

# Bright sports, physical activity investments that work: implementing brain breaks in Malaysian primary schools

Garry Kuan,<sup>1,2</sup> Hussein Rizal,<sup>1</sup> Mawar Siti Hajar,<sup>1</sup> Ming-Kai Chin,<sup>2,3</sup> Magdalena Mo Ching Mok<sup>4,5</sup>

## BACKGROUND

Although a child's physical development is inseparable from his or her cognitive development, the Malaysian education system prioritises academic achievement over physical development. Malaysian children and adolescents engage in low levels of physical activity.<sup>1</sup> As in many countries, there is a need to increase physical activity among Malay adolescent communities in Malaysia.

To achieve this, the Global Community Health<sup>2</sup> (GCH) and HOPSports<sup>3</sup> introduced Brain Breaks Physical Activity Solutions (Brain Breaks), a web-based structured physical activity video that aims to stimulate students' interest in learning and promote better health and wellness.

## WHAT IS THIS PROGRAMME ABOUT?

Brain Breaks Physical Activity Solutions is an interactive online resource designed for the classroom setting<sup>4-6</sup> that involves web-based structured classroom physical activity. At the core of Brain Breaks is are movement and cognitive activity. It is part of a GCH project, developed by the Centres for Disease Control and Prevention<sup>7</sup>, that involves whole school, community and child framework. The programme is supported by the United Nations as part of the 17 Sustainable Developmental Goals under the goals of good health and well-being. Access to the Brain Breaks videos only requires internet

<sup>1</sup>Exercise and Sport Science Programme, School of Health Sciences, Universiti Sains Malaysia, Kubang Kerian, Malaysia

<sup>2</sup>The Foundation for Global Community Health (GCH), Las Vegas, Nevada, USA

<sup>3</sup>HOPSports, Inc., Las Vegas, Nevada, USA

<sup>4</sup>Graduate Institute of Educational Information and Measurement, National Taichung University of Education, Taichung, Taiwan

<sup>5</sup>Department of Psychology and Assessment Research Centre, The Education University of Hong Kong, Hong Kong, China

**Correspondence to** Dr Garry Kuan, Exercise and Sport Science Programme, School of Health Sciences, Universiti Sains Malaysia, Kelantan, Malaysia; [garry@usm.my](mailto:garry@usm.my)

access (<https://www.brain-breaks.com/>) and a projector to display the physical activity videos.

## PROGRAMME REACH

GCH reaches 2–3 million children in over 70 countries (including three low-income countries<sup>2</sup>). **Table 1** lists the countries that have adopted Brain Breaks. In Malaysia, Brain Breaks reaches over 600 Malay primary schoolchildren and has been implemented in three schools in the district of Kota Bharu, Kelantan, Malaysia. We will expand it to other states across Malaysia, including Penang, Perak, Johor and Sarawak. Two physical activity videos were shown to the primary students (age 10–11 years old), five times a week over a period of 3 months in the district of Kelantan, Malaysia. Each

video lasted 3–5 min and was shown during school assembly.

## WHAT IS NOVEL ABOUT THIS PROGRAMME?

Brain Breaks provides an interactive experience for students and a connective platform for teachers. Teachers are required to provide health education along with physical education, personal development and safety awareness as part of their curriculum and classroom environment.<sup>8</sup> This programme promotes physical activity among children and enhances students' learning. Improvements of motor and fitness skills and cultural awareness are embedded into every video.

The diverse cultural features included in the videos include traditional dance specific to each country, sports and contemporary movement. Brain Breaks provide teachers with a wide selection of physical activity videos to choose from and adds variety. This often results in improvements in students' physical activity attitudes and self-esteem.<sup>5</sup> Students have the opportunity to be physically active using Brain Breaks and to master new motor skills and learning.<sup>4,8</sup> In recent studies, Brain Breaks showed positive improvements in self-efficacy in terms of learning<sup>4</sup> as well as self-awareness and self-confidence in developing physical fitness.<sup>5</sup>

## Programme card

### Settings

- ▶ Primary schools in the district of Kota Bharu, Kelantan, Malaysia.

### Target population

- ▶ Primary school children in grades 4 and 5 (n=622 students up to December 2018). More schools are adopting this programme.

### What modes/types/domains of physical activity does the programme promote?

- ▶ Moderate to vigorous intensity physical activity aimed improving health-related fitness—cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition.

### Which of the seven best investments does the programme address?

- ▶ Education, making regular physical activity in schools the norm.

### What sectors does it involve?

- ▶ Education.
- ▶ Estimated reach of the programme.
- ▶ Over 600 Malay primary schoolchildren per year.

### What is special about this programme?

- ▶ This is the first web-based, digitalised physical activity that was adopted at a large scale in any Malaysian setting.

### Key programme details and contacts

- ▶ Programme website: <http://www.gchfoundation.org/>; <http://www.hopsports.com>
- ▶ Contact: [garry@usm.my](mailto:garry@usm.my)

**Table 1** Countries that have implemented Brain Breaks locally (minimum 2–3 schools)

Countries		
Albania	Japan	Romania
Brazil	Jordan	Russia
Bulgaria	Korea	Serbia
China	Macedonia	Singapore
Croatia	Malaysia	Slovenia
Czech Republic	Netherlands	Spain
Germany	Oman	Thailand
India	Philippines	Turkey
Ireland	Poland	Venezuela
Italy	Qatar	Zimbabwe

## LESSONS LEARNT

We believe key drive of success include:

- ▶ Receiving the support from the headmaster and the cooperation from the teachers.
- ▶ Signing the formal collaborative agreements between the school and the first author's university.
- ▶ Teachers often engaged fully during the sessions.
- ▶ Having five Brain Breaks sessions per week, with two physical activity videos daily which is the optimal frequency based on past research.<sup>5–7</sup>
- ▶ Conducting daily monitoring of the programmes' implementation to ensure that delivery was optimal.
- ▶ We used the principle of frequency, intensity, time and type to maintain the effect of the Brain Breaks intervention. This was achieved by modifying the intensity and duration of the sessions. For example, if children could not participate in one or more Brain Breaks session, the teachers increased the number of physical

activity videos and total duration of their physical activity in the subsequent sessions.

**Contributors** All the authors contributed to the drafting, developing, data collection and writing of this manuscript, which was led by the first author.

**Funding** This research was supported by the Research University's individual grant (1001/PPSP/812149) from the Universiti Sains Malaysia. Besides, the Brain Breaks videos were supplied by the GCH foundations.

**Competing interests** This programme has been conducted without financial incentives from the Malaysian government or any private organisation.

**Patient consent for publication** Parental/guardian consent obtained.

**Ethics approval** The study received approval from the Universiti Sains Malaysia (USM) Human Research Ethics Committee (USM/JEPeM/18020104) and was conducted in accordance with the guidelines of the International Declaration of Helsinki.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** Full data evaluation is expected in April 2019.

© Author(s) (or their employer(s)) 2019. No commercial re-use. See rights and permissions. Published by BMJ.



**To cite** Kuan G, Rizal H, Hajar MS, *et al.* *Br J Sports Med* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bjsports-2018-100146

Accepted 14 January 2019

*Br J Sports Med* 2019;0:1–2.  
doi:10.1136/bjsports-2018-100146

## REFERENCES

- 1 Sharif Ishak SI, Chin YS, Mohd Taib MN, *et al.* School-based intervention to prevent overweight and disordered eating in secondary school Malaysian adolescents: a study protocol. *BMC Public Health* 2016;16:1101.
- 2 GCH foundation. Enriching lives through movement & education. 2017 <http://www.gchfoundation.org/> (cited 5th Sep 2017).
- 3 HopSports. Interactive youth physical education training system. 2014 <http://www.hopsports.com> (cited 5 Aug 2017).
- 4 Glapa A, Grzesiak J, Laudanska-Krzeminska I, *et al.* The impact of brain breaks classroom-based physical activities on attitudes toward physical activity in polish school children in third to fifth grade. *Int J Environ Res Public Health* 2018;15:368.
- 5 Popeska B, Jovanova-Mitkovska S, Chin M-K, *et al.* Implementation of Brain Breaks® in the Classroom and Effects on Attitudes toward Physical Activity in a Macedonian School Setting. *Int J Environ Res Public Health* 2018;15:1127.
- 6 Uzunoz FS, Chin MK. *et al* Mok MMC. In: Dumon D, Hofmann AR, Diketmuller R, Koenen K, Bailey R, . eds. *The effects of technology supported brain-breaks on physical activity in school children*. Steinfurter, Munster: Waxmann Verlag GmbH, 2017.
- 7 Lewallen TC, Hunt H, Potts-Datema W, *et al.* The Whole School, Whole Community, Whole Child model: a new approach for improving educational attainment and healthy development for students. *J Sch Health* 2015;85:729–39.
- 8 Emeljanovas A, Mieziene B, ChingMok M, *et al.* The effect of an interactive program during school breaks on attitudes toward physical activity in primary school children. *Annals of Psychology* 2018;34:580–6.