Solitary Confinement

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Health professionals are increasingly concerned that motor delays in babies may well be related to the amount of time spent in containers such as car seats, carriers, bouncers, swings, walkers and strap-in chairs. While containers have their uses, babies who spend too much time in them may develop problems such as flattening of the skull, contorted neck muscles and delays in sitting, crawling, walking and speaking. Container overuse may also be partially responsible for spine and back disorders in later life.

Some of the developmental issues stem from the 'Back to Sleep' campaign in 1994. While the campaign has contributed to a significant decrease in cot death, the down side is that babies spend more time on their backs than is good for their development. The use of containers has added to the problem. Babies have little motivation to exercise their muscles and brains in a container. They may also experience social and emotional isolation and a reduction in human contact. Babies need close physical contact to develop properly and plenty of opportunities to exercise their bodies and their brains in order to move on to the next stage of development.

Baby containers can be useful in allowing parents and practitioners the freedom to accomplish chores at busy times of the day. Containers may also offer a solution when nothing else seems to soothe or settle the baby. Well-meaning parents and practitioners may put babies in them for safety, support and entertainment, but even so, they should not be used as permanent 'baby sitters'. A caring nursery will have put some thought into the amount of time that babies spend in containers and parents are advised to look carefully at how often the restraint systems are used.

Containers

Companies that manufacture baby containers have a strong interest in promoting their products. Very often, the message given is that babies are most content when they are in a car seat, baby walker or similar restraining device. The fact is that all babies need to spend time in close contact with another human being in order to develop to their full potential. They also need to be able to move, touch and explore the world in order to develop physical strength and brain power. Most containers do not provide such conditions.

The safest way for a baby to travel is in a car seat. However, use should be limited to car journeys only. Babies that spend too long in car seats can become restless, uncomfortable and stiff. Being confined in an uncompromising position for a considerable period of time can also harm the baby's spine and back.

Baby walkers give babies an artificial sense of mobility, but they do not help babies to walk sooner. Walking depend on a number of factors including balance and coordination and strong upper and lower body strength. Babies that push themselves along on their toes can develop foot problems, which may lead to back pain in later life. Baby walkers are the cause of about 24 thousand reported accidents every year. Most accidents occur when the baby is left unsupervised. It is all too easy for a baby to end up at the bottom of the stairs or out of the door.

Most babies enjoy the exhilaration of exercising in a doorway bouncer. However, serious injuries to the bones and joints are associated with their use. Babies need to spend as much time as possible on the floor practising important skills that will eventually lead to crawling and unaided walking.

The latest craze to hit the UK is a container seat that hems the baby in by enclosing their legs. Some babies react by arching their backs and by throwing themselves backwards or forwards in an attempt to escape. Babies that flip out of them can sustain serious head injuries. Babies that are learning to sit up need to develop essential balance and stability skills by themselves. They also need to be able to reach out for things, which they can only do when given unrestricted opportunities for movement.

High chairs are permanent fixtures in most homes and nurseries. According to survey findings, 92 percent of babies spend up to two hours per day in them. Although high chairs allow a baby to socialise with adults at mealtimes, they don't need to be in them until they are ready for solid foods. Unless safety straps are used, babies are at an increased risk of sustaining skull and limb fractures when they try to stand up. Brain concussion or even death can also occur when the high chair tips over.

Spending too long in a container limits:

- Freedom of movement
- Coordination, balance and control
- Muscle development
- Breathing (lung capacity)
- Opportunities to develop social skills
- Language development
- Visual development
- Overall brain development

Spending too long in a container increases:

- The risk of injury

- The development of flat head syndrome (plagiocephaly)
- Neck muscle contortion
- Spine and back disorders
- Anxiety and stress
- Speech and language disorders
- The risk of obesity
- Overall health problems

Some containers are less restrictive than others. An old-fashioned pram or a play pen can keep the baby safe during busy periods. However, babies need an adult to interact with them and respond to their needs and wants. They may suffer from anxiety and distress if the need for physical comfort is overlooked.

A sling carrier or pouch offers a useful alternative to a conventional container. Wearable carriers make it easier for the adult to accomplish their daily tasks and to meet the baby's physical, social, emotional and security needs at the same time. The baby is held upright with legs hanging down through openings, which helps them gain neck strength and relieves pressure on the spine. The baby is kept close to the adult's body where they feel safe and secure. Babies also benefit from the extra stimulation of looking around and seeing the world. The wearer soon learns to interpret when the baby wants to explore and play.

What the experts say

The consequences of spending too long in a container are only just beginning to emerge. In 2008, the term 'Container syndrome' was used by health professionals to describe the increase in movement and language delays related to the growing use of containers.

Babies in the UK and USA spend more time in containers than other babies around the world. Increasingly, they are moved from one container to another with the bare minimum of physical contact. Studies show that American babies spend up to 75 percent of their time in a container, while in less developed countries babies spend more than 90 percent of their time in close physical contact with a care-giver.

Research also suggests that sedentary babies risk turning fat cells that originate in the blood vessels before birth into fatty tissue, which can be hard to control in later life. Childhood disorders such as obesity have tripled in the UK in the last 20 years. Figures show that one in ten six-year-olds are now obese. If current trends continue, it has been estimated that 50 per cent of British children will be obese by 2020.

Exercise and brain development

Babies have an in-built drive to be mobile from birth. Through exercise, the baby's muscles grow strong and the brain becomes increasingly proficient at controlling complex actions. One area of the brain that is involved in the planning, control and execution of voluntary muscles in every part of the body is the motor cortex (frontal lobe-from ear to ear). Muscles in the right side of the body are activated by signals from the left side of the motor cortex and vice-versa. Complex movements such crawling, stimulate large areas of the motor cortex, which in turn develops both sides of the brain.

Exercise increases blood and oxygen flow to the brain, which promotes chemical messaging between the brain cells. Recent studies with rodents have shown that oxygen-rich blood releases a brain protein (brain-derived neurotrophic factor or BDNF), which increases the number of new brain cells in the hippocampus (mid outer layer of the brain), which is responsible for learning, memory and other

mental skills. This is incredible since it was previously thought that brain cell development was complete before birth. We now know that the brain can grow new cells, even in old age!

Exercise improves the function of the cerebellum (hindbrain), which plays an important role in coordination, muscle control and balance. Babies need to be able to coordinate their movements when they play and explore the world around them. Signals sent from pressure sensors in the feet, muscles and joints relay messages to the brain, which decodes how well the baby is balancing. The cerebellum also interacts with the nervous and vestibular system (inner ear) to maintain balance when rolling, crawling and walking. Exercise helps these systems to work in harmony with each other.

Exercise also stimulates the midbrain, which control functions such as speech, concentration, coordination, posture and gross-motor skills. Movement activities also accelerate development of the occipital lobe (above the cerebellum), which is the visual processing centre of the brain.

If babies are confined for unreasonable lengths of time in car seats, bouncers or similar restrainers, they may develop the following problems when they go to school:

- Trouble catching balls and other objects thrown through the air
- Misjudgement of physical distances
- Clumsiness
- Increased likelihood of accidents
- Poor posture
- Delayed speech
- Eye problems
- Reading and writing difficulties

At an age when the brain is developing more than it will ever again in life, any form of movement restriction will have a negative impact on development.

Brain and body workout

Giving babies' time for unrestricted movement several times a day will help improve muscular development and mental ability. The following activities are thoroughly recommended:

- Exercise baby's arms and legs during a nappy change or after a bath when limbs are unrestricted by clothing.
- Play bouncing games to help baby develop balance and coordination skills.
- Encourage tummy time during waking hours to strengthen neck and back muscles.
- Spend time playing on the floor with baby.
- Encourage baby to reach for toys.
- Give baby a massage.
- Encourage eye-tracking skills with colourful scarves, ribbons, balloons and bubbles.
- Take baby swimming.
- Allow baby to explore freely.
- Exercise together.

Summary

Exercise brings oxygen-rich blood to the brain which enhances brain development. It strengthens and improves elasticity and contractibility of the muscles and it relieves tension during growth spurts. Freedom of movement allows babies to learn good balance and control. It improves sleep patterns, boosts the immune system and improves mental health. It also helps to prevent

heart disease, diabetes depression and obesity, which is a growing global concern. Other benefits include the reduction of stress and frustration, which can be major obstacles in terms of learning and sleeping.

To keep baby's body and brain healthy, a container should only be used when absolutely necessary. If the baby appears uncomfortable or starts to fuss, then close physical comfort should be provided. Alternatives, such as a wearable sling carrier could be considered during busy times. However, the best solution is to get babies out of their containers and on the floor to encourage mobility skills and overall brain development.