



## Opinion

## BRICS to BRICSCESS—A perspective for practical action in the promotion of healthy lifestyles to improve public health in five countries

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In 2006, during a United Nations General Assembly session in New York City, Russia presented a concept for developing multilateral international cooperation. Subsequently, foreign ministers from other countries unanimously expressed interest in being part of this union of nations, and BRIC (as initially known) was established. BRIC is an acronym for an informal international association of 4 countries: Brazil, Russia, India, and China.<sup>1,2</sup> In 2008, a meeting comprising BRIC's foreign ministers was held to discuss and relate their viewpoints on various global development debates. Following this meeting, a Joint Communique statement was developed, which presented common concerns on global issues among the BRIC countries.<sup>1</sup>

In 2010, when the United Nations placed South Africa's economy among the top 20 priorities for foreign direct investment, South Africa officially joined BRICS<sup>3</sup> and participated in the third BRICS Summit in 2011.<sup>4</sup> Collaborative relationships were established among these countries to promote dialogue, serve common interests of emerging economies, and build lasting global peace and common prosperity.<sup>1,5,6</sup>

According to Nordenstreng and Thussu,<sup>7</sup> the BRICS agenda promotes a new world order. The union of BRICS countries enables the exertion of leverage within the United Nations and the World Trade Organization, potentially allowing for the shaping of revisions for governance rules worldwide, influencing intellectual property rights, providing for cyber security and commerce, and prompting how countries approach climate changes in a multipolar world.

With the rapid development in the fields of exercise, physical activity (PA), and sports science around the world, the BRICS Council of Exercise and Sport Science (BRICSCESS) was created to address the specific public health and wellness concerns found in these 5 countries.<sup>2</sup> BRICSCESS was first

conceived during the 18th International Scientific Congress held October 2014 in Kazakhstan and was officially founded at the 7th Asia Conference on Exercise and Sports Science in India held in October 2015.<sup>8</sup> BRICSCESS aims to facilitate communication among future leaders and senior scientists in BRICS countries by promoting healthy lifestyles that include PA, exercise, sport, and proper diet, with the overall goal of enhancing health and quality of life.<sup>2</sup> At the BRICSCESS 2019 meeting being held in Cape Town, South Africa, in October 2019, measurable metrics and goals for future development are part of the BRICSCESS group agenda for discussion and development.

The BRICSCESS organization uses an interdisciplinary approach to encourage academic institutions, public and private schools, and communities to translate health and wellness theory into practice. Achieving this goal requires inclusion of all the areas of healthy lifestyle living: exercise physiology, health and fitness, biomechanics, psychology, nutrition, medicine, kinanthropometry, rehabilitation sciences, pedagogy, chronic disease management, social science, history, physical education, adaptive PA, leisure and wellness, sports training, traditional sport, dance, and technology.<sup>9</sup> To this end, BRICSCESS functions in part to facilitate the accomplishment of the following tasks: establish links between institutions and organizations; establish an active and sustainable future leader/volunteer (FLV) program; promote collaboration in research, teaching, and mentoring between international scientists and FLVs; develop, organize, and promote conferences, seminars, workshops, symposiums, round-table discussions, and training courses; publish new scientific information related to exercise, PA, sports science, lifestyle management, and nutrition; and promote multi-interdisciplinary approaches for developing holistic health.<sup>2</sup>

During its brief period of existence, BRICSCESS has fostered partnerships with different world organizations. One example is the Foundation for Global Community Health

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(GCH),<sup>10</sup> a public charity created to provide peer-reviewed research, develop best practices for well-being programming within the school environment, and help in procuring funding to implement research-based programming. By working with organizations such as GCH, BRICSCESS has access to ongoing worldwide projects. Presently, GCH is working on a project using the Whole School, Whole Community, Whole Child framework<sup>11</sup> developed by the United States' Centers for Disease Control and Prevention. This collaborative project is a school-based well-being program that reaches several million children in more than 70 countries. Working cooperatively and building on organizational networks, GCH provides an ideal vehicle for delivering a research-based, locally focused, and globally accessible digital well-being platform to the world's 1.9 billion children ages 5–18 years. With their different organizational structures and their different contributions, the BRICSCESS and GCH partnership provides a strong union, bringing together BRICS countries with other global networks to promote public health and wellness in schools and communities.

One such endeavor is found in work being completed by the United Nations General Assembly and its agenda for 17 sustainable development goals (SDGs) to be achieved by 2030. The aim of this agenda is to raise world awareness for using holistic approaches to achieving sustainable development for all individuals in all countries. BRICSCESS and GCH, in cooperation with the United Nations Global Sustainability Index Institute, are working to implement several of the United Nations' SDGs.<sup>12</sup> For example, SDG 17 was established "to strengthen the means of implementation and revitalize global partnerships for sustainable development", SDG 3 was advanced "to ensure healthy lives and promote well-being for all at all ages", and SDG 4 was developed "to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all".<sup>13</sup>

A central task of BRICSCESS is to establish an active and sustainable FLV program, which was initiated to meet the need for mentoring junior scholars within the exercise science and lifestyle management fields. The focus of this mentoring program is to provide professional development to graduate students and junior academic faculty committed to research, teaching, and serving local and global communities. Candidates who become FLVs are chosen for their innovative and interdisciplinary abilities and their willingness to help others make healthy lifestyle changes and develop healthy living strategies.<sup>2</sup> The founders of the FLV program intended that junior professionals live a healthy active life and become diplomats for lifestyle change while using evidence-based knowledge to educate children, adults, and all individuals with special needs. Each FLV's experience is similar and yet different. Holistic, innovative, and culturally sensitive experiences are planned so that each FLV can participate in the improvement of the overall health status and quality of life in BRICS countries. The FLV experience includes such aspects as proper decision making, problem solving and critical thinking, action planning, participating in collaborative projects, and learning about cultural differences.

The site of the first FLV program was the 6th Asia Pacific Conference on Exercise and Sports Science held in Taipei in 2013. Since the initial conference, many graduate students and junior faculty members have been part of the FLV program, which has become an important component of other international meetings, including the inaugural BRICSCESS meeting in Sao Paulo in 2017 and the 2019 BRICSCESS and 1st World Congress of Future Leaders/Volunteers in Cape Town.<sup>14</sup>

FLVs actively promote health and wellness in their communities by working towards GCH's vision for implementation of the SDGs. A recent report from the World Health Organization<sup>15</sup> offers a similar mission and vision that is in line with the GCH's implementation of the SDGs, emphasizing the utilization of the private sector in gaining resources to provide sustainability. This report focuses on methods for gaining finances and sharing knowledge, expertise, and technology to serve public health and chronic disease programming.

Both the GCH and the World Health Organization initiatives provide experiences for FLVs in participating in projects for their respective countries.<sup>15</sup> Presently, BRICSCESS supports 2 initiatives: the Belt and Road Initiative (BRI) and the Pearl River Delta Metropolitan Region (PRD) Initiative. The BRI is an international expansion strategy implemented by the Chinese government, linking infrastructure expansion with investments from many countries and international organizations.<sup>16</sup> The vision for BRI is to construct a united marketplace, using international and domestic markets and advancing cultural discussions and integration to improve shared understanding and trust of member nations. The desired outcomes include creating a ground-breaking consortium with monetary means, constructing a talent pool of skilled and capable individuals, and promoting the building of technological databases. BRI's initial focus was concerned with generating infrastructure investment; enhancing all levels of education; providing building materials such as iron, steel, and concrete for railways and highways; and upgrading power grids. Current estimates indicate that BRI is the largest infrastructure and investment project ever, connecting nearly 70 countries and involving 65% of the world's population and 40% of the global gross domestic product.<sup>17</sup>

The PRD, which is now considered one of the wealthiest regions in China, is a densely urbanized region with a combined population of more than 57 million people. The PRD borders the Yangtze River Delta in East China and the Jingjinji River in North China. The economy in this region is often referred to as the Pearl River Delta Economic Zone<sup>18</sup> and has a long history of economic prosperity and growth. When China released its development plan for 2008–2020, a primary directive was to continue developing the PRD area into a center of advanced manufacturing and modern service industries.

Although the BRI and PRD projects focus on economic growth, the linkage of economic growth and human capital cannot be neglected. Public health and population well-being are the most important elements of China's developing economy.<sup>19</sup> The BRICSCESS vision of becoming an important advocate in promoting health and wellness and reducing health

disparities applies directly to these Chinese provinces and communities. FLVs are also an important element in facilitating the development of healthy lifestyle strategies in these 2 mega-economic projects.

Involving young scholars in research projects is another important aspect of mentoring FLVs. One area where FLVs have been working together with their BRICSCESS mentors is in the study of Brain Breaks<sup>®</sup> and academic performance. The Brain Breaks<sup>®</sup> program, which focuses on integrated holistic learning among children,<sup>20</sup> is a multilevel intervention combining classroom-based PA and modern technology through a video-based exercise program developed by HOPSports Brain Breaks<sup>®</sup> Physical Activity Solutions. This intervention program is an effective strategy for increasing children's PA levels in the school environment and is reaching large numbers of children throughout the world.<sup>21</sup> Brain Breaks<sup>®</sup> Physical Activity Solutions offers web-based structured PA breaks that stimulate students' interest in learning while promoting health and wellness. Short videos of 3–5 min in duration are used during academic breaks between classroom lessons and are specifically designed for use within a classroom setting. These videos provide knowledge regarding health content while providing motivation for students to engage in more daily PA. These videos also provide a platform not only for being physically active during breaks, but also provide opportunities for learning new motor skills and coordination development, learning new dances, and learning movements that incorporate highly integrated functional muscle groups during different cultural activities.<sup>22</sup> When properly used, Brain Breaks<sup>®</sup> introduces different forms of PA and exercise that can be integrated into everyday school life. Active breaks used during academic learning sessions are effective in improving children's cognitive function,<sup>23</sup> academic achievement,<sup>24</sup> and classroom behavior.<sup>25</sup> The program also helps children to meet World Health Organization's goal for children and youth, aged 5–17, to accumulate at least 60 min of moderate-to-vigorous-intensity PA daily.<sup>26</sup>

FLVs are becoming more involved with Brain Breaks<sup>®</sup> research. Key findings from these scientific investigations have resulted in published reports<sup>27–30</sup> demonstrating self-efficacy and learning are impacted when exercise videos are incorporated into an academic setting. These results provide strong support for the effects of Brain Breaks<sup>®</sup> exercise videos as an effective tool for academic learning, improved perception of PA benefits, the importance of PA, the learning of new information provided in the Brain Breaks<sup>®</sup> videos, increased interest in becoming more physically active, and improved ability to set personal-best goals while engaging in PA. More important, this area of research has provided a platform for many FLVs to engage in the scientific investigation process.

In summary, BRICSCESS, as formed around BRICS countries along with their international collaborative relationships, stands at a pivotal point in the promotion of public health and individual well-being. As BRICSCESS moves forward in forming partnerships with world organizations and developing leadership roles, and as the FLV program progresses and expands, developing healthy lifestyle programming and cultivating leaders within the BRICS nations will provide new

opportunities for greater public health promotion at both the community level and the global level. By joining in collaborative relationships with other nations in support of the United Nations SDGs, BRICSCESS will continue to play a vital role in developing research-driven and evidence-based healthy lifestyle and disease management programming.

### Authors' contributions

Each author contributed equally to the drafting of this manuscript. EA, JLD, and RRU contributed to the BRICS history and beginning of BRICSCESS; and JLD, JHdR, and MKC contributed to the section regarding the working perspective of BRICSCESS. All authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

### Competing interests

The authors have no competing interest to report, with the exception of Ming-Kai Chin, who has a relationship with HOPSports, Inc., Las Vegas, NV 89139. This relationship HOPSports, Inc., did not impart the development and writing of this manuscript.

### References

- BRICS Information Portal. *History of BRICS*. Available at: <http://info.brics.org/page/history-of-brics/>; [accessed 18.05.2019].
- Uvinha RR, de Oliveira NRC, de Ridder JH, Chin MK, Durstine JL. The BRICS Council for Exercise and Sport Science (BRICSCESS) – a new era has dawned. *J Sport Health Sci* 2018;7:425–8.
- Brand South Africa. *New era as South Africa joins BRICS*. Available at: <https://www.brandsouthafrica.com/investments-immigration/business/trends/global/brics-080411>; [accessed 18.05.2019].
- South African Government. *BRICS (Brazil, Russia, India, China, South Africa)*. Available at: <https://www.gov.za/about-government/brics-brazil-russia-india-china-south-africa-1>; [accessed 18.05.2019].
- United Nations. *World population prospects 2017: data query*. Available at: <https://population.un.org/wpp/DataQuery/>; [accessed 18.05.2019].
- The World Bank. *Data: land area (sq. km)*. Available at: [https://data.worldbank.org/indicator/ag.lnd.totl.k2?most\\_recent\\_value\\_desc=true&view=map](https://data.worldbank.org/indicator/ag.lnd.totl.k2?most_recent_value_desc=true&view=map); [accessed 18.05.2019].
- Nordenstreng K, Thussu DK. *Mapping BRICS media*. London: Routledge; 2015.
- BRICS Council of Exercise and Sports Science. *History*. Available at: <http://bricscess.co.za/history.html>; [accessed 18.05.2019].
- Sallis JF, Cervero RB, Ascher W, Henderson KA, Kraft MK, Kerr J, et al. An ecological approach to creating active living communities. *Annu Rev Public Health* 2006;27:297–322.
- GCH Foundation. *The Foundation for Global Community Health*. Available at: <http://www.gchfoundation.org/index.html#intro>; [accessed 28.05.2019].
- ASCD. *Whole School, Whole Community, Whole Child*. Available at: <http://www.ascd.org/programs/learning-and-health/wsc-model.aspx>; [accessed 28.05.2019].
- UNGDSII Foundation Website. *Implementation of the 17 Sustainable Development Goals (SDGs)*. 2017. Available at: <https://www.ungeii.org/>; [accessed 05.06.2019].
- United Nations. *United Nations Sustainable Development Goals*. Available at: <https://sustainabledevelopment.un.org/>; [accessed 03.06.2019].
- South African Sports Medicine Association. *The joint SASMA, BRICSCESS and WCFLV 2019 congress*. Available at: <http://sasmabricscess2019.co.za/index.php>; [accessed 03.06.2019].

15. WHO Independent High-level Commission on NCDs. *Collated set of ideas and recommendations*. Available at: <http://www.who.int/ncds/governance/high-level-commission/technical-consultation-march2018-collated-ideas-and-recommendations.pdf>; [accessed 03.06.2019].
16. Huang Y. Understanding China's Belt & Road initiative: motivation, framework and assessment. *China Econ Rev* 2006;**40**:314–21.
17. Campbell C. *What to know about China's Belt and Road Initiative summit*. Available at: <http://time.com/4776845/china-xi-jinping-belt-road-initiative-obor/>; [accessed 28.05.2019].
18. Oizumi K. The emergence of the Pearl River Delta economic zone-challenges on the path to megaregion status and sustainable growth. *Pac Bus Ind* 2011;**11**:2–20.
19. Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, et al. Our future: a *Lancet* commission on adolescent health and wellbeing. *The Lancet* 2016;**387**:2423–78.
20. HOPSports. *Interactive youth physical education training system*. 2014. Available at: <http://www.hopsports.com>; [accessed 28.05.2019].
21. Hills AP, Dengel DR, Lubans DR. Supporting public health priorities: recommendations for physical education and physical activity promotion in schools. *Prog Cardiovasc Dis* 2015;**57**:368–74.
22. Chin MK, Edginton CR, Tang MS. School physical education and health: a model of best practice, integrating local context with global trends. *Glob J Health Phys Educ Pedagog* 2012;**1**:251–82.
23. Donnelly JE, Hillman CH, Castelli D, Etnier JL, Lee S, Tomporowski P, et al. Physical activity, fitness, cognitive function, and academic achievement in children: a systematic review. *Med Sci Sports Exerc* 2016;**48**:1197–222.
24. Watson A, Timperio A, Brown H, Best K, Hesketh KD. Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act* 2017;**14**:114.
25. Carlson JA, Engelberg JK, Cain KL, Conway TL, Mignano AM, Bonilla EA, et al. Implementing classroom physical activity breaks: associations with student physical activity and classroom behavior. *Prev Med* 2015;**81**:67–72.
26. World Health Organization. *Physical activity and young people. Global strategy on diet, physical activity and health*. Available at: [https://www.who.int/dietphysicalactivity/factsheet\\_young\\_people/en](https://www.who.int/dietphysicalactivity/factsheet_young_people/en); [accessed 03.07.2019].
27. Glapa A, Grzesiak J, Laudanska-Krzeminska I, Chin MK, Edginton CR, Mok MMC, 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. doi:10.3390/ijerph15020368.
28. Popeska B, Jovanova-Mitkovska S, Chin MK, Edginton CR, Mok MMC, Gontarev S, 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. doi:10.3390/ijerph15061127.
29. Uzunoz FS, Chin MK, Mok MMC, Edginton CR, Podnar H. The effects of technology supported brain breaks on physical activity in school children. In: Dumon D, Hofmann AR, Diketmuller R, Koenen K, Bailey R, Zinkler C, editors. *Passionately inclusive: towards participation and friendship in sport*. Münster, NY: Festschrift für Gudrun Doll-Teppe; 2017.
30. Emeljanovas A, Mieziene B, Mok MMC, Chin MK, Cesnaitiene VJ, Fatkulina N, et al. The effect of an interactive program during school breaks on attitudes toward physical activity in primary school children. *Annals Psychol* 2018;**34**:580–6.