

GONGE[®] INSIGHTS

Hilltops and reactive balance

By physiotherapist Hannah Harboe



When we react to avoid falling, this is called reactive balance.

When they are about to lose their balance, many children will flail with their arms or sway their torso violently. The reaction in itself causes them to lose their balance.

If we react suddenly and violently every time we believe we are losing our balance, we feel this as a loss of control. If a child is confronted by losing his or her balance and control persistently and on a daily basis, the child's motor skills will be affected and he/she will become more reluctant to engage in movement and motor play generally.

In time, the child's tendency to overreact with large movements will cause the child to withdraw into himself/herself. The child has low self-esteem and is shy of new challenges.

A child that does not receive help to improve his/her reactive balance and learn to react less violently, will withdraw entirely. He or she will lack the courage to take part in activities where reactive balance is decisive. For an infant, examples of challenging activities include walking on an uneven surface and balancing on stepping stones. An older child will be unable to climb up and jump down. Later, he/she will find it difficult to learn to ride a bicycle.

When children are trained to walk or jump from hilltop to hilltop, they build reactive balance skills. Due to the oblique sides and relatively small supporting surface, moving from hilltop to hilltop the child must correct his/her balance all the time. The child must react fast to avoid falling.

Excessive flailing of the arms and body often result in the child having to put one foot on the floor in order to restore his/her balance.

When balancing, speed is often beneficial. The faster we move, the stronger our vestibular sense is stimulated. This explains why it is often easier to balance when cycling fast as opposed to cycling very slowly, where we find that rider and bicycle are more likely to wobble.

When we ask the child to walk slowly (in slow motion) on hilltops, the exercise trains reactive balance more effectively than when the child skips rapidly from one hilltop to the next.

In other words, a child who has impaired reactive balance finds it easier to run quickly through the hilltop trail than slowly. It is more challenging for a child – even one with good reactive balance – to walk very slowly through the trail.

Case:

Michael is 12 years-old. He comes to see me, because he is upset that he has not yet learned to ride a bike. Michael has always had motor skills impairment. He is clumsy and finds it difficult to keep up with children of his own age.

His mother recalls that, when he was small, he always sat on the floor playing with cars. On the playground, he preferred to play in the sandbox. He is hesitant. He has never been able to walk in a straight line, climb trees or play football.

Michael often fell and bumped into things, when he was little.

More recently, Michael has enjoyed swimming and running. He has also done weight training at a fitness centre. Although he loves sport and movement, his balance remains impaired. He lacks the courage to take part in cycle training.

When testing Michael, I find that he has severe reactive balance problems. His arms flail wildly, when he is about to lose his balance.

Michael and I agree to three exercise sessions, in which he will practise using the underlying skills he needs to learn before he can learn to ride a bicycle. Between these sessions, Michael does a few daily exercises at home.

Michael's training sessions take place at 14-day intervals. After six weeks, we will begin to teach him to ride a bicycle.



We use hilltops in the training sessions and at home. Michael must practise walking as slowly as he can on a trail made of five hilltops of different heights. If he cannot keep his balance and if his foot touches the floor to prevent him from falling, he has walked too slowly.

At every session, we write down how long it takes him to walk the trail with the five hilltops. To begin with, Michael can only keep his balance if he moves fast along the hilltops trail (7 seconds). Slowly but surely, he learns to move more slowly until finally he can take as long as 35 seconds.

Michael now feels he is ready to meet the challenge of learning to cycle. We have a chat to remind him that speed makes cycling easier – especially in the beginning. After three cycle training sessions, Michael is off on his own. He enjoys the sense of freedom. He also enjoys being able to transport himself to and from school and leisure activities as it saves time.

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