

# National Assembly for Wales

## Children and Young People Committee

CO 32

### Inquiry into Childhood Obesity

**Evidence from : Food Dudes Health Limited, a social enterprise part-owned by Bangor University**

#### **A Summary of the Present State of Play in Wales**

The National Assembly for Wales reported in 2012 how Wales has the highest childhood obesity rates in the UK <sup>(1)</sup>. According to the Welsh Health Survey (2011), more than third of children are overweight or obese: 16% are overweight and a staggering 19% are obese. The first time data on childhood obesity rates was included in the Welsh Health Survey was in 2007 <sup>(2)</sup>. The statistics for 2007 were very similar to 2011, with 36% of children being overweight or obese including 20% being obese. Therefore obesity stats show no change over the five-year period.

In the same period, numerous programmes and schemes were being run throughout Wales; the lack of change in childhood obesity rates shows that, on the whole, these programmes did not succeed in improving the weight status of children or their families. It is possible that this fragmentation of effort could have contributed to the lack of results. In 2008, the Welsh Government was looking to develop a database that would provide the information on the individual food and fitness programmes/policies operating in individual schools <sup>(3)</sup> but our brief review of the literature indicates this is yet to be done. We welcome the present inquiry because evidence for effectiveness or otherwise of the programmes, rather than their popular appeal or other considerations, ought to inform future policy.

The Welsh Government has identified two key areas of interest: (i) “lifestyle factors contributing to obesity”, and (ii) “lack of regular physical activity and poor diet” <sup>(3)</sup>. In 2010, an all Wales Obesity Pathway document was finalised to guide the public health in Wales for the next two decades <sup>(4)</sup>. This document summaries strategies and guidelines to what interventions in Wales

should provide (derived from comprehensive, evidence-based reports). However, the programmes and schemes currently in schools do not conform to these guidelines – our literature search and enquiries revealed no direct measure evaluations. For example, a well-known social marketing campaign currently used in Wales (as well as further afield) was criticised in a report published by the House of Lords on the grounds that the only evaluation of the campaign has been of brand recognition and claimed change <sup>(5)</sup> but there has been no demonstration of any actual changes in health behaviours. For most of the smaller schemes no attempts have been made to measure their impact, and we know of no case in which an obesity programme in Wales had been shown, through objective direct measures of eating, physical activity, or weight change, to be effective in tackling the childhood obesity problem.

### **Nudge and Behaviour Change: The Way Forward**

In recent years, governments <sup>(5)</sup> and other agencies <sup>(6)</sup> across the world have shown an interest in behaviour change, sparked by books like *Nudge* by Thaler and Sunstein <sup>(7)</sup> and *Influence* by Cialdini <sup>(8)</sup>. These books have combined findings from experimental psychology and behavioural economics, illustrating that behaviour can be ‘nudged’ in paths of promoting good health and well-being through environmental factors. An example of this is social norming; everyone is influenced to behave in a way that they believe others behave. So if people are told that 95% of their neighbours keep to their GP appointments and arrive on time, they will be more likely to do the same <sup>(9)</sup>. Behaviour change approach recognises that much of our behaviour is not affected by information or deliberate decision-making, but by a range of environmental and emotional factors about which individuals have little awareness. This is particularly true of children.

To enable adults and children to make the right choices, an understanding of how “implicit” cues and consequences operate is required. Thus behaviour change experts can set up environments that will actively promote a desired action. In the instance of obesity, an understanding of cues and consequences for making healthy choices is the foundation for establishing and promoting a healthy lifestyle.

Of course, whilst recognising the evidence that environmental factors influence people's behaviour, we cannot conclude that the nudge approach alone is sufficient to tackle a complex problem like obesity <sup>(9)</sup>. To do this, concerted efforts of government, behavioural experts, schools, families and all other stakeholders will be needed. Commissioning evidence-based programmes that have demonstrated their effectiveness to take the leading role in this effort would be a good place to start.

### **The Food Dudes: Changing Children's Eating Habits for Life**

Food Dudes is a made-in-Wales set of interventions developed over the past 20 years by behaviour change experts from Bangor University. They combat childhood obesity by improving the diets of children and their families in Early Years, Primary, and Special School settings. This approach is supported by a large body of evidence: Please see [www.fooddudes.co.uk](http://www.fooddudes.co.uk) for English and Welsh versions of the website, carrying information of our programmes and key principles on which Food Dudes are based. Attached to this document is a full list of references presenting the evidence base for the Food Dudes programme, with hyperlinks that will enable you to download our publications, commissioner report summaries, and recent presentations. In this document and on our website you can also access videos that illustrate Food Dudes procedures, materials, and success in different settings.

**How does it work?** Each Food Dudes programme revolves around three "Rs" – Role-modelling, Rewards, and Repeated tastings. The following example illustrates the way in which these three Rs operate: In school, over a 16-day period, children are shown a series of DVD adventures featuring young heroes (positive Role-models) called the Food Dudes. The children see that the Dudes, by eating fruit and vegetables, are able to equip themselves with the superpowers needed to vanquish General Junk and his Junk Punks, who plot to deplete the energy of the world by depriving people of healthy food. Having watched one of these DVD adventures, the children are then invited to taste fruit and vegetables themselves. If they succeed, they earn Food Dudes Rewards. Encouraged by the dual influence of Role-models and Rewards, the children embark upon a series of Repeated tastings of a wide range of fruit and

vegetables. The more they taste, the more they come to like these foods for their own intrinsically rewarding properties. Further, as the children change their eating behaviour, they also become part of a school culture that is strongly supportive of the eating of fruit and vegetables. This particular combination of biological and psychological factors then maintains the children's new eating habits over the long term. In addition, a home pack helps both to establish the Programme's effects in the home environment and to recruit the strong support of parents.

**Outcomes.** Controlled trials have been used to evaluate Food Dudes in Primary Schools (children 4-11 years old) and Nurseries/Early Years Centres (children 2- 4 years old). These studies have been conducted in England, Wales, Ireland, Italy and the USA, and they have shown increases in children's consumption of fruit and vegetables generally ranging from 60-200% and, where measured, decreases in unhealthy snack food consumption ranging from 20%-100%. The effects are greatest for the poorest eaters (the children who initially eat the least fruit and vegetables) and Food Dudes works particularly well with children in Special Schools. The effects are long-lasting (evidenced by controlled studies, and in evaluations conducted by the Irish Government up to 2.5 years after the initial intervention) and they occur both at school and at home, and in both children and their families.

### **Recommendation: The Food Dudes for Wales**

The effects of the Food Dudes Programmes are large and long lasting; this is why the World Health Organisation awarded it a Gold Medal for Combating Obesity, why it won the Chief Medical Officer's Gold Medal Award in England, and why the European Commission recommends its use as an effective accompanying measure to Member States' Fruit and Vegetable Schemes. Professors Lowe and Horne and their team of research scientists are expanding the scope of the intervention to include optimising catering environments in schools; maximising parental and community engagement; and integration with other initiatives that may be running in parallel with the Food Dudes at each locality. The stated mission of Food Dudes is to 'improve the health and wellbeing of children their families, and sustain the health of the environment'.

In order to do this more effectively, Food Dudes Health Ltd, was established a year ago. This is a Social Enterprise, partly owned by Bangor University, in which surplus income is reinvested in programmes that promote healthy eating and physical activity.

The Food Dudes programmes fit well with the Wales Obesity Pathways intervention strategies and guidelines: Focus is placed on healthy eating and therefore prevention instead of obesity treatment; programmes are evidence-based, have long-lasting effects, and target multiple levels. However, although much of the early development work for the programme has been conducted in Nurseries and Primary schools in North Wales, take up has been very slow in Wales. By contrast, in Ireland, more than 450,000 children will have received Food Dudes (the intervention is available to all Primary schools); in the rest of the UK, more than 150,000 children are taking part in the West Midlands, London and Scotland. Successful projects have been trialled in the US (California and Utah) and Italy (Sicily and Milan).

Next year, we have been commissioned to administer the Food Dudes in two Special Schools in Denbighshire, which is a good start. We wish to build on this relationship and extend the Food Dudes to other regions in Wales. This is the main reason for our response to the present call. We recognise the seriousness of the childhood obesity problem in Wales and have the expertise that is needed to lead the future interventions aimed at reducing this problem.

**Please note: A separate document is sent with this response. It contains key information about research evidence base for Food Dudes Programmes, including hyperlinked references to publications and media files. Please consider this evidence as key part of our submission to the government inquiry on childhood obesity.**

If further information is needed on how Food Dudes works on the ground and how it can be rolled out at scale, then contact can be made with the Irish Government (Bord Bia), and with Public Health and Local Authorities in the West Midlands. We can provide further details on request.

## References

1. Welsh Government, statistics for Wales, [Welsh Health Survey](#) (2011).
2. Welsh Government, statistics for Wales, [Welsh Healthy Survey](#). (2007).
3. Department for Children, Education, Lifelong Learning and Skills, Welsh Assembly Government. (2008). [Appetite for life action plan \(Information document No. 026/2007\)](#).
4. Welsh Government (2010). [All Wales obesity pathway](#).
5. Science and Technology Select Committee, House of Lords. (2011). [Behaviour change. \(HL Paper 179\)](#).
6. National Institute for Health and Clinical Excellence, NHS. (2007). [Behaviour change](#).
7. Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth and happiness*. New Haven: CT: Yale University Press.
8. Cialdini, R. B. (2007). *Influence: Science and Practice*. Needham Heights, MA: Allyn & Bacon.
9. Newson, R. S. et al. (2013). Behaviour change for better health: nutrition hygiene, sustainability. [BMC Public Health, 13\(Suppl 1\):S1](#).



# FOOD DUDES

## MEET THE RESEARCH TEAM

### Professor Fergus Lowe (BA, PhD, CPsychol, FBPsS)



Fergus Lowe is Professor Emeritus at the School of Psychology, Bangor University, where he has previously served as Head of Psychology, Deputy Vice-Chancellor and Acting Vice-Chancellor. His current research focuses on behaviour change within the health domain. He has advised British and Irish Governments and the European Commission on changing children's eating habits and is Vice-Chair of the EU's Scientific Expert Panel for the School Fruit Scheme.

His main research interests have been in the area of children's learning and language development and his work in this domain has been published extensively in leading international journals and books. In recent years, with his colleague, Professor Pauline Horne, he has developed a range of programmes to promote healthy eating in children, known as Food Dudes. To realise the full potential of these programmes, Food Dudes Health Ltd was established in 2012, in collaboration with Bangor University. This is a Social Enterprise for children's health and well-being, all surplus income being ploughed back into the programmes. Professor Lowe serves as Chief Executive. [Click here](#) to access the publications page for Professor Lowe.

## Professor Pauline Horne (BSc, MPhil, Biochem; BA, PhD, Psychol)



Pauline Horne is Professor in Child Development and Learning at the School of Psychology, Bangor University and a Director of Food Dudes Health Ltd, a social enterprise established in 2012 to promote children's health and wellbeing. She has served as advisor to the UK and Irish Governments on changing children's dietary habits, and to the European Commission in setting up its School Fruit Scheme.

Pauline's basic and applied research is guided by the principles of behaviour change. Together with her colleague Professor Fergus Lowe, she has developed the Food Dudes Healthy Eating Programmes. Underpinning research on the determinants of children's food preferences and daily physical activity continues, informing the development of new behaviour change interventions.

Pauline's other longstanding research interests include the development of naming and its impacts on children's ability to categorise, imitate, and regulate their own behaviour. She has also conducted research on the determinants of imitation in infants and young children, with her colleague Dr Mihela Erjavec. Her recent publications can be [accessed here](#).

## Dr Mihela Erjavec (BSc, PhD)



Mihela Erjavec is Lecturer in Developmental Psychology at Bangor University and Senior Researcher for Food Dudes Health Ltd. She has been conducting research with children of all ages and presenting this research in many engaging ways for 15 years. Mihela is responsible for the development and testing of new Food Dudes Programmes, communicating these findings to diverse audiences, monitoring the quality of the existing programme rollouts, and for helping Food Dudes Health staff to continuously improve their delivery and data capture methods and procedures.

Mihela's research interests and expertise include child health and well-being, evidence-based behavioural interventions, and developmental behaviour analysis; she is especially interested in the mechanisms of imitation and social learning in infancy and childhood. Her key publications in peer-reviewed journals can be accessed through her [Bangor University Profile page](#).







## Publications

### PEER REVIEWED ARTICLES

- Pears, S.L.; Jackson, M.C.; Bertenshaw, E.J.; Horne, P.J.; Lowe, C.F.; & Erjavec, M. (2012). Validation of food diaries as measures of dietary behaviour change. *Appetite*. **58**, (3) 1164-1168.
- Hardman, C.A.; Horne, P.J.; & Lowe, C.F. (2011). Effects of rewards, peer-modelling and pedometer targets on children's physical activity: A school-based intervention study. *Psychology and Health*. **26**, (1) 3-21.
- Horne, P.J.; Greenhalgh, J.; Erjavec, M.; Lowe, C.F.; Viktor, S.; & Whitaker, C.J. (2011). Increasing pre-school children's consumption of fruit and vegetables. A modelling and rewards intervention. *Appetite*. **56**, (2) 375-385.
- Greenhalgh, J.; Dowey, A.J.; Horne, P.J.; Lowe, C.F.; Griffiths, J.H.; & Whitaker, C.J. (2009). Positive- and negative peer modelling effects on young children's consumption of novel blue foods. *Appetite*. **52**, (3) 646-653.
- Hardman, C.A.; Horne, P.J.; & Lowe, C.F. (2009). A home-based intervention to increase physical activity in girls: the Fit'n'Fun Dudes program. *Journal of Exercise Science and Fitness*. **7**, (1) 1-8.
- Hardman, C.A.; Horne, P.J.; & Rowlands, A.V. (2009). Children's pedometer-determined physical activity during school-time and leisure-time. *Journal of Exercise Science and Fitness*. **7**, (2) 129-134.
- Horne, P.J.; Hardman, C.A.; Lowe, C.F.; & Rowlands, A.V. (2009). Increasing children's physical activity: a peer modelling, rewards and pedometer-based intervention. *European Journal of Clinical Nutrition*. **63**, (2) 191-198.
- Horne, P.J.; Hardman, C.A.; Lowe, C.F.; Tapper, K.; Le Noury, J.; Madden, P.; Patel, P.; & Doody, M. (2009). Increasing parental provision and children's consumption of lunchbox fruit and vegetables in Ireland: the Food Dudes intervention. *European Journal of Clinical Nutrition*. **63**, (5) 613-618.
- Lowe, C.F.; & Horne, P.J. (2009). 'Food Dudes': Increasing Children's Fruit and Vegetable Consumption. *Cases in Public Health Communication & Marketing*. **3**, 161-185.

Lowe, C.F.; Horne, P.J.; Hardman, C.A.; & Tapper, K. (2006). [A peer-modeling and rewards-based intervention is effective in increasing fruit and vegetable consumption in children.](#) *Preventive Medicine*. **43**, (4) 351.

Horne, P.J.; Tapper, K.; Lowe, C.F.; Hardman, C.A.; Jackson, M.C.; & Woolner, J. (2004). [Increasing children's fruit and vegetable consumption: A peer-modelling and rewards-based intervention.](#) *European Journal of Clinical Nutrition*. **58**, (12) 1649-1660.

Lowe, C.F.; Horne, P.J.; Tapper, K.; Bowdery, M.; & Egerton, C. (2004). [Effects of a peer modelling and rewards-based intervention to increase fruit and vegetable consumption in children.](#) *European Journal of Clinical Nutrition*. **58**, (3) 510-522.

Tapper, K.; Horne, P.J.; & Lowe, C.F. (2003). [Helping children eat fruit and vegetables.](#) *The Psychologist*. **16**,18-21.

Horne, P.J.; Lowe, C.F.; Bowdery, M.; & Egerton, C. (1998). [The way to healthy eating for children.](#) *British Food Journal*. **100/3**, 133-140.

Horne, P.J.; Lowe, C.F.; Flemin, P.F.J.; & Dowey, A.J. (1995). [An effective procedure for changing food preferences in 5-7-year-old children.](#) *Proceedings of the Nutrition Society*. **54**, 441-452.

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## INVITED ARTICLES

Erjavec, M.; Viktor, S.; Horne, P.; & Lowe, C.F. (2012). [Implementing a healthy eating programme: changing children's eating habits for life.](#) *Community practitioner*. **85**, (4) 39-40.

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Presti, G.; Cau, S.; & Moderato, P. (2013). [Changing the way our children eat: a behavior analytic approach.](#) *Postępy Nauk Medycznych*. **1**, 28-34.

Wengreen, H.J.; Madden, G.J.; Aguilar, S.S.; Smits, R.R.; & Jones, B.A. (2013). [Incentivizing Children's Fruit and Vegetable Consumption: Results of a United States Pilot Study of the Food Dudes Program.](#) *Journal of Nutrition Education and Behavior*. **45** (1), 54-59.

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## BOOK CHAPTERS

Lowe, C.F.; Horne, P.J.; Egerton, C.; Tapper, K.; & Bowdery, M. (2001). [Increasing consumption of fruit and vegetables in children.](#) *Culinary Arts and Sciences III, Global and National Perspectives*. 363-371. Bournemouth, U.K. : Worshipful Company of Cooks, Centre for Culinary Research.

Lowe, C.F., Dowey, A. and Horne, P. (1998). [Changing what children eat.](#) In Murcott, A. (ed.), *The National's Diet: The Social Science of Food Choice*. Addison Wesley Longman, London, pp. 57-80.

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## CONFERENCE PRESENTATIONS

Erjavec, M. (13th June, 2011). Food Dudes: Changing what children and their families eat. Presented at the 2<sup>nd</sup> Project Planning Meeting for NCD Flagship Projects, Brussels.

Erjavec, M. (10th November, 2011). Preventing Obesity and Changing Children's Eating Habits. Presented at the Annual Public Health Conference: Faculty of Public Health, Scotland, U.K.

Erjavec, M. (1st December, 2011). Preventing Obesity and Changing Children's Eating Habits: The Food Dudes Programme. Presented at Friends of Europe Conference: Encouraging healthy eating and active living in the family setting, Brussels.

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## COMMISSIONER REPORT EXECUTIVE SUMMARIES

Coventry: Mainstream Schools, 2011 - 2012

Coventry: Food Dudes Forever and Next Generation, 2011 - 2012

Dudley, 2011 - 2012

Hounslow, 2012

Walsall, 2011 - 2012

Ireland: Next Generation, 2012

Special Schools, 2012

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## OTHER

[Report from the Commission to the European Parliament and The Council](#), December 2012.  
(See Page 7).

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## VIDEOS

To see videos of the Food Dudes Programme in action visit <http://www.fooddudes.co.uk/videos>

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## AWARDS

2012	Scientific Translation Award from Society for Advancement for Behaviour Analysis
2012	Local Authority Catering Award – Most Innovative Concept
2012	West Midlands Public Health Excellence Awards – Runner up,
2010	Chief Medical Officer's (UK) Gold Medal Award for Combating Obesity.
2009	Social Marketing Centre – Showcase Award
2006	World Health Organisation Best Practice Award for Counteracting Obesity.
1998	Caroline Walker Trust Award for Outstanding Contribution to Health