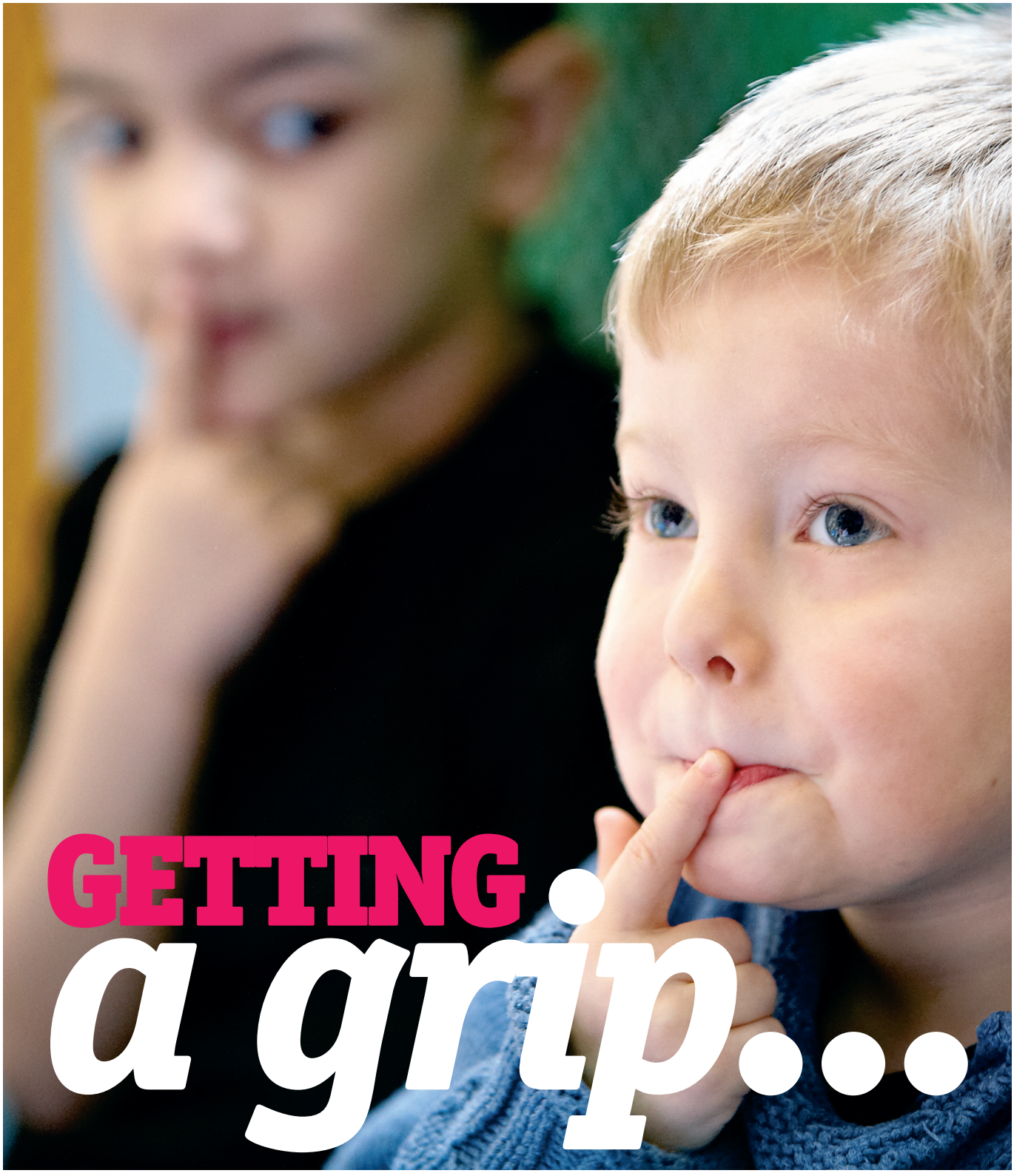

GETTING a grip...

In the second of her articles on physical development, **Angela D Nurse** examines finer movements, those that enable us to carry out the infinite variety of tasks which humans must learn to do...

We know that babies play with their hands before they are born. They grasp and can suck their thumbs. Once they enter the world, they then have to learn to make hands and fingers do what they want in a different medium. They play with their hands and watch what they are doing intently. Very soon, thumbs and fingers find their mouths, and hands clasp bottles and breasts. Before long, the baby is able to grab a finger or fistful of hair and is very reluctant to let go. Some of these movements develop from the reflexes babies are born with but quickly become under direct control. These are not just fine motor movements, however. The ability to grab gran's hair depends on the baby's ability to focus on an object and then direct their hands towards it. All sorts of muscles are involved in this: those around the eyes, which enable them to focus;

Senses in balance

The senses provide the brain with the information it needs to organise the body to do the things it must. Children must learn to coordinate their senses and use them to the full. In many societies the sense of sight prevails because we live in a very visual environment. We do not, for example, use our sense of hearing very well, nor, after we are very small, do we use our sense of touch as much as we could, unless we have a visual impairment.

Running a nursery where the children had a variety of language difficulties made this very apparent. Children relied on sight for information; taking it away and asking them to describe what they were feeling could make them quite distressed. Our solution was to use feely bag and box games frequently to help them bring these senses back into balance. Not only did their thinking, language and fine motor skills improve, we had a lot of fun too – especially with squidgy and slimy objects!

in the head and neck; the muscles of the arms, wrists and fingers. There is also the opposing action, which needs to come into play when gran objects – babies have to learn to let go too!

From an early age we start to develop a whole range of complex skills which enable us to perform personal tasks, learn to write, draw, paint, use a computer keyboard, create works of art, become musicians and undertake all sorts of technical pursuits. These abilities, normally, do not appear without lots of practice in establishing what are termed 'motor strings' (see *Physical Development in the Early Years* by Lynda Woodfield). Involved in these are motivation, perseverance, information from the senses, large muscle control and fine motor movements. Although we are finding that it is possible for these complex motor activities to develop even after severe restriction on practice and utilisation (for example, from studies of Romanian orphans adopted into northern European and American families), optimally, motor strings are established through opportunities to play and explore provided by adults, or older children, who enable them to do this safely.

An illustration. I knit; I was taught to do this when I was four years-old by an elderly aunt. I cannot remember learning so it cannot have been too difficult! To achieve this I must have had motivation to succeed, an adult willing and patient enough to show me (like many such skills, it does not happen without teaching) and the opportunity to practise and make mistakes. I needed to be able to sit properly, to use the muscles in my eyes and head to watch what I was doing and to direct my arm movements to control the needles and yarn. Finally, dexterity in my hands and fingers ensured success. I needed to ensure the yarn was held correctly, manipulated and the tension maintained.

The skill became automatic; I can go for periods without knitting, but as soon as I restart, all is remembered. At the moment I am using very fine wool and thin circular needles to knit a baby's shawl. I still make errors but am confident enough to see what I have done wrong and make corrections. It only gets thrown across the room occasionally...

It is well worth considering the part practitioners have to play in helping children discover and develop such skills. We need to break down the steps needed to develop the essential movements required in these motor

We need to provide opportunities to explore, using the senses, to model and teach directly using our experience as adults

ANGELA NURSE

aboutheauthor

Angela is the author of *Physical Development in the Early Years Foundation Stage*, published by Routledge. She retired from Canterbury Christ Church University five years ago where she had been head of the Department of Childhood Studies and a principal lecturer in early years.

strings. We need to provide opportunities to explore, using the senses, to model and teach directly using our experience as adults who have been through this process and become proficient. You may be a musician, painter, worker in wood or metal or technical wizard. By reflecting on how you became adept and combining it with the results of the detailed observations you make, you will be able to take children forward and add to the richness of their lives.

Speech & language

Recently there has been great emphasis placed on the development of good language skills before the age of three, to enable children to make the most of more formal education, which is essentially language-based. There are many elements to the acquisition and function of language, but here we are going to concentrate on the physical aspects of producing speech or sign. The link between good physical skills to do with eating and speech often go unrecognised, but the same facial muscles are used for both, requiring exact control to enable the speaker to eat or convey his or her message precisely.

Many moons ago in our nursery, we became aware that a number of children had difficulties in chewing and swallowing. They were used to a diet that included a number of soft finger foods, which required little effort to eat. By working with parents and introducing foods, like wholemeal bread or hard fruits, we were able to start to develop those fine muscles needed for speech. As a very special treat on someone's birthday (if parents allowed and toothbrushes were at the ready) chewy sweets were offered. Activities like blowing feathers or balloons to reach a target or blowing water coloured with edible food

Potential problems

Children with dyspraxia, cerebral palsy or Down's syndrome have particular issues with fine motor control. In children with Down's, this can effect the muscles to do with the eyes, resulting in poor sight, but especially the facial muscles to do with speech, although their understanding is not always impaired.

colourings (check for allergies first) out of a tumbler with a variety of straws were fun but with a serious purpose. Traditional games like Pin the Tail on the Donkey or Blind Man's Buff were resurrected and adapted to ensure this integration of the senses and develop fine motor skills.

Muscle memory

One aspect of motor development that we have already touched on is the necessity of motor strings becoming automatic to free up the brain to concentrate on novel, more complex activities. One aspect involved in this is the kinaesthetic sense; it is easier to understand this by referring to 'muscle memory', how we remember where our bodies are in space and actions we do frequently. If I cannot remember how to spell a word, I will often write it down, as the 'memory' seems to be recorded in the movement. Repetitive practice is needed to develop this.

Drawing & writing

Writing is one of the most intricate skills that humans develop and one of the most important, despite the rise of word processing and other, alternate means of communication. As in my tale of knitting, we need to develop similar movement skills and more. There are steps in learning to write which are not sometimes appreciated and it worries me considerably when small children are expected to achieve this without going through these adequately. Not only do the muscles in hands and eyes need to be finely tuned but the larger muscles involved in good, and appropriate, body posture need to be coordinated.

Cognitively, children need to understand symbolism, that letters represent something else, to make sense of the activity. This is all built up in stages through their play. All sorts of everyday, nursery, activities help in this. One such, that parents and carers often hate, is the messy high-chair tray syndrome, when little fingers create patterns in the food they have tipped out. Just watch what they are doing closely. I have always considered this as one of the first steps towards drawing and writing.

Drawing also depends on a child's ability to symbolise and then reproduce what is in his or her mind. At first, children draw random patterns, then assign a meaning to it (if a helpful adult does not do it first). Later the child is able to draw intentionally. This seems to occur when language really starts to develop quickly. Once again, it is the result of the workings of the brain coordinated with the ability to use those fine muscles as the child desires. To recall what it was like learning to write, swap hands and attempt simple writing tasks, or try to write your name while watching in a mirror. It's very challenging.

Left behind

Last but not least, please remember the needs of the left-hander in a right-handed world. Allow small children time to decide what hand will dominate and never force a child to swap. Provide left-handed scissors and other utensils but also, for example, consider sitting positions (never place a left-hander on the right side of a right-hander if you don't want war to break out) and offer sloped writing boards.

Get moving

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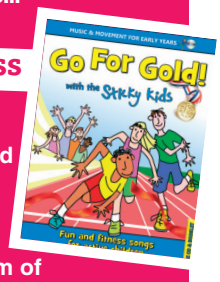
Fun & Fitness



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