Cyflwynwyd yr ymateb i ymgynghoriad y Pwyllgor Iechyd a Gofal Cymdeithasol ar Atal iechyd gwael - gordewdra

This response was submitted to the Health and Social Care Committee consultation on Prevention of ill health - obesity

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For the attention of the Health and Social Care Committee
Prevention of Ill Health – Obesity

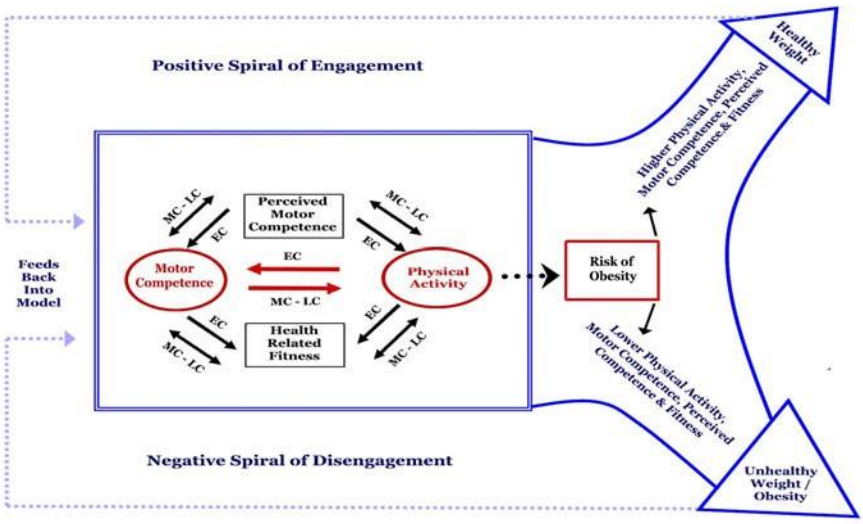
Key Messages

- A key factor which has been missed when considering weight management is motor competence
- Theoretical models show that motor competence drives physical activity, and a large body of research shows that motor competence and perceived motor competence are associated with weight status
- Whilst physical activity is important in weight management this is over simplistic and does not recognize the barriers people living with obesity experience in relation to locomotor skills (such as walking)
- By understanding motor development programmes can be put in place that use object control skills which are more easily accessed by people living with obesity and as such create positive movement experiences as a way to build access to physical activity
- Developing competent and confident movers in early childhood is critical to a positive developmental trajectory and lifelong physical activity.
- The interaction between physical activity, motor competence, fitness and perceived competence in relation to lifelong physical activity and health is highly complex
- When considering the complex systems that drive obesity the 'cog' of motor development is important to ensure other 'cogs' can have impact
- High quality developmentally appropriate movement experiences are essential for developing positive attitudes for lifelong physical activity and these require highly trained teachers
- A structured programme of professional development and training for all professionals working with families in relation to obesity needs to consider motor competence and physical literacy.

1. Over 30 years of global research in motor development shows that developing competent and confident movers in early childhood is critical to a positive developmental trajectory and lifelong physical activity[1,2,3,4,5,6,7]. In very early childhood and infancy motor competence is affected by biological maturation, however as children become more mobile the quality of the environment and movement experiences they are exposed to is crucial to the development of core stability, co-ordination and motor competence[7,8,9]. During early childhood children must develop key foundational skills called fundamental motor skills (FMS) and knowledge of movement concepts[8,9]. Fundamental motor skills consist of object control skills like throwing and catching and locomotor skills such as running and jumping[7]. These movement concepts and FMS are equivalent to the movement alphabet and form the foundation of sports, games and lifetime activities[5,6,10,11].

2. Models of motor development highlight the importance of FMS for children to be physically active across the lifespan [12,3]. Drawing on the fields of motor development, psychology and health, Stodden et al.'s[3] model shows the complex relationship between physical activity, competence and perceived competence and fitness in relation to obesity and health (Fig 1)

Fig 1. Motor developmental model showing the resulting health trajectories



Stodden, D., Goodway, J., Langendorfer, S., Roberton, M., Rudisill, M., Garcia, C. and Garcia, L. (2008

This model shows us that very young children need movement to develop the pre-requisites for motor competence, such as

core stability, balance and co-ordination. Developing motor competence enables them to be more physically active and gain fitness. The more they are active the more competent they become and so on resulting in them entering a positive spiral of engagement in physical activity and healthy weight.

This is further complicated by a child's perception of their ability, their perceived physical competence, which drives motivation for physical activity (if I think I am good I will take part, if I think I am rubbish I won't). In early childhood before the age of seven, children are not able to make an accurate judgement of their ability and think if they try hard they are great. Hence this gives us a window of opportunity to develop children's competence to a level that they will perceive as good[3,5,7]. It is crucial to progress children along a motor developmental pathway as pupils that have a slow rate of progress are several times more prone to become overweight or obese at the end of primary school[12]. A seven year longitudinal study to test Stodden et al.'s model found that physical activity, motor competence and fitness collectively have a longitudinal impact on body fatness. Motor competence and fitness have the greater influence and as such the study highlights that physical activity interventions focusing on the development of motor competence and fitness in early childhood can have a sustainable impact on maintaining a healthy weight status, or even reducing fatness across childhood and adolescence[13].

Overall motor competence is a key factor influencing children's physical activity levels across childhood. Thus it is not enough to just promote physical activity in children we must ensure that children become motor competent during the early childhood years if they are to access a healthy active lifestyle.
Research into weight status and motor competence of children shows that perception of competence and motor competence are associated with weight status, with children who have low competence and low self-perception being significantly more likely to be overweight or obese[21].

3. The evidence shows that children growing up in poverty are developmentally delayed in their FMS placing them at greater risk of negative health outcomes, physical inactivity and poorer academic achievement[7,17]. Children who are delayed in FMS are less likely to be physically active both now and in the future and as a result have few opportunities to change their motor competence status[17]. Over time, developmental delay results in low perceived motor competence, which impacts a child's desire and motivation to be active[5,6,18]. These factors interact together to pull a child into a negative spiral of dis-engagement resulting in a child who will be inactive across time and more likely to be

an unhealthy weight. Such children will have greater health risks and greater rates of hypokinetic disease than children who are motor competent and physically active. Societal changes seeing increased use of equipment such as baby seats, bouncers and buggies, coffee shop culture replacing visits to parks, a huge increase in children's screen time, a lack of green space and limited free play has created a 'perfect storm' for inactivity and motor developmental delay so that children from all socio-economic backgrounds now lack necessary movement opportunities[19,20].

4. Children and young people living with obesity often have structural changes in their lower limbs and poor strength to weight ratio. These factors make locomotor activities difficult and even painful for people, however interventions to address obesity often include trying to increase physical activity often in the form of walking. If motor development theory is used to inform the physical activity interventions for people living with obesity then these can be developed to draw on object control skills which are accessible for people of all weights. These can be developed to ensure that movement experiences are successful creating a positive relationship with movement. By using a physical literacy informed approach to programmes can be developed that are individualised, engaging, are fun and develop confidence and as such counteract previous experiences[22]

5. The causes and factors related to obesity are complex with the interaction of many systems.

We need to ensure the motor competence 'cog' is developed in early childhood as it is an underlying 'cog' in the system and without it many later 'cogs' will fail.

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