by ‘saying’: “Have I smelled this before? Was that good or bad? YES, it was good, ok, hang on!” Baby hangs on to mom using its mouth, hands and feet to be comforted.

If the brain says: “NO this is not good!”, the ‘HELP ME’ response in the baby’s brain is triggered and baby starts moving away, crying and flinging the arms wide open. The instinctive emotional reaction when something is unfamiliar for the baby is to move away.
Why is the learning process important?
While baby is in utero, the uterus acts as a warm and cushioned environment with muted sounds and no light. Baby has an on-line food and oxygen supply and can move, sleep and feed when it wants to - in a nutshell, all the baby’s needs are being met.

When baby is born, all this changes and baby quickly needs to adjust to a world with bright lights, feeling cold, hearing sharp sounds, being touched and needing to breathe. Without the ability to learn (receive information from the senses and respond via muscle reactions), the baby is in danger of not surviving.

To survive the baby is born with a series of primitive reflexes that enable the senses and the muscles to work together, without having to think about what to do. A reflex is an instinctive, automatic and stereotyped muscle movement with the purpose of doing what is necessary to help the baby survive. Straight after birth, part of the Abgar test is to determine if some of the primitive reflexes are able to take over from life in utero. Without these reflexes a baby is not able to breathe, suck, grasp or adjust in a way that will ensure its survival.

The learning process develops during the nine months in utero to prepare baby for birth. Because baby has no teacher in utero, nature equips baby to learn through reflexes that enable the CNS to wire the senses and muscles together.

Primitive Reflexes
There are two kinds of reflexes: primitive reflexes and postural reflexes. Postural reflexes build on primitive reflexes and therefore need the primitive reflexes to do their job properly. If the primitive reflexes do not do their job properly, the postural reflexes will build walls on sandy foundations and cracks may appear later. These ‘cracks’ indicate neurological immaturities and may affect the growing child in such a way that milestones are not reached.

About Primitive Reflexes:
- They are essential for survival
- They develop in sequence
- Through repetition of simple movements they ‘wire’ the senses, brain and muscles together
- They build firm foundations for complicated skills later on in life, like balance, fine and gross motor control, co-ordination, perception, confidence, a positive sense of self and concentration
- They have a limited life time and should go to rest between 6 and 12 months after birth
- If they don’t go to rest (integrates and inhibits), they stay functioning and in so doing prevent the thinking brain from taking over control. Movement reactions then stay a reflexive reaction with first call on brain response and may be one of the causes of ADD/ADHD.
In a nutshell primitive reflexes develop the equipment needed for learning and without good quality equipment, the mechanics of learning tend to be faulty.

They work like a relay race where the one reflex’s job is to develop a skill, and once the skill is acquired, the reflex goes to rest and like a relay race passes the baton on to the next reflex for more advanced development.

**NB. For a reflex to integrate and inhibit, enough repetitions of the reflexive movements are needed in the right sequence.**

The most commonly known Primitive Reflexes are:
- The Withdrawal Reflex
- The Moro Reflex
- The Palmar Reflex
- The Plantar Reflex
- ATNR (Asymmetrical Tonic Neck Reflex)
- Spinal Galant Reflex
- Rooting Reflex
- TLR (Tonic Labyrinthine Reflex)

The most commonly known Postural Reflexes are:
- Landau Reflex
- STNR (Symmetrical Tonic Neck Reflex)

The first senses to develop
Because the brain needs information from the senses, reflexive sensory stimulation is a priority. The development of both the skin and the near senses of balance are at the core of all functioning. It is initiated through movement that starts from 5 weeks in utero as a result of the Withdrawal Reflex. If anything comes close to the tiny little embryo, it instinctively moves away from contact to protect itself from harm. In other words the baby’s first reaction to touch is to withdraw. This withdrawal stimulates movement, which gets the development of the near senses going. The first areas sensitive to touch are the lips, the palms of the hands and the soles of the feet. The sensitivity then spreads to the whole body, making the skin the largest sensory organ.

Between 9 and 12 weeks (just as mom realizes that she is pregnant) she instinctively touches her tummy to welcome baby. The little embryo changes direction and starts moving towards the hand. This is the baby’s first contact with the outside world and an opportunity to learn that touch is pleasant.

The value of touch
Between the second and third trimester the sense of touch matures from withdrawal to grasping. Touch then becomes associated with acceptance, safety, security and nourishment. The absence of loving touch may leave the baby in a
withdrawal state and an instinctive negative reaction to touch and contact, which often leads to tactile defensive behavior in children and adults. Because touch precedes vision and hearing as a way of learning, a positive association with touch is important to enable the brain to grow and develop.

The skin is perfectly equipped with tiny hairs (with touch receptors at the base of every hair on the body) that send messages to the brain to alert the baby of changes. The brain reads these messages to determine if things are fine and if baby can relax and enjoy the sensation or to alert baby if things are not fine. Ayres distinguishes between 2 kinds of touch receptors in the skin: protective receptors and discriminative receptors. Protective receptors read the ‘fine/not fine’ messages and stimulate a response, while the discriminative receptors teach the brain about new sensations and make the brain grow.

Without a positive reaction to touch the baby may therefore grow and develop slower. In the USA, Schanberg and Field illustrated this point with their research on mice. They showed that when mice are removed from their mommy’s touch, their stress hormones signal the body to conserve energy, because it doesn’t know when next it would get fed. The result is a drop in weight and less brain growth. When the mice were again placed with mommy, the stress hormones decreased the moment mommy mouse started licking her pups. Touch (her licking) was the signal that said: “All is fine, you are safe and you will get fed again.”

Research by Goddard indicates that babies who are touched have stronger immune systems, gain weight better and have lower levels of stress hormones. On the other hand, babies who are not touched often results in babies stimulating their own senses through what is generally known as institutionalized rocking.

What can I do to inhibit the Withdrawal Reflex and stimulate the Grasping Reflexes?
As long as the Withdrawal Reflex is active, a baby may find it difficult to grasp onto mommy with its mouth (Rooting and Sucking Reflexes), hold onto mommy with its hands (Palmar Reflex) and find its footing (Plantar Reflex).

1. Start off with putting your hands against the soles of the feet so baby can feel something solid. This makes baby feel safe.
2. Cup baby’s head with your hands and hold for a while.
3. Gently unfold baby’s ear lobes to develop the vestibular system, as well as hearing.
4. Firmly trace baby’s outline with your hands – Head, neck, shoulders, down the arms, hold the hands, up the inside of the inside of the arms, down the side of the body and legs, hold the feet.
5. Place baby on your lap with its back against your chest. Open baby’s arms wide and then cross over the chest as though to give itself a hug. Rock

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baby gently while holding in this nestled position, whispering words of love and encouragement.

6. Join a BabyGym® class or contact the Association for Infant Massage to learn how to massage baby from head to toe, inhibiting the Withdrawal reflex as you go.

Touch and movement is brain food,
Give alotofit!

Bibliography