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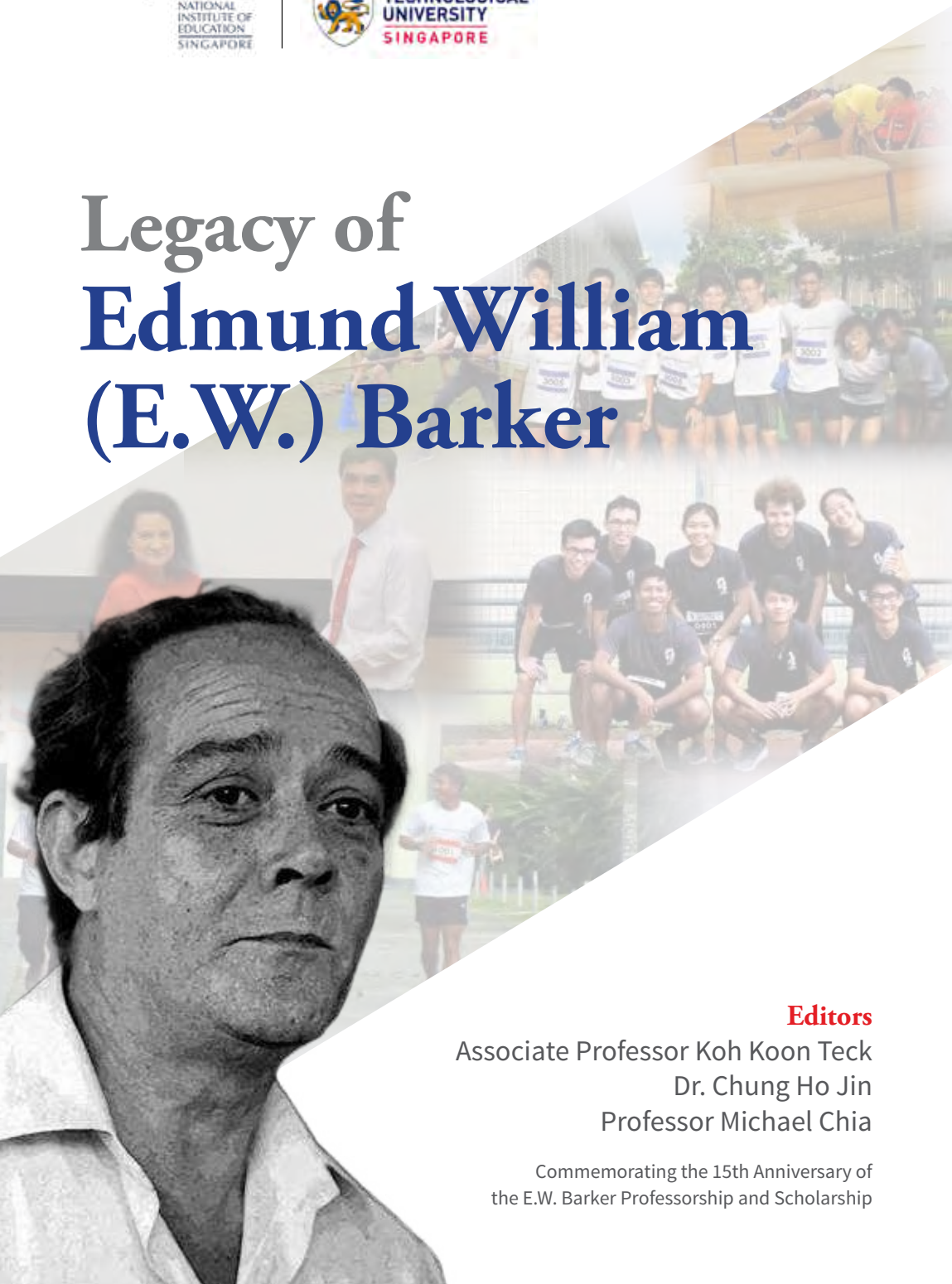
Legacy of Edmund William (E.W.) Barker



Editors

Associate Professor Koh Koon Teck
Dr. Chung Ho Jin
Professor Michael Chia

Commemorating the 15th Anniversary of
the E.W. Barker Professorship and Scholarship

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1. FOREWORD

Foreword by Editors

2019 marked the 15th anniversary of the Edmund William (E.W.) Barker Professorship and Scholarship, launched in recognition of the contributions of Mr. E.W. Barker to Singapore's physical education and sports.

This publication chronicles the collective impact of the professorship and scholarship, whilst providing invaluable insights into the sports arena in Singapore through the lenses of the ten former E.W. Barker professors and the past scholars.

As we say, a measure of a man is one who does not do anything in half measure. This is a maxim that is embodied by the late Mr. E.W. Barker and one that resonates deeply with us.

Thus, in remembrance of the late Mr. E.W. Barker, it is a privilege to document the legacy of such a person, and appreciate and admire the positive impact of his professorship and scholarship schemes, on the occasion of the 15th anniversary of the schemes.

The E.W. Barker Professorship Scheme was introduced to promote and enhance physical education (PE) and sports in Singapore. The aim was to develop the academic study and the application of this area of expertise to athletes, educators, coaches, parents who wish to engage in physical play with their children, as well as sports aficionados.

The scheme brings together the good and the great, prolific academics and researchers, and sportsmen to Singapore to share their wisdoms to a greater audience through talks and workshops. As Singapore is 'a drop in the ocean' of nations, we liken the E.W. Barker Professorship scheme to one that distils the 'ocean of sports expertise in a drop', and is hosted by the Physical Education & Sports Science (PESS) Academic Group at the National Institute of Education for the benefit of Singapore.

The E.W. Barker Scholarship Scheme was enacted to nurture the next generation of scholars in growing the sports knowledge pool in Singapore. Many of the award recipients have been making notable contributions to the local sports scene and to the community.

In the pages to follow, we present a collection of stories, memories, and experiences of the many to bring the efforts of the late Mr. E.W. Barker to full measure. We sincerely thank our contributors for graciously dedicating their time, as without them, this commemorative book would not have been possible.

May the example of the late Mr. E.W. Barker and the impact of his legacy inspire us to do the same in our daily lives, for the greater good of Singapore. Majulah PE and sports!

Associate Professor Koh Koon Teck

Head, Physical Education & Sports Science Academic Group

Dr. Koh Koon Teck is the Head of Physical Education and Sports Science (PESS) Academic Group at the National Institute of Education (NIE), Nanyang Technological University (NTU), Singapore. He holds key appointments at the international and local levels, namely: President, ASEAN Council for Physical Education and Sport; Technical Commission, International Basketball Federation (FIBA); Consultant for Global Coach Education Programme for World Bowling Federation; President, Singapore Physical Education Association; Honorary Secretary, Basketball Association of Singapore. Dr. Koh's expertise is in sport coaching and pedagogy. As a coach educator, he invested more than a decade to conceptualise and deliver innovative and evidence-based coach education programmes locally and internationally. As a sports scientist and team manager, he worked with the senior Singapore basketball team to achieve a historical first medal at the Southeast Asian (SEA) Games in 2013 after 34 years, with the team maintaining the same result at the 2015 SEA Games. Dr. Koh has also developed a keen interest in using physical education and sports as a platform to teach values and character intentionally to students and athletes, guided by experiential learning theory. He has published extensively in this area, and many leaders, researchers, practitioners, students, and athletes have benefitted from his sharing. Recently, Dr. Koh invested time to examine how Information and Communication Technologies (ICT) can be better harnessed to enhance teaching and learning in physical education and sports, especially during the COVID-19 pandemic.

Dr. Chung Ho Jin

Senior Lecturer, Physical Education & Sports Science Academic Group

Dr. Chung Ho Jin is a senior lecturer in the Physical Education and Sports Science (PESS) Academic Group at the National Institute of Education (NIE), Nanyang Technological University (NTU), Singapore. His expertise lies in the field of Sociology of Physical Education and Sport. He teaches Sociology of Sport, Sport in Society, and Social History of Sport in PESS, NIE NTU, Singapore. He has unique skills in analysing contemporary physical education and sports issues from socio-cultural and pedagogical perspectives drawing on Foucauldian theories. His unique skills and abilities enable people to develop critical and innovative thinking skills and balanced viewpoints on physical education (PE) and sports in societal contexts. His in-depth knowledge and research about PE and sports have been published in Social Science Citation Index journals by adopting an approach of "History of the Present" which traces the past from the present viewpoint. Based on that, he suggested the title of this book "Legacy of Edmund William (E.W.) Barker." This book portrays the legacy handed down by E.W. Barker and provides students, teachers, educators, athletes, coaches, and policymakers a sociological perspective of how E.W. Barker professorship and scholarship have been emerged, evolved, and transformed since 2002.

Professor Michael Chia

Professor, Physical Education & Sports Science Academic Group

Professor Michael Chia, PhD, PPA, FMCCY is professor of education. In his past tenure as the head of the academic group, he shepherded the development and the launch of the Sport Science & Management (SSM) Programme. A few selected SSM students each year are recipients of E.W. Barker Scholarship. He proposed and negotiated that the National Institute of Education hosts the inaugural Youth Olympic Games Academic Conference and he served as the organising chairman. The international conference that attracted 1000 participants from 30 countries shone a bright light on Singapore's place in the world in the promotion of youth sports during the inaugural Youth Olympic Games. When he was the Dean for Faculty Affairs at the National Institute of Education, he was a strong advocate for the E.W. Barker Professorship Scheme in national and international settings. He teaches Health Education, Sport Nutrition and Physical Activity and Health to SSM students while his research focuses on the intersections of physical activity, exercise, sedentary behaviour, sleep, and well-being in early childhood, childhood and adolescence.

E.W. Barker Challenge 2014

2. A TRUE SPORTING LEGACY

Mr. Edmund William (E.W.) Barker - Statesman, Scholar, and Sportsman

Born on 1st December 1920, Mr. Edmund William (E.W.) Barker was educated at Serangoon English School and Raffles Institution. At Raffles Institution, he was a school captain, head prefect, and champion athlete in 1938. He represented the school in cricket, hockey, athletics, and badminton, and later in Raffles College, he added to these sports, rugby. Outside of school, Mr. Barker played cricket and hockey for the Singapore Recreation Club (SRC), between the years of 1934 and 1941, when the SRC was one of the strongest teams on the island. As a hockey player, a young Eddie Barker, together with Reggie Thoy, were the first schoolboys to be selected for the national side.

Mr. Barker not only established himself as a sportsman and leader in his school and during his college days, but was also very much a scholar - an admirable mix of brain and brawn. In 1946, he was awarded the prestigious Queens Scholarship and two years later, studied law at St. Catherine's College, Cambridge University where he graduated with honours. And, as if the rigorous law degree was not demanding enough, Mr. Barker continued to play sports at the university and won the *Badminton Blue* at Cambridge.

A barrister-at-law of the Inner Temple, London, Mr. Barker returned to Singapore and practised law from 1952 to 1964. In 1963, he was elected as the Member of Parliament for Tanglin - a post he held firmly till 1988, and remaining unopposed in successive general elections. That same year, Mr. Barker also served as Speaker of the Singapore Legislative Assembly. As a politician, he was committed to the people of Singapore and the progress of the nation, being a notable leader of the House for about 15 years. His political portfolios from 1968 included: Minister for Labour, National Development, Home Affairs, Environment, Science and Technology, and Law. He was one of the longest serving Law Ministers in the Commonwealth as he held this position from 1964 to 1988.

After retiring from politics, Mr. Barker remained an active citizen and served the boards of several public and private corporations. His many portfolios included Chairmanship of the Singapore Turf Club, the Shangri-La Hotel Board of Directors, and the Stock Exchange of Singapore. But sports was still very much the first love of Mr. Barker, and rightfully, as the sporting fraternity fondly remembers him. As he was a dedicated team player in his competitive days, so was he as a sports administrator and leader. He served as the President of the Singapore National Olympic Council for two decades since 1970, and was active in the organising committee of Singapore's successful hosting of the 12th and 17th Southeast Asian (SEA) Games (1973 and 1983). Mr. Barker was an Honorary Member of the SEA Games Federation. Mr. Barker was also responsible for championing the building of the National Stadium in Kallang, having persuaded the government to allocate the land and financial resources for its erection. For his contributions to the development of sports in Singapore, Mr. Barker was presented the Olympic Order (Silver) by the International Olympic Committee in 1985, and the Distinguished Service Award of the USA Sports Academy in 1983.

Yet for all his accomplishments and standing, Mr. Barker was always in touch with the man on the street, choosing the simple things in life. Mr. Tan Ah Koon, former Vice-Chairman of the Tanglin Citizens' Consultative Committee, for example, fondly remembers how Mr. Barker would officiate a tree planting

ceremony and then have *roti prata* at Adam Road hawker centre like any other person.

In a similar vein, his contributions to sports in Singapore were not focused on the elite athletes only, but the average, up-and-coming sportsperson. Mr. Barker was not an Olympian, nor was he the Sportsman of any year. Yet, he was referred to as "Mister Singapore Sports" because he represented the average sportsman, the average player, and the dedicated official. To officials, he was a model to follow, with an authority that spoke of his wealth of personal experiences. To sports fans, he was a beacon of hope for better sports, and being constantly attuned to popular trends. To athletes, he exemplified great sportsmanship and he played the game as it should be played.

In honour of Mr. Barker, Ken Jalleh, a sports writer once wrote, "these are Singaporeans contented to play, happy to be good enough to be selected for a Raffles side, a SRC team, and better still, the state eleven. To this army of sportsmen, the satisfaction comes in the playing or in the service they can give to club, association or country. If in playing their best, the applause came, they took it like bonuses freely given. The bonuses were many for a young Eddie in the days of his prime."

About E.W. Barker Professorship and Scholarship

In remembrance of Mr. Barker and his contributions as statesman, scholar, sportsman and a supporter of sports, the professorship and scholarship were named in his honour. The professorship and scholarship are geared to extend Mr. Barker's legacy and involvement in sports and physical activity.

The E.W. Barker Professorship aims to identify world-class researchers and other renowned individuals, and invite them to look into the emerging needs and practices of physical education and sports in Singapore. In keeping up with Mr. Barker's ability to transcend all levels of sporting prowess, individuals invited on the professorship are expected to share their expertise with athletes, teachers, coaches and academicians in the areas of physical education and sports. The professorship will promote and foster collaborative research among stakeholders including Physical Education & Sports Science (PESS) Academic Group (AG), Sport Singapore (SportSG), the Singapore Sports School (SSP), Singapore Physical Education Association (SPEA), Physical Education & Sports Teacher Academy (PESTA), Singapore Sports Hub, Ministry of Education (MOE), local schools and other universities.

The E.W. Barker Scholarship will continue Mr. Barker's support for nurturing talented and committed individuals in the pursuit of undergraduate studies in the areas of sports management, and sports and exercise science. The scholarship offered is for the pursuit of BSc (Hons) in Sport Science & Management at the Nanyang Technological University, Singapore (NTU).

Photo courtesy of Mr. Barker's family
A young Barker (seated, extreme right) with the St. Catharine's College 1st Hockey XV, 1949-50

Information obtained from the E.W. Barker Professorship and Scholarship in Physical Education & Sports Science Brochure (2003)

E.W. Barker Challenge 2015

3. LEAVING AN INDELIBLE MARK

Milestones

2002

FEBRUARY
Under the chairmanship of Dr. Tan Eng Liang, the E.W. Barker Professorship and Scholarship Fundraising Committee commenced its fund raising effort. Dr. Tan was then the Vice President of the Singapore National Olympic Council (SNOC) and was the former Chairman of the Singapore Sports Council (SSC). Rear-Admiral (NS) Teo Chee Hean, the then Minister for Education and Second Minister for Defence as well as the President of the SNOC, was the advisor to this Committee. The E.W. Barker Professorship aims to attract world-class researchers and other renowned scholars to promote collaborative research in the Physical Education and Sports Science (PESS) Academic Group among the National Institute of Education (NIE), Nanyang Technological University (NTU), SSC, SNOC and with other universities across the globe.

27 AUGUST 2002
The NTU 21st Century Fund received S$2.7 million in contributions for the establishment of the E.W. Barker Professorship and Scholarship in PESS, NIE NTU, Singapore. Then President S.R. Nathan, the Chancellor of NTU and Patron-in-Chief of the NTU 21st Century Fund received the benefaction on 27 August 2002 at a dinner held at the Shangri-La Hotel.

24 AUGUST 2002
In conjunction with the fund-raising effort, PESS at NIE organised the E.W. Barker Challenge 2002 on 24 August 2002. Thirty-six teams of five runners each took part in the 25 km relay around the NIE campus.

2005

1 TO 28 APRIL
PESS hosted the first E.W. Barker Professor, **Professor Peter Terry** from the University of Southern Queensland, Australia. His area of expertise is in Sport and Exercise Psychology. During his stay, Professor Terry made presentations to coaches, athletes, academics, sports administrators and students. He covered topics that dealt with sports performance and mood, the use of music and the development of a mental skills training programme for developmental athletes, as well as the perception of fitness testing among elite athletes. He also consulted with members of the SSC and Singapore Sports School (SSP) on further developing the delivery of sports psychology in the country.

2006

7 TO 25 AUGUST
PESS hosted the second E.W. Barker Professor, **Professor John Lyle** from Leeds Metropolitan University, United Kingdom. His area of expertise is in Coach Education. He conducted public lectures and workshops to PESS and NIE staff and student-teachers, members of the coaching fraternity in Singapore and SSC, SSP and SPEA.

2007

27 AUGUST TO 21 SEPTEMBER
PESS hosted the third E.W. Barker Professor, **Professor Rabindarjeet Singh** from Universiti Sains Malaysia, Malaysia. His area of expertise is in Sport Nutrition. During his stint, he met up with senior management of NIE, SSC, SSP and the Barker's family for very meaningful discussions. He gave additional invited lectures to the staff and students of Nanyang Polytechnic and PE specialists at the Co-curricular Activities Branch (CCAB) of the MOE.

2009

15 FEBRUARY TO 13 MARCH
PESS hosted the fourth E.W. Barker Professor, **Professor Jean Côté** from Queen's University, Canada. His area of expertise is in Sport Coaching. In his series of public lectures that focused on understanding the common background experiences of top athletes across Canada, the USA and Australia, he highlighted the importance of sport sampling (playing four to eight sports before choosing to specialise in one after 12 years old) and the importance of deliberate play (self-directed by the child) in the lives of professional athletes.

AUGUST 2009
The NTU Sport Science & Management (SSM) programme was launched in August 2009. The first batch of students consisted of the following: 11 Polytechnic Diploma holders, 23 'A' level holders, and 1 NUS High School Diploma holder. These 35 students were selected into the programme out of the 2000 applicants who applied.

2010

JANUARY
The first four students from the inaugural SSM programme were awarded the E.W. Barker Scholarship. They were:

1. Chan Huan Hao, Mervyn
2. Chia Jingyi, Shannon
3. Tan Min Sze, Pearl
4. Tay Sihui, Cheryl

Mervyn Chan is completing a postgraduate MD, PhD programme with Duke-NUS Medical School. Shannon Chia's scholarship was from the NTU as part of a joint programme between NTU and Loughborough University in the UK. Pearl Tan is currently working with the Ministry of Defence. Cheryl Tay was awarded the Nanyang President's Graduate Scholarship.

2011

7 FEBRUARY TO 4 MARCH
PESS hosted the fifth E.W. Barker Professor, **Professor Paul Schempp** from University of Georgia, United States of America. His area of expertise is in Sport Pedagogy. He delivered a series of public lectures to coaches, PE teachers, sports scientists, sports administrators and academics which focused on instructional expertise in developing the youth, sports instructors and elite athletes. He highlighted the importance of the three key areas in developing expert athletes: experience, knowledge, and skills.

2012

9 JANUARY TO 3 FEBRUARY
PESS hosted the sixth E.W. Barker Professor, **Professor Stuart Biddle** from Loughborough University, United Kingdom. His area of expertise is in Sport and Exercise Psychology. He delivered three main lectures and initiated projects and shared ideas with the PESS and NIE academic staff, coaches, PE teachers and students, sports scientists and sports administrators. He also visited and met the senior management of NIE, SSC, SSP, Health Promotion Board and MOE where he shared his knowledge and ideas on physical activity and sedentary behaviour.

2013

4 TO 15 MARCH
PESS hosted the seventh E.W. Barker Professor, **Professor Clyde Williams** from Loughborough University, United Kingdom. His area of expertise is in Sport and Exercise Physiology. During his stay, he shared his insights and research findings and delivered two public lectures that focused on the contribution of food and nutrition to health and exercise capacity and an examination of the evidence for the proposed superiority of high-intensity intermittent exercise over traditional endurance training.

2015

24 AUGUST TO 20 SEPTEMBER
PESS hosted the eighth E.W. Barker Professor, **Professor Theodore Angelopoulos** from University of Vermont, United States of America. In 2015, Prof Theodore was in Emory and Henry College in Virginia, United States of America. His area of expertise is in Physiogenomics related to Human Performance and Health. He delivered public lectures that focused on major health threats due to excess body weight, and the importance of its prevention and genomic aspects of human performance with an emphasis on muscle strength, muscle size, and aerobic capacity.

2016

14 TO 22 MARCH
PESS hosted the ninth E.W. Barker Professor, **Professor Neil Armstrong** from University of Exeter, United Kingdom. His area of expertise is in Paediatric Physiology. He shared his insights and research findings on children's physical activity and the potential impact of scientific data on school PE during a public lecture delivered to NIE academics and student-teachers.

2019

11 TO 22 MARCH
PESS hosted the tenth E.W. Barker Professor, **Professor Laurence Chalip** from George Mason University, United States of America. His area of expertise is in Sport Management, Sport Policy, and Tourism. During his stint in Singapore, Dr. Chalip presented three public lectures on the theoretical and practical issues related to the use of sports for policy purposes, leveraging sports strategically and athlete development and retention at Sport Singapore (SportSG), SSP and NIE. He also held a staff seminar for PESS staff.

E.W. Barker Challenge 2016

4. WORDS FROM THE HEART

Carla & Deborah Barker

Family of the late Mr. Edmund William Barker

At this 15th Anniversary when the first E.W. Barker Professor was invited in 2005, it is timely to take stock of what has been achieved, and this book is a wonderful assessment.

Photo courtesy of Mr. Barker's family
A young Barker (front row, centre) with the Raffles College football team

Our family was very delighted, and more than that, very moved that National Institute of Education (NIE), Nanyang Technological University (NTU), Singapore chose to honour our father, Edmund William Barker, in this way. Sports was, as everybody knows, among his many abiding interests and concerns, truly his first love.

NIE proposed, through the Physical Education & Sports Science (PESS) Academic Group, to launch a programme for an annual visiting professor to teach their student-teachers-in-training. We were very sure that our father would be pleased to be associated with such a smart move in furthering sports education, to tap on the expertise of other esteemed universities, to widen the reach of the faculty, and to offer students a larger scope of the learning experience. But also, we knew that the man who loved working with the people – and took great pride in representing them in his Tanglin Constituency - would like a direct involvement in advancing individual education. We proposed, and NIE readily agreed, to add a Scholarship to be supported by the Professorship Fund.

Our father believed in the promotion of sports as a social investment: building healthy bodies, healthy minds and most importantly, character. Ten years ago, therefore, it seemed to us apt and exciting that his name was going to be linked to both the Professorship and the Scholarship.

At this 15th Anniversary when the first E.W. Barker Professor was invited in 2005, it is timely to take stock of what has been achieved, and this book is a wonderful assessment. As a family, we have been extremely happy to have been invited to

participate in PESS's activities sustaining the programme over the years. We have had the pleasure of meeting professors with a wide variety of sports science expertise, coming from varsities in Canada to Australia. And every year, we have engaged with candidates for the Scholarship who, in the best traditions of an all-round education that our father believed in, have been hardworking and hard playing student leaders. They have epitomised the belief of E.W. Barker that sports maketh the complete man, and – among the successful candidates for his scholarship - certainly the woman too.

Throughout the years, PESS has grown from an academic group training PE teachers in NIE to a faculty offering a degree in Sport Science and Management. The Faculty has done a great job in fulfilling our hopes for the Professorship and Scholarship: not the least of which is keeping E.W. Barker's legacy alive in the minds of the younger generations of Singaporeans. PESS is working faithfully on developing programmes for the future. We congratulate them and assure them of our continued trust and support.

Finally, we thank the NIE for continuing to honour E.W. Barker, a humble man who would never have imagined to be linked to the future of Singapore in this way. He would feel very privileged.

Photo courtesy of Mr. Barker's family
A young Barker (front row, centre) posing for a photo with his sports team

Professor Christine Goh

Director, National Institute of Education

I am confident that readers will relive the special moments of Mr. E.W. Barker's life and legacy through this book, and remember the "gentleman politician" who loved sports and was instrumental in the creation of a well-loved national icon.

I am honoured to write a message for this book celebrating Mr. Edmund William Barker's life and legacy. The late Mr. Barker was best known as a first-generation minister and lawyer who made significant contributions to the nation in the 1960s and the decades after. He was also fondly remembered for his passion for sports and sports education. Not only was he an accomplished sportsman, Mr. Barker was also a lifelong champion for the development of sports in Singapore.

Mr. Barker was the driving force behind the construction of the National Stadium for the Southeast Asian (SEA) Games in 1973. Then, the Minister for National Development, Mr. Barker selected the centrally located Kallang as the site of the new stadium. When the SEA Games kicked off in 1973, Singapore, the host country, was said to have provided the most modern facilities in the games' 14-year history.[1]

From 1970 to 1990, Mr. Barker served as the President of the Singapore National Olympic Council. He was also the President of the SEA Games Federation in 1973 and again from 1981 to 1983.

Mr. Barker contributed to the holistic education of Singaporeans of all ages who learnt the values of self-discipline, resilience, leadership, teamwork, respect and humility. Those who knew him will testify that few embodied these qualities more than Mr. Barker himself. Thus, he was fully deserving of the honour of becoming the first Singaporean to receive the Olympic Order (Silver) Award from the International Olympic Committee for the promotion of the Olympic ideals in 1985.

In honour of Mr. Barker's contributions and passion towards sports and sports education, the National Institute of Education, Nanyang Technological University Singapore launched the E.W. Barker Scholarship in 2002. Its aim was to continue the work of Mr. Barker in nurturing the talented and committed young people in the pursuit of undergraduate studies in sport science and management. As the NIE Director, I am grateful to Mr. Barker's family for enabling the NIE to play a part in honouring his legacy through education.

I am confident that readers will relive the special moments of Mr. Barker's life and legacy through this book, and remember the "gentleman politician" who loved sports and was instrumental in the creation of a well-loved national icon.

[1] Tan, I., & Kwan, B. C. (2015). The gentleman politician: Eddie Barker. In C. Leong (Ed.), *Founding fathers: Great Singapore stories* (pp. 87–114). Singapore: Straits Times Press and The New Paper, pp. 98–99. (Call no.: RSING 959.57050922 FOU-[HIS]); Sim, S. (2015, August 15). The Eurasian who drafted Singapore's separation documents [Microfilm no.: NL 33600]. *The Straits Times,* p. A47.

Associate Professor Koh Koon Teck

Head of Physical Education and Sports Science Academic Group, National Institute of Education

As 2019 commemorated the 15th anniversary since PESS welcomed the first E.W. Barker Professor in 2005, it is an appropriate time to launch this coffee table book entitled "Legacy of Edmund William (E.W.) Barker", to reflect on our past achievements and to work towards the future.

The E.W. Barker Professorship and Scholarship were launched by President S.R. Nathan on 27 August 2002 in memory of the late Mr. Edmund William (E.W.) Barker's contributions as a sportsman, a statesman, and a supporter of sports in Singapore. The Physical Education & Sports Science (PESS) welcomed the first E.W. Barker Professor, Professor Peter Terry in April 2005. Mr. Barker was an outstanding sportsman who excelled in athletics, badminton, cricket, and hockey. He was selected to represent Singapore as a member of the national hockey team. After his retirement from competitive sports, he continued to contribute back to society in various ways. He was instrumental in nurturing athletes and coordinating the selection of sports persons to represent Singapore at major games like the Southeast Asian Games and the Olympics. In recognition of his contributions in sports, he was the first Singaporean to receive the Olympic Order (Silver) Award from the International Olympic Committee in 1985.

Mr. Barker was also a politician and a lawyer. He served as a Cabinet Member of the People's Action Party (PAP) from 1964 to 1988. In the government, he was well-known, among other things, to be the voice for sports and his passion for sports was truly life-long. He helped to nurture a sporting culture in the nation and developed the infrastructure for sports. His commitment and accomplishments in sports, at a time when the priorities were on 'bread and

butter' issues in Singapore, was a strong testimony to his passion and persistence in sports.

PESS has the honour of hosting the E.W. Barker Professorship and awarding the annual E.W. Barker scholarship to deserving students. The E.W. Barker Professorship aims to attract world-class researchers and other renowned scholars to promote collaborative research among stakeholders – PESS, Sport Singapore, Singapore Sports Hub, Singapore Sports School, Physical Education & Sports Teacher Academy, Singapore Physical Education Association, local schools and other universities, in the areas of physical education (PE), and sports science & management. Ten professors from Australia, Canada, Malaysia, the United Kingdom and the United States of America were invited as the E.W. Barker professors from 2005 to present. They have shared with the professors, researchers, sport administrators, practitioners, and teachers on a wide range of research findings in the areas of sports and exercise psychology, coach education, sports nutrition, sports pedagogy, sports and exercise physiology, and sports management. On the other hand, the E.W. Barker Scholarship aims to nurture talented and committed individuals in the pursuit of undergraduate studies in the area of sports science and management. PESS has awarded the scholarship to 25 deserving students since 2009.

As 2019 commemorated the 15th anniversary since PESS welcomed the first E.W. Barker Professor in 2005, it is an appropriate time to launch this coffee table book entitled "*Legacy of Edmund William (E.W.) Barker",* to reflect on our past achievements and work towards the future. We hope this book will inspire readers to see how one person's dedication can have a lasting legacy and impact on sports development and advancement in Singapore. It will also give readers insight into the E.W. Barker Professors' contributions and Singapore's current and future sports and PE scenes, as well as reading about E.W. Barker Scholarship holders' contributions to the development of sports and PE in Singapore, despite their diverse backgrounds and interests.

I hope you will have an enjoyable time reading this book!

Dr. Tan Eng Liang

Chairman, NTU Fund Raising Committee for E.W. Barker Professorship and Scholarship

I would like to congratulate the Nanyang Technological University and National Institute of Education on this momentous milestone of 15 years of the E.W. Barker Professorship and Scholarship, and wish them longevity and even greater success in the years ahead.

As a young boy growing up in Pasir Panjang, I never fathomed that I would grow up to have a life charted by a sport. I joined my uncles and brothers in the swimming pool and like them, I learnt how to play water polo competitively. I went on to represent Singapore at the Southeast Asian Peninsular Games, Asian Games and the Olympic Games.

I met Mr. Barker in public service, and had the pleasure to work with him during my tenure at the Singapore Sports Council. Eddie was the consummate sportsman and a true gentleman. He excelled in every sport that he played in as an athlete and demanded only the best behaviour from Singapore sportsmen and officials when he was in charge of the Singapore National Olympic Council as President. He set high standards for Singapore athletes, and an even higher bar for himself.

It was a privilege for me to be involved with the fund raising committee for the E.W. Barker Professorship and Scholarship. This opportunity would continue Eddie's legacy in contributing to sports and his desire to promote sports and physical activity in Singapore. I remain grateful to the donors and supporters of the E.W. Barker Professorship and Scholarship for their generosity, and for supporting Eddie's lifelong passion.

I would like to congratulate the Nanyang Technological University and National Institute of Education on this momentous milestone of 15 years of the E.W. Barker Professorship and Scholarship, and wish them longevity and even greater success in the years ahead.

Professor Leo Tan Wee-Hin

Director, National Institute of Education 1994 – 2006

I have every confidence that the E.W. Barker Professorship and Scholarships will boost the national efforts to build a healthy, smart and socially responsible community in Singapore.

I am delighted and honoured to pen a message for this book celebrating Mr. Edmund William Barker's life and legacy.

Singapore lost a great son in April 2001. E.W. Barker was a role model of scholarship, statesmanship and sportsmanship. At Nanyang Technological University (NTU) and the National Institute of Education (NIE), it seemed the most natural thing to perpetuate the values he espoused during his lifetime by seeking the family's permission to initiate an E.W. Barker Professorship in Physical Education & Sports Science (PESS) at NIE and E.W. Barker Scholarship in Sport Science & Management at NTU. The Barker family graciously gave its consent after which NTU Development Office spearheaded the Fund-Raising effort which was chaired by Dr. Tan Eng Liang.

It was not surprising that the total sum raised exceeded the target as Mr. Barker was a legend in Singapore and left a legacy that touched the hearts of Singaporeans from all walks of life. He epitomised the spirit of giving his best in everything he did and I admire his sportsmanship in particular. He was not only a State hockey player but at school, he excelled in badminton, soccer, rugby and cricket. He gave back to society. He spearheaded the construction of the National Stadium in the 1970s and continued to be involved in sports as the President of the Singapore National Olympic Council for two decades as well as having two stints heading the Southeast Asian Games Federation. For his significant promotion of the Olympian values and ideals, he was

the first Singaporean to receive the Olympic Order (Silver) from the International Olympic Council in 1985.

The Professorship that was established in 2002 in the field of Physical Education (PE) in Singapore, is a first for Singapore. I often heard that PE was not an academic discipline and thus, not considered "scholarly". The fact that Mr. Barker was a scholar and a sportsman sent a striking message to all critics that NIE's Professor of PESS was not to be taken lightly and the numerous academics and scholars who have (since 2005) been appointed E.W. Barker Professors can attest to its high standing in Singapore and the World. NTU, NIE staff and students and the partners in SNOC, SSC, SSP and Universities around the world have all benefited from the exchanges with the various scholars who have come to share their experiences and knowledge, under this Professorship programme.

I have every confidence that the E.W. Barker Professorship and Scholarships will boost the national efforts to build a healthy, smart and socially responsible community in Singapore.

Dr. Quek Jin Jong

NTU Fund Raising Committee Member for E.W. Barker Professorship and Scholarship

We are grateful to the Barker family for allowing this initiative to be launched for the purpose of helping in the advancement of physical education and sports at a time when general health and elite sports performance by Singaporeans were being emphasised.

As we celebrate the 15th Anniversary of the E.W. Barker Professorship & Scholarship, the Physical Education & Sports Science (PESS) Academic Group, National Institute of Education (NIE), Nanyang Technological University (NTU), Singapore would like to acknowledge the rise in the prestige of the professorship over the last decade. This has, in turn, helped us to attract top researchers and educators who have played a key role in enhancing the research and teaching of our sports and physical education programmes.

We are grateful to the Barker family for allowing this initiative to be launched for the purpose of helping in the advancement of physical education and sports at a time when general health and elite sports performance by Singaporeans were being emphasised.

In the late 1990s, NTU was looking for various avenues to raise funds to help build its Endowment Fund. While there were various schemes to encourage the community to contribute to the university, raising funds to launch an endowed visiting Professorship scheme in a particular discipline was deemed to be a feasible approach. Internationally, visiting professorships have been recognised as an excellent means to encourage world renowned professors to contribute to the growth in research collaborations and to help host universities strengthen their academic and reputational standing internationally.

In the field of Singapore sports over the past few decades, Mr. Barker stood out clearly as a shining role model exemplifying an individual sportsman who was able to rise to the highest office of being the President of the Singapore National Olympic Council. He epitomised a leader who served with utmost excellence in the fields of sports, law and politics. Therefore, the pairing of Mr. Barker's individual sporting prowess with strengthening academic excellence was a natural collaboration.

Dr. Tan Eng Liang, the Chairman of the NTU Fund Raising Committee, together with a very distinguished committee, was able to raise $2.7 million for NTU's 21st Century Fund in 2002. The total amount was also matched dollar for dollar by the Singapore government. A total of 110 companies and more than 4,500 individuals spontaneously responded to the funding call within just six months!

The Barker family has been very gracious in allowing Mr. Barker's name to be associated with the Professorship. In addition, the family members have participated fully in all the visits by Professors over the years in both on and off-campus activities to commemorate Mr. Barker's name.

PESS, NIE NTU, Singapore are very proud not just to acknowledge Mr. Barker's contribution to the Singapore sporting scene over the decades but also consider it a great honour to be associated with the legacy of this exceptional scholar, sportsman and true gentleman.

E.W. Barker Challenge 2017

5. IMPACTING THE SPORTS FRATERNITY

Professor Peter C. Terry

First E.W. Barker Professor
1 – 28 April, 2005
University of Southern Queensland, Australia

My appointment as the first E.W. Barker Professor acted as a catalyst for ongoing links with Singapore sports. For example, I subsequently worked as a sport psychologist with legendary trap shooter and three-time Olympian Lee Wung Yew and other Singapore shooters, travelling to several international competitions with the team.

On the occasion of the 15th anniversary of the E.W. Barker Professorship and Scholarship, I am deeply honoured to have been asked to contribute to this commemorative book. As the very first E.W. Barker Professor in 2005, I am proud to have played a minor role in the great man's legacy and to have made my own tiny contribution to the development of physical education and sports in Singapore. I have nothing but fond memories of my time at the National Institute of Education (NIE) at Nanyang Technological University (NTU).

Following an initial approach from Dr. Bervyn Lee, then Head of Physical Education & Sports Science Academic Group at NIE, I was invited to spend one month in Singapore during the period 1–28 April 2005 as the inaugural E.W. Barker Professor. During my visit, I presented a series of public lectures, workshops and seminars at NIE and to various sporting organisations, including the Singapore Physical Education Association, the Singapore Sports School, and the Singapore Sports Council. I also had the opportunity to interact professionally and socially with many staff members and postgraduate students at NIE, and to spend some time with the delightful family of the late E.W. Barker.

In my first public lecture, titled *Moods and Emotions in Sport: Theory, Practice and Implications for Performance*, I overviewed my research in the area of mood and sport performance since the late 1980s. I started profiling the mood of elite athletes in the build up to major international competitions in 1989 and continued to do so for the next 25 years. My research showed the significant prediction of athlete performance from pre-performance mood profiles, as well as the potential to use mood to predict the risk of overtraining, psychopathology, and other undesirable outcomes. I also developed a new mood profiling measure, known as the Brunel Mood Scale (BRUMS), and created an online system for assessing mood, predicting the likely effects on performance, and recommending evidence-based mood regulation strategies (see www.moodprofiling.com).

I gave a second public lecture, titled *Pump Up The Volume: Psychophysical Effects Of Music In Sport And Exercise*, in which I discussed the many and varied benefits of listening to music in the physical activity domain. Such benefits include enhanced emotional responses, reduced perceived exertion, and more efficient physiological functioning. These three factors often combine to improve physical performance. Of course, there are many moderating variables but the evidence is there to support the power of music and it is even more compelling now than it was in 2005. I also provided a wide range of examples of how elite athletes in their medal-winning exploits have used music.

My third public lecture was titled *Attitudes Towards Fitness Testing Among Elite Australian Athletes*, in which I presented the results of a study involving nearly 500 athletes from the Australian Institutes of Sport. At the time, the potential negative consequences of widespread fitness testing were being debated, and there were some calls to reduce or abandon regular testing. My results showed that attitudes towards fitness testing among elite athletes were generally positive, more positive in sports that require very high levels of fitness (e.g., triathlon, cycling, swimming, rowing) and less positive in sports that traditionally do not emphasise fitness (e.g., archery, lawn bowls, shooting, tenpin).

Notably, females had less positive attitudes compared to males, especially when it came to tests of body composition. Of some concern, those with negative attitudes towards fitness testing were shown to be at greater risk of pathogenic behaviours. This public lecture was delivered at a time when the Trim and Fit (TAF) weight loss programme, introduced by the Singapore Ministry of Education in 1992 to address childhood obesity in Singapore schools, was coming under greater scrutiny for producing negative psychological effects. The TAF programme, which was dubbed "Torture Anyone Fat" in some circles, reduced the obesity rate among schoolchildren from 14% to 9.8% by 2002 but was phased out in 2007 after it was linked to an increase in eating disorders among schoolgirls.

I was very fortunate to interact with some wonderful colleagues at NIE, including the legendary Singaporean sprinter, Canagasabai Kunalan, whose national 100m record of 10.38 seconds set at the 1968 Mexico Olympics Games stood for 33 years. What an impressive man. Prominent academics Professor John Wang and Professor Michael Chia were both, at the time, relatively junior faculty members before their research careers took off and rose to prominence.

One of the most challenging but enjoyable periods of my visit occurred when Dr. Tom Browne, Assistant Professor at NIE and Head Coach of the Singapore National Men's Rugby Team, asked me to help prepare the national team for the forthcoming IRB Singapore 7's tournament. As a former rugby player myself, whose 35-year career in applied sport psychology has included

nine Olympic Games, I accepted Tom's invitation with great enthusiasm. Singapore's task included taking on the mighty New Zealand All Blacks as well as my adopted country Australia. For relative minnows in rugby terms, these games were a daunting prospect for Singapore.

To their credit, the Singaporean players fought valiantly throughout the tournament and even kept the All Blacks scoreless for the first quarter of the match before the flood gates inevitably opened and New Zealand racked up 68 points. The match against the Aussies was a tighter affair before Singapore eventually succumbed 38 points to 7. No one could fault the Singaporean players for bravery or effort, and the experience helped cement a friendship between Tom Browne and myself that remains to this day.

My appointment as the first E.W. Barker Professor acted as a catalyst for ongoing links with Singapore sports. For example, I subsequently worked as a sport psychologist with legendary trap shooter and three-time Olympian Lee Wung Yew and other Singapore shooters, travelling to several international competitions with the team. My connection with Singapore in the area of mood research continues through my collaboration with Christie Han, a performance psychologist with the Ministry of Defence, who has accumulated a sample of nearly 1,500 mood profiles to assess the cross-cultural validity of the BRUMS, produce local normative scores, and test relationships between mood and performance among Singaporean athletes.

Let me finish by saying that I will be forever grateful for the opportunity afforded me by the E.W. Barker Professorship and that I retain immense affection for all things Singaporean … especially the chili crab.

I share my best wishes and congratulate PESS, NIE NTU, Singapore on the occasion of the 15th Anniversary of the E.W. Barker Professorship and Scholarship Schemes.

Professor John Lyle

Second E.W. Barker Professor
7 – 25 August, 2006
Leeds Beckett University, United Kingdom

I am in no doubt that a programme such as this, with its capacity to invite well-respected academics from around the world to visit Singapore, enriches and stimulates local professionals, and provides a forum for the exploration of ideas that may eventually benefit the country.

The E.W. Barker Professorship Scheme permitted me to visit Singapore from 7-25 August 2006. I would first wish to acknowledge the E.W. Barker family and the Nanyang Technological University (NTU) Fund Raising Committee for their generosity and the hard work in making this visit possible. I was shown tremendous hospitality.

I was able to interact with individuals from a number of positions and roles within sport in Singapore. This included visits to the Singapore Sports Council, the Singapore Sports School, discussions and presentations to members of the National Institute of Education (NIE) and Physical Education & Sports Science (PESS) staff, and a number of lectures to the PESS students. I met with Mr. Stevenson Lai from the coach education department of the Singapore Sports Council. I also met with Dr. Bervyn Lee, Head of Youth Sport at the Singapore Sports Council (and former Head of PESS). This was a useful meeting that covered topics such as coach education developments, preferred departmental structures, the relationship of high-performance coaching to other sectors, youth sports issues, and development models. This was a useful opportunity to inform him of recent developments in coach education in the United Kingdom. This was particularly pertinent at a time of potential change in the Singapore coach education system, and, as described below, led to a subsequent visit to Singapore.

Central to the programme was a series of public lectures. The public lectures were well attended and received.

1. National Institute of Education, 10th August 2006: *Decision making and sport coaching*
   A good-sized audience listened to a presentation on the significance of decision making to sport coaches' expertise, with an emphasis on non-deliberative experiential decision-making. The presentation explored coaches' use of decision making in everyday practice, and considered the implications for coach education development.

2. Singapore Sports Council, 15th August 2006: *Expertise in elite sport coaching*
   A presentation and question and answer session were directed to coaches and administrators. The features of the United Kingdom Coaching Certificate were described, and coaching competencies identified, with an emphasis on technical competence, craft/delivery knowledge, interpersonal skills, planning and match coaching. The literature on 'being an expert' was reviewed and the implications for coach education considered.

3. Singapore Physical Education Association, 18th August 2006: *Coaching pedagogy and PE*
   The presentation described School Sports Partnerships in England, their aims and structure, with an emphasis on a range of deliverers and two hours of high-quality PE and sports for all pupils. The Long Term Athlete Development Model was examined, and the synergies between coaching pedagogy and teaching explored.

4. Singapore Sports School, 22nd August 2006: *Development coaching and talent development*
   The development models and their various objectives were examined, with an exploration of the development phase within the sports system. Evidence on talent identification was described, and the Long Term Athlete Development Model considered. Recommendations were made on the factors influencing athletes' transition into high-performance sport.

I formed a high opinion of the PESS department and members of staff. Students appeared eager to learn and were mature in their approach. This is an academic group of high quality and distinction and compares very favourably indeed with other institutions with which I have been associated. PESS contributes very significantly to the development of physical education and the enhancement of sport in Singapore. Recent diversification will increase the range of programmes available to students.

Members of staff are very well qualified, with appropriate professional experience, and enjoy an excellent relationship with students. Programmes are delivered in excellent modern facilities. The whole academic group commits to the highest standards and sets high expectations for both the students and faculty. PESS is committed to ensuring that the NIE, the PE profession and Singapore benefit from the knowledge of the most up-to-date research and professional developments. Staff are open and receptive to new ideas and network extensively with colleagues around the world.

During my visit, a request was made by a journalist at The Straits Times for some background interpretation on coaching in Singapore. I prepared a short paper, which emphasised the following issues, which I believe remain pertinent today:

The provision of an appropriate talent identification and development system; a common appreciation of what it means to be a high-performance athlete; a reward system (status, scholarships, funding, professionalism); a clear sports policy that has identified priority sports; appropriate level of intensive domestic competition and international exposure; excellent training and competition facilities; and access to high quality sports science/medicine and other support systems. There needs to be a development focus throughout, with senior coaches whose focus is on development rather than winning. At the performance coaching level, the reliance is on coaches brought in from overseas. Despite their evident quality, the danger for all countries is that this approach fails to develop the home coaches who are necessary to support the very top level (it is also a disincentive). There is a need for a coach development programme (a mixture of certification, experience, working with experts, and workshop-type education) for the best Singaporean coaches in priority sports. There are a number of things to consider: coaching courses in higher education for the best coaches; linking Singaporean coaches to all overseas coaches; increasing greatly the level of competition (of Singaporean competitors) and the intensity of preparation. Implementing a coherent talent identification and development system involving sports schools, a regional youth competitive structure, centres of

excellence and an institute of sports; a high quality continuing professional development programme (CPD) for working coaches (mentoring, individualised programmes, financial support).

Some developments take a considerable time to implement, may have implications for the resources available, or may need to be introduced incrementally. Specific recommendations were provided on delivery options, appropriate content (leading to practice-based competencies), usable knowledge, the transition elements of the National Coaching Accreditation Programme (NCAP) (pre-requisites/entry qualifications/credit), setting and maintaining standards, a recruitment policy, deployment criteria, CPD, accreditation criteria, assessment, and tutor training. It is pleasing that the basic coach education structure in place today mirrors closely that recommended in my report. I also recommended a Singapore Coaching Standards Group. The fundamental stance is that, as part of Vision 2030, it is necessary to develop an extensive and high-quality coaching workforce.

Not surprisingly, sports in Singapore has moved on considerably in the intervening years, and it is interesting that developments have reflected those taking place elsewhere. The Singapore Sports Council has become Sport Singapore, with clear demarcation lines between it and the Singapore Sports Institute. The emphasis within Sport Singapore on sport's place in the community, youth sport, and health, exercise and well-being is given its rationale by Vision 2013, with its emphasis on character and nation-building. This is a mirror image of the way in which government policy in the UK has dictated Sport England's agenda. High-performance sports in most developed countries is organised and delivered by a central agency, like the Singapore Sports Institute, which provides access to resources for elite athletes. Coaching in Singapore is overseen by Coach Singapore, which administers a Continuing Coach Education Programme and the SG-Coach Programme – this replaced the NCAP in 2015.

The emphasis on coaching in Singapore, and its professionalisation agenda, is replicated elsewhere. The development of a profession, is limited by the large volunteer or part-time workforce, and the modest levels of education and training required. The National Registry of Coaches is an excellent vehicle for managing the coaching workforce, although limited, as almost everywhere, by the absence of a licensing system for coach deployment/ employment. The provision of development schemes for identifying and progressing aspiring young athletes is very welcome, and perhaps particularly significant in Singapore, where an appropriate ambition for world recognition may lie more with junior rather than senior international competition.

The lines of responsibility for encouraging and developing sporting experiences and good habits between the physical education profession and sporting organisations and coaches is not always clear. However, there is normally a consensus on the need for an emphasis on appropriate pedagogical practice and values. This includes the desire to obviate the pressure for early specialisation in sport. Schemes that promote good practice are therefore very welcome, and it is pleasing to note that my Leeds Beckett University colleague, Dr. Sergio Lara-Bercial, recently announced a collaborative programme between *iCoachKids* (an Erasmus+ initiative led by Leeds Beckett University and the International Council for Coaching Excellence) and the National Youth Sports Institute of Singapore.

I am immensely grateful to the E.W. Barker family for the opportunity afforded me to visit Singapore. This was a personal pleasure to undertake, but also led to other opportunities that have enhanced my professional life. I am in no doubt that a programme such as this, with its capacity to invite well-respected academics from around the world to visit Singapore, enriches and stimulates local professionals, and provides a forum for the exploration of ideas that may eventually benefit the country.

I offer my congratulations to PESS, NIE NTU, Singapore on the occasion of the 15th Anniversary of the E.W. Barker Professorship and Scholarship. I am grateful and proud that I was offered the opportunity to be associated with the E.W. Barker Professorship.

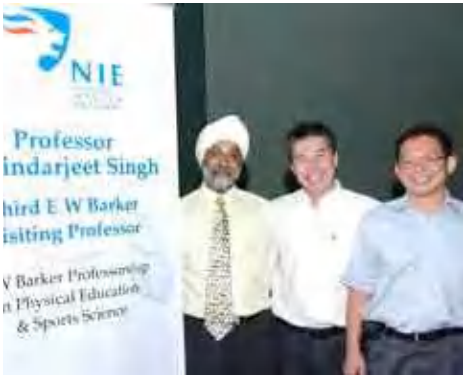
Professor Rabindarjeet Singh

Third E.W. Barker Professor
27 August – 21 September, 2007
AIMST Universiti Malaysia, Malaysia

The E.W. Barker Professorship provides an excellent opportunity to invite prominent scholars in the field of Physical Education and Sports Science to share their research and insights with university staff, students or the public.

The Role of Physical Education and Sports in Developing Talent in Sports: A Malaysian Perspective

The Malaysian Education Ministry, in partnership with the Youth and Sports Ministry, the National Sports Associations, the National Sports Council and the National Sports Institute have groomed student-athletes to become world-class athletes and Olympians.



This success in sports is partially achieved by the Physical Education (PE) programme, where it is a compulsory subject taught in all primary and secondary schools. The primary aim of the subject is the holistic development of children and youth. This concept of producing a 'well-rounded child' is incorporated in the National Education Policy where PE is part of the whole school programme. The whole school programme is designed to assure the optimum growth and development of school children through directed physical activities and sports, to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious.

This National Education Policy was later enhanced by the 2012 Malaysian Education Blueprint to produce knowledgeable, critical and creative students to thrive and succeed in the 21st century. The policy was buttressed by the introduction of the "1 Student 1 Sport' policy implemented under the Malaysian Education Development Plan (2013-2025). In essence, by implementing the plan, it became mandatory for every student to participate in at least one sport so as to produce students who are physically and mentally active as valuable skilled talents for the country. This forms the base of the pyramid system, which has allowed Malaysia to produce outstanding athletes.

With a 'base' of about 5.2 million students, who compete in inter-class and inter-house within school competitions and with the guidance of dedicated PE teachers, about 800,000 of these student-athletes go on to compete at the district level and more than 100,000 of them got involved in the state level competitions.

Dedicated PE teachers work hand-in-hand with state-level coaches 'groom' 12,000 to 14,000 of these student-athletes to vie for a place as the nation's best. From these, some of the best student-athletes are then housed

in one of the five national sports schools and some are allocated places in the state sports schools. These schools have facilities and expertise to support national-level athletes. The five national schools are Bukit Jalil Sports School, Kuala Lumpur; Tuanku Mahkota Ismail Sports School, Bandar Penawar, Johor; Pahang Sports School; Sabah Sports School and Terengganu Sports School.

By utilising the 60-year old pyramid method of having a large pool of students propelled upwards as they excel, this allowed the national schools, 15 State Sports Schools and the five national sports schools to produce athletes who excelled at international events both at home and in foreign lands, under the Malaysia National flag (Jalur Gemilang).

To date, the five national sports schools have produced more than 50 Olympians since the first sports institution, Bukit Jalil Sports School, opened in 1996. At the 2016 Olympic in Rio, out of the 32 athletes who represented the country, 22 were from the sport schools. At the 2017 Kuala Lumpur Southeast Asian (SEA) Games, 140 athletes who represented Malaysia were student-athletes.

At the state and national sport schools, the process of developing athletes is via education, and as such, academic development and sports development jointly take centre stage. There is great

flexibility and customisation of the academic time-table in that the students continue with academic modules during their international travels so that they are not left behind in their studies. Such arrangements help to ensure that the career track of these student-athletes is diversified and reinforce the message that education should be for life. Many student-athletes pursue their education in local and foreign universities and still compete at the international level.

In 2004, Singapore also established the Singapore Sports School, the only school that offers enrolled youth an integrated academic and sports programme in a world-class environment. Over the years,

the Singapore Sports School has produced three World Champions, two Asian Gold Medallists, one Commonwealth Games Gold Medallist, two SEA Games Gold Medallists, one World Youth Champion, three Asian Youth Champions and two National Champions, including the only Singaporean woman to make it to the Olympic swimming final in 2008.

In conclusion, the return on investment made by the Malaysian government in the state and national sports schools is indicated by the number of world-class athletes who represented Malaysia. These athletes are not only great sports talents but are also excellent human beings.

The E.W. Barker Professorship provides an excellent opportunity to invite prominent scholars in the field of PE and sports science to share their research and insights with university staff, students or the public. By inviting these researchers, it also provides an avenue for academic staff for research collaboration and sabbatical placement. This scheme also offers potential graduates to seek opportunities and investment for postgraduate studies.

I share my best wishes and congratulate PESS, NIE NTU, Singapore on the occasion of the 15th Anniversary of the E.W. Barker Professorship and Scholarship Schemes.

Professor Jean Côté

Fourth E.W. Barker Professor
15 February – 13 March, 2009
Queen's University, Canada

Youth in Sport

As the fourth E.W. Barker Professor, I delivered a series of lectures on athlete development and coaching expertise, in February to March 2009. My lectures summarised a programme of research that focused on the two contrasting pathways of development through sport - early specialisation and sampling.

The early specialisation pathway to elite performance in sports was made popular by a seminal study by Ericsson, Krampe and Tesch-Römer (1993) in the field of

cognitive psychology which demonstrated that expert performance in music should be viewed as a consequence of attaining increasingly challenging goals through extended training called "deliberate practice." Since the publication of Ericsson and colleagues' paper in 1993, the deliberate practice approach to expertise has generated significant interest both within the academic literature and popular culture. From a research perspective, early studies of deliberate practice in sports suggested that a high volume of intense, sport-specific practice, throughout development was a primary factor that differentiated elite from less elite performance. The deliberate practice approach was also popularized in main stream media by authors such as Malcolm Gladwell. In the best-selling book *Outliers*, Gladwell suggested that 10,000 hours of deliberate practice was a crucial determinant of expertise in several domains, including sports. In other words, intense involvement in practice for the intent of acquiring sport specific skills at an early age, or early specialisation, was seen as a logical pathway towards adult expertise in sports. This idea has been used by many youth sports organisations as the foundation of their programmes.

During the late 1990s and early 2000s, research examining athlete development found support for an alternative approach to early specialisation sampling. Drawing upon a series of studies from a group of researchers at Queen's University, in Canada, a sampling pathway suggests that an early environment that is characterised by diversity, both within sports and between sports, is beneficial for long-term involvement in sports and the achievement of adult sport performance. Since my presentations in 2009, this approach has garnered further support from research examining a myriad of sports and countries. It is now accepted that the "10,000-hour rule" is not supported by sports research and that a wide range of hours, usually between 2000 and 6000 hours of sport-specific practice, is a better representation of the number of hours required to become an expert in sports. The concept of deliberate play has also gained support in the youth sport literature as an essential activity to promote interest, motivation, skill acquisition, and creativity. This research on sampling has now been used by sport organisations around the world to develop youth sport programs that emphasize diversity between (i.e., multi-sports) and within sports (a balance of practice and play). For example, coaching and sports organizations such as the International Olympic Committee, International Council of Coaching Excellence, American Orthopaedic Society for Sport Medicine, United States Olympic Committee, Canadian Active for Life and Sport for Life, Rugby League Australia, and the National Basketball Association have developed consensus statements, policies and/or guidelines that focus on the principles of sampling. A recent book written by award-winning author, David Epstein,

entitled *Range* has summarised the research on top performers and made a compelling case that a developmental trajectory that include diverse experiences is the most effective path to success in various domains of achievement.

In the last 10 years, two areas of research have provided indirect support for the sampling pathway. First, the positive youth development (PYD) literature proposes that sport is an ideal context for fostering personal development since it encompasses a diverse range of enjoyable and challenging activities. Specific studies in the field of developmental psychology consistently highlight that diverse extra-curricular activities that are both enjoyable and effortful provide the best structure for personal development and the maintenance of interest for an activity, including sport. As such, the examination of sports activities needs to favourably integrate factors from the social (e.g., coaches, parents, peers) and environmental (e.g., physical space, number of players) contexts to optimise the experience of youth.

Second, early specialisation has been identified as a risk factor for several potentially negative physical and psychosocial outcomes of long-term participation in sports. For instance, high levels of involvement in one sport at a young age, intense year-round training in a single sport, participation in higher frequencies and levels of competition, and decreased opportunities for age-appropriate play have been linked with outcomes such as injuries, burnout, and dropout. To promote long-term engagement in sports, early sampling is often positioned as a healthy alternative to the early specialisation approach. By diversifying participation between sports and within a sport (e.g., practice and play), an early sampling approach can promote long-term sport participation in adulthood and prevent over-use injuries. Moreover, the activities associated with early sampling (i.e., deliberate play) have been shown to have a positive influence on athletes' motivation since they put emphasis on the self-directed and enjoyable aspects of sports.

Since my series of lectures in 2009, the early sampling pathway of sports participation has received considerable attention from researchers and practitioners. By delaying

the decision to commit to a specific sport until adolescence, the early sampling pathway helps to ensure that youth have sufficient opportunities to be exposed to a variety of sport activities that may foster skill acquisition and personal development through sports, while reducing the risk of burnout, dropout, and injuries. The sampling approach is the foundation of the Developmental Model of Sport Participation (DMSP), a framework that offers a valuable lens for evidence-informed policies about sport participation throughout the lifespan. By focusing on the personal, social, and physical setting features of different activities (e.g., play, practice, sampling), the DMSP suggests that the positive outcomes of sports result from the personal engagement, social relationships, and settings that comprise a play or practice activity in sports. These dynamic elements of sports involvement within the DMSP are consistent with the nested system approach of developmental researchers such as Bronfenbrenner's ecological systems theory and the vast amount of youth sports research that focused on youth development. Recently our research has combined the features of the DMSP and ecological systems theory into the Personal Assets Framework which suggest that three conditions are necessary for fostering optimal development in sports. These three elements are: (1) personal engagement in activities, (2) quality social dynamics, and (3) appropriate settings. The Personal Assets Framework serves to highlight the dynamic elements and personal assets that should be combined and aligned to design and deliver youth sports programmes that promote immediate enjoyment, the development of personal assets, and the long-term outcomes of performance, participation, and personal development within the sampling pathway of the DMSP.

Congratulations to PESS, NIE NTU, Singapore as you commemorate and celebrate the 15 years of the E.W. Barker Professorship and Scholarship Schemes.

Professor Paul Schempp

Fifth E.W. Barker Professor
7 February – 4 March, 2011
University of Georgia, United States of America

The Professorship is also a tremendous benefit for the people of Singapore as it welcomes to the 'little red dot' an individual of distinguished contributions to share their knowledge and spirit for an extended time and in multiple domains.

Prior to being honoured with an E.W. Barker Professorship, I had served a semester as a visiting professor in Physical Education & Sports Science (PESS) at the National Institute of Education (NIE). During that time, the Physical Education & Sports Science faculty and I formed meaningful and scholarly connections that continue to this day. In addition to lectures, several publications, a grant, and a book were the result of my time there. Consequently, I developed both an understanding of and an affection for sports and physical education (PE) in Singapore. The E.W.

Barker Professorship allowed me to return to a country I considered my second home, and share the results and insights from my research into the characteristics and development of expert teachers and coaches.

My month-long stay in Singapore as the fifth E.W. Barker Professor was both stimulating and rewarding. Most days were comprised of meetings, with the movers and shakers in Singapore's sport, education and PE programmes. These meetings allowed significant time to discuss the current situation in all of these programmes as well as strategies for moving forward into a bright future.

The capstone experience of the E.W. Barker Professorship was the honour of delivering three public presentations. The programmes were held in different locations, dates and times to allow as many Singaporeans to attend as possible. The content for each presentation was derived from the research we completed in the Sports Instruction Research Laboratory at the University of Georgia. The delivery was tailored to a target audience of PE teachers, coaches, athletes, and members of the public with an interest in sports and sports promotion.

The first lecture was titled *'The Skills and Characteristics of Expert Sport Instructors.'* Skills that expert teachers perform to a higher standard than the average teacher include communication, planning, and building student relationships. Some of the characteristics that these great teachers demonstrate include being open-minded, continually seeking to improve, and channelling passion for the subject they teach and the students they serve.

'The 3 Keys to Developing Elite Athletes' was the title of the second lecture. The expertise

of an athlete can be measured by three standards: a) their skills, b) their knowledge, and c) their experience. Especially with younger athletes, increasing any or all of these key areas will increase their athletic development. In many sports programmes, the emphasis is most heavily placed on skill development. But equally important is an athlete's understanding of sport rules and strategies, principles of skill and fitness development, knowledge of nutrition, and the like. A variety of experiences will also contribute to an athlete's development, including playing and practising under different conditions and varying levels of competition, playing different positions and against a variety of opponents.

The final lecture was titled *'Developing Expertise in Youth Through Sport and Physical Education.'* Beginners and young athletes learn best in an environment where mistakes are considered a necessary part of mastery. Rather than seeing errors as something to be avoided, they should be viewed as an opportunity to learn so the next performance can be better. Beginners benefit from new information when it is presented clearly, simply, and in progressive, easily digestible pieces. Tell them only what they need to hear to improve their performance. Finally, for people to develop both skill and passion for a sport, it must be fun. Creating an atmosphere of enjoyment based on performing challenging skills in a physically active environment full of friends will not only keep kids involved in the sport, but interested in improving skills and deepening their commitment.

Being named an E.W. Barker Professor was clearly one of the highlights of my career. I am certain every scholar who has been so

honoured feels the same. A tremendous benefit of the E.W. Barker Professorship is that it celebrates and promotes sport and PE scholarship. In doing so, it not only recognises and applies to current scholarship but stimulates future research and scholarly thought in sport. The Professorship is also a tremendous benefit for the people of Singapore as it welcomes to the 'little red dot' an individual of distinguished contributions to share their knowledge and spirit for an extended time and in multiple domains. Finally, the Professorship stands as a lasting and fitting tribute and remembrance of an individual who was enormously influential in the founding and growth of Singapore: E.W. Barker.

It is fitting and appropriate to commemorate and celebrate the 15 years of the E.W. Barker Professorship and Scholarship Schemes with this book.

Professor Stuart Biddle

Sixth E.W. Barker Professor
9 January – 3 February, 2012
University of Southern Queensland, Australia

The Professorship is an important part of professional development in physical education and physical activity for Singapore and long may it continue.

It has been seven years since I delivered my three main lectures as part of the E.W. Barker Professorship. I will reflect on these topics on what only appears to be only a short time ago. However, from the point of view of research knowledge, seven years, at least in these areas of study, is quite a long time and many developments in the field have occurred.

Topic 1: Physical activity and sedentary behaviour guidelines

Starting in 1998, I have been involved in the development of physical activity guidelines in the United Kingdom (UK). We added guidelines concerning sedentary behaviour ('sitting time') in 2011. Singapore also has its own guidelines and this is common among many high income countries. World Health Organisation (WHO) guidelines can be used as a basis for a nation to develop its own framework. All guidelines are broadly similar.

My talk in 2012 focused on children and adolescents, as well as pre-school children. The latter group has only recently been a focus in guidelines, and recommendations for them differ considerably for school-aged children. For example, in Singapore, a recommendation for infants is that "physical activity should be encouraged from birth, particularly through floor-based play in safe environments."

For school-aged children and adolescents, it is typical to recommend 60 minutes of moderate-to-vigorous physical activity (MVPA) daily. The emphasis has been on aerobic physical activity, but it is also recommended to include muscle and bone strengthening activities, such as resistance exercise and weight bearing movements.

Guidelines are just that – guides. It is my view that they should not be followed slavishly, but instead provide a focus for promotional efforts across the different socio-units in society. These can includes schools, communities, and families. Few people will remember the exact recommendations, but the broad principles – 'an hour a day' – can be a helpful goal. Of course, we can set the bar as high as we like (one hour, two hours, or three hours), but an element of realism is also required. The evidence suggests that one hour per day will produce significant health benefits for young people, but this is still quite a demanding target. Promotional efforts will be required, and we need to think more about how we can integrate physical activity in daily lives (it is not just 'sports' or structured 'exercise').

Physical activity guidelines also impact school physical education (PE). They provide strong support for the basic principle that physical activity is important, and this can help the case for physical educators. However, we should not misconstrue the role of physical education (PE), which is to educate. It would be a mistake to simply provide physical activity in schools rather than PE. Not all PE is that active, and nor does it need to be. Children need to learn skills too. Indeed, it is not the role of the PE teacher to 'get kids fit'. Anyone can do that; the PE teacher is much more than that. Moreover, by simply getting children to exercise to get them fit, we will be in danger of winning the 'battle of fitness' but losing the 'war' of participating in physical activity for life. Let us not turn our kids off physical activity by making it just about fitness, exercise and 'hard work'. These issues require careful thought in the context of operationalising the physical activity guidelines.

Finally, guidelines are now broadening out to adopt a '24-hour' approach. Across a full day, we are always switching between sleep, sedentary time, light movement, and MVPA. If I am sitting, I cannot be moving; once I stand and move, I can no longer be sitting, etc. So behaviours are interdependent and make up the full 24 hours. Guidelines for young people in Canada, and now Australia, have adopted this 24-hour guidelines approach and recommend, for example, uninterrupted nine to eleven hours of sleep per night for those aged five to thirteen years, breaking up long periods of sitting as often as possible as well as limiting sedentary recreational screen time to no more than two hours per day, having several hours of a variety of light physical activities, and 60 minutes or more of MVPA. You will see that across the 24-hour period, all 'activity behaviours' are included – sleep, sitting, light activity, and MVPA.

Topic 2: Move more, sit less

In this lecture, I spoke about ways of promoting more physical activity and less sedentary behaviour. One of the novel elements of this field is the inclusion of the message to 'sit less' (sedentary behaviour). This has been a large focus of my work over the past two decades.

As changes to society have included the uptake of more technology, including motorised transport, we have transitioned from being reasonably physically active in our daily lives (e.g., walking to work; being active at work) to much more sedentary. The latter, for example, could easily involve driving to work, sitting most of the day at a screen at work, driving home, and then sitting in front of the TV for the evening prior to bed. Large amounts of sitting are bad for health. These detrimental effects will tend to show more strongly in adults and for those who do not do large amounts of physical activity, but they are also evident in young people. It is important to promote the message to move more and sit less.

Two applications of this message are particularly relevant for young people at school and home. First, school itself can be a sedentary environment. Classrooms are for sitting and learning. New developments suggest that 'active classrooms' can be beneficial not only for sitting less and moving more, but also for children's interest and learning. Installation of higher desks, with elevated stools to sit on, allows children to work sitting or standing. Breaking up sitting is thought to be important, hence the phrase 'your best posture is your next posture'.

Sitting at home for young people will involve several hours of recreational screen time. While some of this can be productive and appropriate, we need to be cautious that it does not prevent more active and social pursuits. Sitting for long periods watching TV programs or playing computer games should be discouraged, especially when it is possible to do other things. Break these up with alternative behaviours, such as outside play or helping with family tasks around the house. Changing the physical environment can also help. Elevated desks can be bought at reasonable prices and used at home.

Topic 3: Physical activity in young people's mental health

I have long had an interest in mental health as part of my work in psychology. Typically, physical activity has been linked to less depression and anxiety, and better self-esteem and cognitive functioning. These can be studied in broadly healthy populations as well as those with mental health difficulties.

Around the time of my E.W. Barker Professorship I brought together a number of review papers to summarise the evidence concerning physical activity and mental health in young people, with a focus on depression, anxiety, self-esteem, and cognitive function. We have now updated that evidence. Our conclusions since the publication of our paper in 2011 have changed somewhat. In 2011, we said that the effects for physical activity on self-esteem seemed to be the strongest, but this is no longer the case when we looked at new evidence in 2018. A significant increase in the quantity and quality of evidence regarding cognitive functioning and, to a lesser extent, depression, now shows these two outcomes to be more clearly associated with physical activity than self-esteem. However, self-esteem is a particularly complex area.

Results addressing physical activity and cognitive functioning showed the strongest evidence for a causal link. Changes in cognitive and neurobiological measures resulting from physical activity might logically lead to enhanced academic performance. However, research on physical activity and academic performance is a complex field replete with biases and poor measures. This area of research should have important implications for the important role of PE in schools. For example, emerging evidence is available on the role of more active classrooms, but more is needed on whether physical activity breaks can be effective for learning and performance.

The overall conclusion from this work is that physical activity is associated with better mental health in young people, including their cognitive functioning. This field is developing rapidly and provides another strong case for the promotion of physical activity in young people and for high quality PE in schools.

Being appointed as E.W. Barker Professor was a special moment in my career. At that time I was Professor at Loughborough University. To have the opportunity to visit Singapore again, and to interact with friends and colleagues at the National Institute of Education (NIE) – with all of its historical links with Loughborough – was particularly rewarding. I can honestly say it was one of the most enjoyable international professional tasks I have undertaken.

I thank the E.W. Barker Professorship, the Barker family, and my host, Professor John Wang, for the opportunity and I wish the scheme continued success. The Professorship is an important part of professional development in PE and physical activity for Singapore and long may it continue.

Congratulations to PESS, NIE NTU, Singapore as you celebrate 15 years since the inception of the E.W. Barker Professorship and Scholarship Schemes.

Emeritus Professor Clyde Williams

Seventh E.W. Barker Professor
4 – 15 March, 2013
Loughborough University, United Kingdom

Strength Training is not only for athletes

The health benefits of regular exercise and a well balance diet are well known. Nonetheless, obesity is increasing at an alarming rate in the developed countries of the world. Gaining body mass is simply an outward sign of the potential development of a series of cardiovascular and metabolic pathologies. Type 2 Diabetes Mellitus is the most common obesity-associated condition . It used to be called the 'adult onset of diabetes'. However, there is an increasing number of children reported with this condition. There are a range of intervention programmes that are attempting to combat the rise in childhood obesity: they all have three elements in common, namely education, exercise and diet. These recommendations are applicable throughout the life-cycle. However, the main challenge is not amassing more evidence for a change in life-style but how best to help people change their lifestyles. Children, with parental direction and support, can be encouraged to adopt lifestyles that will help them avoid metabolic and cardiovascular diseases in later life.

Behavioural change is more difficult at the other end of the age spectrum, when habits are so well entrenched. As we mature towards and beyond the age of retirement from full time employment, the constant rush to meet the daily demands of work, family and social life begins to slow down. Gaining weight during the early years of retirement is quite common but it brings with it serious threats to our long-term health. Less physical activity and more time to prepare and enjoy meals are the underlying causes of the increase in body mass. It is all too easy to dismiss this weight gain or simply disguise it by resorting to clothes with elasticated waist bands before admitting that larger sizes are more comfortable. Often it is this recognition of needing larger sizes in clothes that prompts adults to take action by going on a 'diet'.

Reducing waist size is the most common aim of dieters. Simply looking down at our stomach reminds us why our waist size has become bigger. However, we overlook the fact that our rear (gluteal muscles) has become smaller because our attention is on our 'tum' not our 'bum'. This loss of our gluteal muscle mass is a sign of an ongoing age-related process called 'sarcopenia'. We lose muscle mass at a rate of about 1% a year but this loss is accelerated during times of illness and during voluntary or enforced physical inactivity. Why is this gradual loss of muscle so important? The answer is that muscle mass has a profound effect on our long-term health. Clearly, we need an adequate muscle mass to maintain our strength and mobility in order to go about our daily activities without becoming overly tired. The loss of functioning muscle reduces

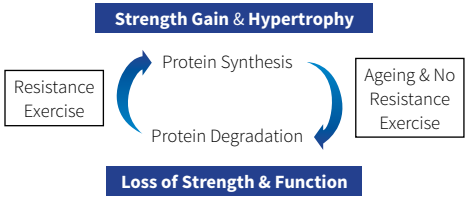
our ability to maintain our independence and so an early dependence on others for care. However, continuing to be physically active as we age has a wide range of health benefits. We often overlook that heart-health is the result of working muscles demanding increased blood flow i.e. it's the active skeletal muscles that train the heart and keep it healthy.

Skeletal muscle has a huge impact on our metabolic health. Our resting metabolic rate is the result of metabolic activities within our muscles such as burning fat to fuel the repair and replacement of damaged fibres and preparation for the next bout of physical activity.

Muscle is the largest fat burning tissue of the body and so a low mass decreases our capacity to use this plentiful fuel. What is often overlooked is that when we 'go on a diet' and lose weight, the loss of fat is accompanied by a loss of protein i.e. the composition of muscle. Therefore, dieting alone reduces our capacity to burn fat because of the gradual loss of muscle mass. Furthermore, skeletal muscle has a major role in controlling our blood sugar (glucose) levels. Under normal conditions blood glucose is taken up into skeletal muscles and contributes to energy production in amounts that depend on the level of physical activity. This process is facilitated by insulin, a hormone that is released from the pancreas gland. However, if skeletal muscle becomes 'insensitive' to insulin then more of this hormone is needed to keep blood glucose values at healthy levels. Over stimulation of this gland will lead to its irretrievable reduction in insulin production. The consequence is a persistent high blood glucose that is the pre-condition for the onset of Type 2 Diabetes. This process is accelerated when we adopt a sedentary life-style because fat accumulates not only around the waist but also in our muscles. This additional fat store results in muscles becoming insensitive to the stimulation of insulin and so indirectly contributing to a decrease in insulin production. In brief, physical inactivity accelerates the loss of muscle mass resulting in a decrease in our capacity to burn fat and control our blood glucose concentrations.

With these negative health consequences in mind, the question is how best to off-set the gradual loss in our muscle mass. Again, the answer is exercise and diet. While the exercise recommendations for a healthy heart and cardiovascular system is to engage in 'aerobic' activities such as walking, running swimming, rowing, cycling, it is resistance (strength) exercise that improves and develops skeletal muscles. Skeletal muscles are very responsive to changes in their activity. They become stronger and larger (hypertrophy) when

over-loaded through strength training but lose strength and size (atrophy) after just few weeks of inactivity. This plasticity of skeletal muscles is largely due to an ongoing dynamic balance between protein synthesis and protein degradation. For example, over a period of about six weeks all the proteins that make up our skeletal muscle mass are broken down and replaced by fresh proteins. This dynamic balance between protein synthesis (anabolism) and protein degradation (catabolism) can be changed by exercise and diet as shown in the following diagram:



However, as we age there are all too many reasons to avoid strength-demanding activities whether the result of life choices or illness, therein lies the surreptitious surrender of our muscle mass and strength. Thereafter, routine activities such as stair climbing or simply screwing off jar tops become increasingly more difficult. Furthermore, weakened muscles cannot support and protect joints and so they become vulnerable to unnecessary damage. This loss of strength, if not halted, will lead to loss of mobility and eventually, a loss of our physical independence as we spiral down to frailty.

Resistance Exercise

The scientific studies showing the health benefits of regular resistance training are almost encyclopaedic in number. What they show is that the skeletal muscles of older people respond to training in a similar way as those of the young. Resistance training increases the size (hypertrophy) and strength of muscles and also improves their insulin sensitivity. Health professionals agree that in order to reap the benefits of resistance training intervention programmes they should involve exercises that load the body's major muscle groups and should be undertaken two to three times a week. The ideal resistance training programme is one that has been customised by a qualified exercise professional and carried out safely in a gym or health club. An alternative is to develop one's own resistance training by including a few exercises at home. For example, the shoulders and arms can be developed by simply leaning with hands against the wall and simply pushing away from the wall several times, moving away from the wall to increase the load. Resistance exercise for the legs can be achieved simply by sitting on a chair and then standing up without using one's arms. Increasing the number of repetitions of these two simple exercises and repeating them two to three times a week will produce an increase in the metabolic health and strength of the body's large muscle groups.

Diet

Our daily food intake supplies the protein we need to maintain our muscle mass. The quality of the protein we eat is judged by the content of its essential amino acids. Amino acids , of which there are twenty, are the building blocks of all the body's protein. Of the twenty amino acids, nine must be obtained from our food and are labelled 'essential amino acids'. The full complement of these essential amino acids is found in foods such as fish, meat, eggs and also in milk. Edible plants also contain a few but not all of the essential amino acids. Nonetheless, combining several vegetables in one meal will provide all nine essential amino acids. To emphasise the importance of these amino acids, they are often likened to the letters of an alphabet that used in different combinations create all the words in a dictionary. The recommended daily amount of protein is 0.8g/kg body weight. However, this amount is the minimum required to prevent malnourishment in adults but far too low for growing children, pregnant women and physically active people. As we grow

older our ability to assimilate amino acids from protein containing meals is reduced. Nevertheless, when we eat sufficient protein, we improve our muscle mass, however we reach a point of 'saturation' when any unused amino acids (from dietary proteins) are excreted from the body. This 'saturation' amount of protein/amino acids has been identified as 'anabolic resistance'. One way of increasing the assimilation of dietary protein is to increase the amount of protein in each of our daily meals rather than leave it all to one meal, such as dinner. When we include regular sessions of resistance exercise in our weekly round of activities, it stimulates protein synthesis such that more is used to build new muscle. Eating protein containing meals in the hours following resistance training stimulates protein synthesis to improve muscle mass. Although there are many modifying factors, there is general agreement that consuming 1.0-1.3 g/kg of body weight per day of protein along with twice weekly resistance training sessions improves/increases muscle mass and strength by promoting increased protein synthesis. Adopting a recommended intake of 1.2g/kg/day translates to about 84g of protein (for a 70kg man) spread over three (28 g) or four (22g) meals i.e. breakfast, lunch, snacks and dinner. For example, 20g of protein can be obtained by consuming approximately 85-90g of lean meat or three eggs. The whey protein in cow's milk is also rich in essential amino acids and about half a litre provides 20g of protein.

In summary, to protect ourselves against avoidable ill-health we must devote time and effort to preventing an unnecessary loss of our muscle mass by engaging in resistance exercise at least twice a week and increasing our protein intake to 1.0 to 1.3g/kg/day.

Thank you for the invitation to contribute to this commemorative book on the occasion of 15 years of the E.W. Barker Professorship and Scholarship Schemes. May the schemes continue to build muscle and longevity for physical education and sport in Singapore and beyond.

Professor Theodore Angelopoulos

Eighth E.W. Barker Professor
24 August – 20 September, 2015
The University of Vermont, United States of America

I also had the opportunity to realize the commitment of faculty towards the development of an innovative new curriculum that allows our students to capitalize on their strengths and further explore the role of physical activity on public health.

Obesity continues to be a problem across the United States, with several states showing increases in the prevalence of adult obesity and related conditions such as diabetes. Obesity is a global health challenge. Specifically, worldwide obesity has nearly tripled since 1975. In 2016, more than 1.9 billion adults, 18 years and older, were overweight. Of these, over 650 million were obese. Thirty-nine percent of adults aged 18 years and over were overweight in 2016, and 13% were obese. Over 340 million children and adolescents aged 5 to 19 were overweight or obese in 2016. Singapore's obesity prevalence has increased by 0.7 percentage points per year since 2004 to reach nearly 11% in 2010, only one percent lower than the global average obesity prevalence of 12%. The National Health Survey 2010 shows that 1.7 million Singaporeans with a Body Mass Index (BMI) of 23 or greater are vulnerable to developing obesity-related diseases such as diabetes and heart diseases. The overall trends for obesity and overweight, for both males and females, have been rising since 1992. The proportion of obese and overweight adults aged 18 to 69 years was 8.7% and 36.2% respectively in 2017.

Of particular importance, obesity is preventable. Preventing obesity in children is vital. This is because childhood obesity is more likely to last into adulthood. An obese person has a high risk of diabetes, high blood pressure, and heart disease. The most important strategies for preventing obesity are healthy eating behaviours, regular physical activity, and reduced sedentary activity (such as watching television and playing computer games). Following these guidelines can help promote health and minimise the risk of chronic diseases. Parents, caregivers and teachers can help prevent childhood obesity by providing healthy meals and snacks, daily physical activity, and nutrition education. Healthy meals and snacks provide nutrition for growing bodies while modelling healthy eating behaviour and attitudes. Increased physical activity reduces health risks and helps weight management. It is important to prepare future teachers on how to tackle and actively participate in the prevention of obesity development during childhood.

The development and implementation of adequate physical activity intervention

programs are challenging, particularly in children, adolescents and older adults. We should continue exploring the development of effective strategies by employing effective behavioural techniques and emerging technologies. We now have a better understanding of the impact of genetics on behavioural attitudes (physical activity) and physiological responses (fitness) as a result of regularly repeated exercise. We are now in a better position than at any other time to develop individually tailored active lifestyle (i.e., physical activity) interventions.

My collective experiences and interactions during my E.W. Barker Professorship at PESS, NIE NTU, Singapore have been a significant

professional milestone for me. My meetings and interactions with the faculty focused on strengthening the ongoing campaign regarding the positive effects of physical activity on health and fitness. I also had the opportunity to realize the commitment of faculty towards the development of an innovative new curriculum that allows our students to capitalize on their strengths and further explore the role of physical activity on public health.

I wish to thank everyone involved in allowing me to be the eighth E.W. Barker Professor for 2015.

My congratulations to PESS, NIE NTU, Singapore for making 15 years of the Professorship and Scholarship Schemes possible. 15 years has a nice vintage ring to it. Well accomplished.

Emeritus Professor Neil Armstrong

Ninth E.W. Barker Professor
14 – 22 March, 2016
University of Exeter, United Kingdom

I noted that with its integrated sport science and physical education teaching and research programmes, PESS in the NIE is well-placed for future development as in several countries, including the UK, teacher education and the practice of physical education is often displaced from its science and research base.

I was honoured to be the ninth E.W. Barker Professor and visited Singapore from March 14th to March 22nd 2016. I delivered two public lectures and a seminar to staff and students of Physical Education and Sports Science (PESS) Academic Group (AG). I valued greatly the opportunity to meet with PESS staff and students, senior management of the National Institute of Education (NIE), the Director of Physical, Sports and Outdoor Education Branch and his team at the Ministry of Education, the Director of the Singapore Sports Institute at Sport Singapore, and local school teachers. A highlight of my visit was sitting next to Mrs. Barker at the E.W. Barker Lunch and sharing views on Singapore-United Kingdom (UK) past, present and future co-operation.

In my first public lecture entitled, *'Activity, fitness, fatness, and youth sport: Ten myths and evidence-based physical education'* I discussed children's health and well-being with specific reference to the importance

of an evidence-based physical education curriculum. I drew on examples from my experiences as President of the UK Physical Education Association during the development of the UK National Curriculum and focused on the need for scientific evidence not myths and folklore to underpin the curriculum. I noted that with its integrated sport science and physical education teaching and research programmes, PESS in the NIE is well-placed for future development as in several countries, including the UK, teacher education and the practice of physical education is often displaced from its science and research base. In some countries this separation of the evidence-base from the practice has led to misleading policy statements and misinformed recommendations designed to promote youth health and well-being. The lecture generated some interesting questions both immediately afterwards, over the next few days in NIE, and at a subsequent meeting at the Ministry of Education. As I was at the time writing and editing the Oxford Textbook of Children's Sport and Exercise Medicine, published the following year, I found these interactions very welcome and helpful in formulating ideas.

My second public lecture was held at Sport Singapore and entitled '*Elite youth sport: Are we creating superhumans or premature health risks?*' In this lecture I addressed growing concerns over the effects of intensive training on normal growth and maturation; the prevalence of disordered eating and eating disorders; the (mis)use of nutritional supplements and performance-enhancing drugs; recent developments in molecular biology; the development of the overtraining and relative energy deficiency in sports syndromes; sports-related injuries; and non-accidental violence as elite youth sports becomes more pressurised, professionalised, and politicised. The origins of this contribution lay in a 2015 meeting in Geneva which led to the publication of the International Olympic Committee Consensus Statement on Youth Athletic Development co-authored with among others Professor Michael Chia from NIE and Professor Jean Côté, an E.W. Barker Professor. Once again a large number of insightful questions and challenges both from the audience and over the following days fed positively into my own thoughts and contributed to the final version of my book 'Development of the Youth Athlete' which was published in 2018. The book concluded that all involved in youth sport must act with integrity and focus on, i) promoting and fostering participation and enjoyment in a range of sports, ii) identifying and nurturing talent regardless of the ticking of individual biological clocks, iii) helping and encouraging talented young people to fulfil their sporting aspirations, iv) implementing evidence-based, personalised, development programmes, and, v) educating and supporting youth athletes at all levels of the performance pyramid to enjoy their sport and effectively manage their health, well-being, and sport-life balance.

My third formal presentation was a seminar to PESS staff and students entitled

'Controversies in youth aerobic fitness: What do we know and what do we want to know?' Children's aerobic fitness or peak oxygen (has been studied in laboratories for over 80 years, but its assessment and interpretation are still shrouded in controversy.) The seminar examined why some paediatric exercise scientists continue to wrestle with factors related to its rigorous determination whereas others suggest relying predominantly on peak as the criterion measure of aerobic fitness obfuscates useful insights that can be obtained from submaximal data and innovative data analytics. Some researchers suggest that the responses of physiological variables at the onset and/or offset of an exercise challenge may be as (or more) important than peak effort. Others promote the estimation of peak from field test performance scores as a valid alternative to rigorous determination of peak. Some writers advocate the use of fixed values of peak in ratio with body mass to identify 'clinical red flags' for 8 to 18 year-olds.

On the other hand, some scientists believe that to elucidate the development of aerobic fitness and its relationship with present and future health it must be interpreted in relation to sex-specific, concurrent changes in a range of chronological age and

maturity status-driven morphological and physiological variables. These issues remain contentious with Paediatric Exercise Science, the leading international journal in the field, publishing in May 2019 a Special Issue on the topic. I particularly enjoyed this interactive session, which developed into a wide-ranging discussion of present and future PESS staff research ideas. I was impressed by the enthusiasm of the staff to not only develop further their own research interests but to also remain focused on establishing a sound research base for physical education.

I have had a long and fruitful association with NIE. I served two terms as the undergraduate external examiner from 1991, soon after the inception of NIE, and I have since externally examined PhD theses. Members of PESS have visited my Research

Centre in Exeter, and I have co-authored with Professor Chia both research papers and book chapters. I have followed the growth and development of PESS with great interest and admiration for almost 30 years. Over several visits to Singapore, interactions with Singaporean colleagues and reading research papers from PESS staff, I have observed a dramatic and positive change in the ethos of PESS since my period as the undergraduate external examiner. In the early 1990s, I was very impressed with the professionalism and the pedagogy in PESS, but research was in its infancy. Through outstanding leadership by Dr. Quek Jin Jong, Professor Chia, and Dr. Balasekaran, the appointment and development of high quality academic staff, and the investment in excellent sport and laboratory facilities, the current ethos reflects a department of international standing where original research and knowledge of relevant research from elsewhere inform and underpin the pedagogy. PESS is now universally recognised as one of the leading physical education and sports science departments in Asia.

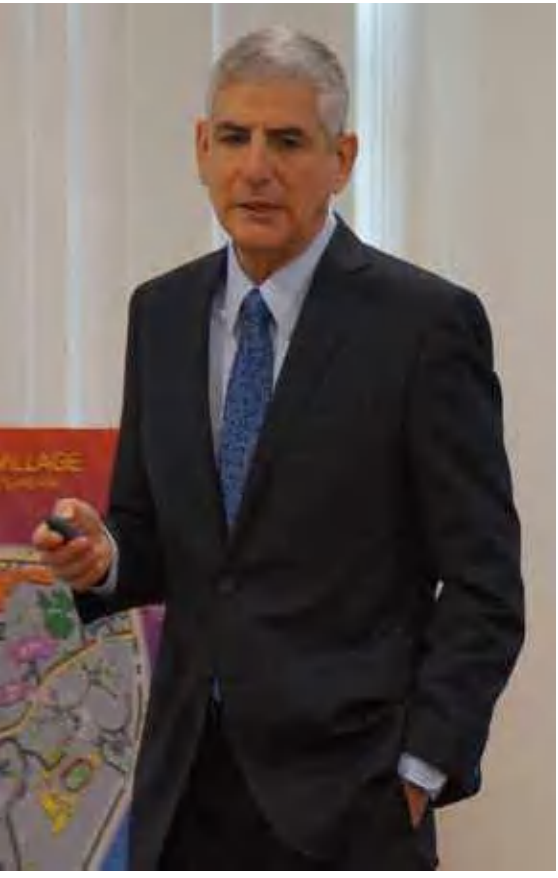
The E.W. Barker Professorship, which supports within agreed structure visits of internationally recognised academics, have undoubtedly played a significant role in the growth and development of

physical education and sports science in NIE and Singapore generally. I know that the opportunity to interact both formally and informally with faculty and students and to build a strong relationship with NIE is valued highly by E.W. Barker Professors. I feel privileged to have been recognised as an E.W. Barker Professor. I am grateful for the experience, and I wish the scheme every success in the future.

With heartiest congratulations to PESS, NIE NTU, Singapore on the occasion of the commemoration of the 15th Anniversary of the E.W. Barker Professorship and Scholarship.

Professor Laurence Chalip

Tenth E.W. Barker Professor
11 – 22 March, 2019
George Mason University, United States of America



My favourable impressions of NIE, PESS, and the sport management programme were reinforced by my interactions with persons from the sport industry. In every instance, they spoke highly of NIE, and expressed their desire to continue to capitalise on the synergies enabled by relationships they have had with the training and research PESS faculty and students deliver.

Impressions from My Visit as an E.W. Barker Professor

It was my privilege to visit National Institute of Education (NIE) for two weeks in March 2019 as the E.W. Barker Professor. During that time, I presented four lectures, taught two classes, reviewed syllabi, and met with faculty and students. I also visited the Sports Hub, the Singapore Sports School, and the Singapore Tourism Board. During each of those visits, we discussed the organisation's needs, their current relationships with NIE, and potentials for future collaborations with NIE and Physical Education & Sports Science (PESS). Throughout my time at NIE, I was impressed by the quality of facilities, the programmatic vision, and the insights that faculty and students are bringing to their work. These rank among the best that the world has to offer.

My favourable impressions of NIE, PESS, and the sport management programme were reinforced by my interactions with persons from the sport industry. In every instance, they spoke highly of NIE, and expressed their desire to continue to capitalise on the synergies enabled by relationships they have had with the training and research PESS faculty and students deliver. It was noteworthy that Singapore's tight-knit geography and social organization enable a degree of interaction and cooperative vision that is seldom found elsewhere in the world. PESS is already providing interns, research, and staff to these organizations. There is an opportunity to build on that base in order to intensify and accelerate sport development in Singapore. A thoughtfully formulated and implemented research and development programme for sport — one that fully integrates PESS with the industry — can place Singapore at the forefront of sport development worldwide.

Linkages between the sports industry and PESS are particularly useful because theory and practice are intimately intertwined when developing the sport. Challenges for staying at the cutting edge of sport programme design and delivery raise significant new questions, while research enables new and useful ways to envision possibilities for sports. There is no meaningful distinction between applied and basic research, as application and conceptual development go hand-in-hand. The close relationships that are possible between industry and NIE render a unique opportunity to build sports theory and practice symbiotically. As described in my presentation to NIE staff, action research provides a particularly useful means to foster that process.

Links with the sports industry are not the only advantage that PESS enjoys. PESS is structured such that the sports sciences and sports management are co-located, and students take courses in both realms. Elsewhere in the world, that is unusual. Too often, the science of sports and the management of sports are treated as if they were separate. Yet, sports managers do manage the development and care of athletes. It is essential; therefore, that sports managers understand the science

There is an opportunity to build on that base in order to intensify and accelerate sport development in Singapore. A thoughtfully formulated and implemented research and development programme for sport — one that fully integrates PESS with the industry — can place Singapore at the forefront of sport development worldwide.

upon which training and support of athletes are founded. So, it is salutary that PESS graduates have training in sports science and sports management jointly. In comparison to the rest of the world, that is potentially a distinctive advantage.

Of course, any advantage is merely latent until it is capitalised upon. Planning and vision are required to manifest benefits. When students are left to their own devices to find the relevancies that sports science and sports management have for one another, they can underestimate the potentials. When faculty remain within their

...there are unique and significant opportunities for sports research and practice in Singapore, and NIE is well placed to capitalise on those opportunities. So doing can advance the industry in vitally important ways.

own fields of research and teaching, they can overlook needs and possibilities deriving from the intersections of sports science and sports management. Conversely, if there is an effort to undertake exploration of contributions that sports science and sports management can make to one another, new insights and improved practice are enabled. The quality of relations among PESS faculty enables such conversations. If those are encouraged and intensified, NIE can rapidly become an international leader in the development and delivery of an integrated vision for science and management.

Throughout my public presentations and my NIE presentations, I stressed that the purpose of developing sport is not merely to provide sport for its own sake. Sports can have very positive value to things we care about, such as strong communities, developing our children, enhancing health, strengthening the economy, and building national pride. Indeed, sport can do all of those things, and more. Yet none of those things occurs simply because we provide sports. In fact, sport can have detrimental effects on each of those if we are not careful. What matters is how we design, market, and manage sports programs, sports events,

sports products, and sports services. The key question is, "What will sports look like if we design and deliver it in a manner that is consistent with our aspirations for it?" Situating sports management in the context of an education faculty makes that question all-the-more salient, and all-the-more relevant. It is a question that is too often ignored around the world (as unfortunate sports headlines too often make apparent), but it is a question that physical educators are well placed to address. It is worth foregrounding that question as NIE continues to build its sports management programme.

In other words, there are unique and significant opportunities for sports research and practice in Singapore, and NIE is well placed to capitalise on those opportunities. So doing can advance the industry in vitally important ways. Nonetheless, there are potential pitfalls. In recent years, management practice (and sometimes management research) have celebrated something called "best practice." Yet, there are trenchant problems with the notion of "best practice." What is best now may not be the best in future. "Best practice" is not a way to innovate. Further, what seems to be "best practice" elsewhere in the world may not be best for Singapore. Everything I have said above is predicated on the realization that a visionary sports research and development initiative for Singapore will be both innovative and well-tailored. It should be responsive to Singapore's particular needs and context, and should not chase chimeras imported from elsewhere. Leadership in the field will be born from partnerships and vision that are uniquely possible in Singapore.

NIE faculty and programmes are well-placed to make that potential a reality. The PESS sports management programme is doing things right. The curriculum is nicely envisioned, research is cutting edge, and linkages to the industry are coalescing. If the group continues along the road, it is currently travelling, and if its ambitions to contribute to the development of sport in Singapore are fully embraced, the group can distinguish itself as an international leader.

In closing, I offer my heartiest congratulations to all of the PESS, NIE NTU, Singapore on the occasion of the commemoration of the 15th Anniversary of the E.W. Barker Professorship and Scholarship and the sagacious fine people who made the scheme possible for the benefit of physical education and sports.

E.W. Barker Challenge 2017

6. THE FLAME BURNS ON

Dr. Cheryl Tay

E.W. Barker Scholar
SSM Class of 2013 (Pioneer Batch)

After the Sport Science & Management (SSM) Programme, I was awarded the Nanyang President's Graduate Scholarship to pursue my PhD in sprint kayaking sports biomechanics. I completed my PhD in 2018 and have returned to lecture on a part-time basis since then. Lecturing was a natural extension of my teaching involvement as a post-graduate student, and I hope I have sparked my students' interests in the sport sciences of Exercise Physiology and Sports Biomechanics.

I had continued my sporting pursuits as well, both as an athlete and a coach. I still compete at the national level and try to give

the younger athletes a run for their money. I had coached several school teams and one of the most meaningful endeavours for me was coaching the Kid-in-a-Kayak (KIAK) programme with the Singapore Canoe Federation (SCF).

At present, I am a Team Lead in Sport Development at Sport Singapore. I manage the ActiveSG Canoe Academy which now runs the KIAK programme amongst others, contribute to the strategic planning and development of our sport, and oversee other Academies and Clubs. In my multifaceted roles as a sport administrator, scientist, researcher, lecturer, coach, and athlete, I strive to bring our community together towards our shared vision.

Our sports/academic achievements and service contributions during our SSM days

I graduated as the top student in the pioneer cohort of the SSM programme, was on the Dean's List four times, and recognised twice as a Nanyang Technological University (NTU) President's Research Scholar. I began my undergraduate studies in 2009, which was also the year I first qualified for the Singapore National Kayak Sprint team. In 2010, I represented Singapore at the International Canoe Federation (ICF) Canoe Marathon World Championships. Towards the end of 2011, I had some injuries that required surgery and was out-of-action. Eventually I recovered and since 2012, I have donned national colours in Canoe Sprint, Dragon Boat and Rowing while also helping NTU defend our championship title for numerous seasons. As an E.W. Barker Scholar, I was the organising committee chairperson for the E.W. Barker Run that year.

...the connection to the late Mr. E.W. Barker's legacy through this scholarship inspired and reminded me of the higher calling to be in service to others.

How the E.W. Barker Scholarship has helped us accomplish our academic & sport achievements

As a recipient of the E.W. Barker Scholarship, it was assuring to know that the scholarship quantum could cover my school fees. More importantly, the connection to the late Mr. E.W. Barker's legacy through this scholarship inspired and reminded me of the higher calling to be in service to others.

I have thoroughly enjoyed my time in SSM and I hope you will make a meaningful contribution to student life and those around you.

What we are currently pursuing

I have completed my PhD in 2018, and was awarded the Nanyang President's Graduate Scholarship during that time. I consider myself a sports scientist, researcher, lecturer, coach, and athlete. One of the most meaningful endeavour for me is coaching the Kid-in-a-Kayak (KIAK) programme with the Singapore Canoe Federation, which is the future of our sport. As a part-time lecturer at PESS, NIE NTU, Singapore, returning to my alma mater to teach was a natural extension of my teaching involvement as a post-graduate student, and I hope I have helped sparked my students' interests in the sport sciences of Exercise Physiology and Sports Biomechanics. I still compete at the national level and try to give the younger athletes a run for their money.

Future hopes

I hope the SSM programme will continue to grow from strength-to-strength, and create a better future for Singapore sports. Personally, I hope to inspire the next generation to pursue a career in sports, and for everyone to make sports a part of their lives.

Advice to future scholarship holders

Four years in SSM will pass by before you know it. I have thoroughly enjoyed my time in SSM and I hope you will make a meaningful contribution to student life and to those around you.

Dr. Shannon Chia

E.W. Barker Scholar
SSM Class of 2013 (Pioneer Batch)

I had the privilege of being awarded the E.W. Barker Scholarship which allowed me to pursue both my studies and passion - Netball.

Being an avid sportswoman, I chose to enrol in the Nanyang Technological University (NTU) Sport Science and Management (SSM) programme when it was first launched in 2009. That year, I was also training alongside the National 19 and Under Post School Netball team. I had the privilege of being awarded the E.W. Barker Scholarship which allowed me to pursue both my studies and passion - Netball. That was my 10th year into the sport. During

my time as an undergraduate student, I also had the honour of representing NTU in both Netball and Handball. I picked up Handball in my first year and found myself developing a strong passion for it as it drew close resemblance to Netball. The Netball varsity team clinched two gold and two silver medals for the annual Inter-Varsity Polytechnic Championships while the Handball team came in second place during my three years of representation.

As a student-athlete, I was also actively involved in external sporting activities and represented my Netball club at the Netball Super League (NSL), where we were crowned champions of the league. The NSL prides itself as the most prestigious level of competition for Netball in the local scene. I am also very thankful for being given many research opportunities during my undergraduate studies, igniting a passion for research which led me to pursue a doctorate in sports science under a joint collaboration between NTU and Loughborough University. These research findings have also been respectively published in reputable journals - *Human Movement Science, Asian Pacific Journal of Education and the International Journal of Sport and Exercise.* I have recently completed my doctorate degree and my current job involves the promotion of health education to the general masses based on the "Exercise is Medicine" approach.

What we are currently pursuing

My current job involves strategic planning and integrating research into the core capabilities of Active Health – a national social movement under Sport Singapore which spurs the nation on in taking ownership of their health and wellness through an aspirational-focused ecosystem. The work is largely driven towards the establishment of evidence-based practices and advancing insight-driven research to address the changing needs of the people and landscape in Singapore to embrace active living.

"A smooth sea never made a skilled sailor" – Franklin D. Roosevelt

So, stand firm in your beliefs, keep fuelling your passion and when you are faced with obstacles, figure out how to climb it, go through it or work around it.

Dr. Alexander Mok

E.W. Barker Scholar
SSM Class of 2014

Our sports/academic achievements and service contributions during our SSM days

Some academic highlights during my time in Nanyang Technological University (NTU) were graduating as class Valedictorian and being awarded the Sport Science & Management (SSM) Gold Medal, and the Associate Professor Quek Jin Jong Book Prize for academics, leadership, and community service. One of my fondest memories was working on a social initiative to improve educational opportunities in schools for children with special needs and disabilities.

On the sporting scene, I represented NTU and National Institute of Education (NIE) in Varsity Tennis. I reminisce the camaraderie built with teammates as we won gold in the 2012 and 2014 Inter-School games. While on NTU's Global Education and Mobility (GEM) Programme in San Diego State University, I competed in the Varsity Intermediate Tennis League and finished the tournament as the Men's Singles Champion.

How the E.W. Barker Scholarship has helped us accomplish our academic & sport achievements

I am most grateful for the E.W. Barker Scholarship for it has given me valuable opportunities to present academic research at international conferences and to attend global education programmes in diverse countries such as Thailand, Japan, and the United States. These experiences have given me a multidisciplinary and global perspective across interrelated disciplines spanning public health, education, and sociology.

What we are currently pursuing

After graduating from NTU, I completed a PhD in population health sciences at the University of Cambridge and a Master of Public Policy (MPP) at the University of Oxford. Currently, I am working with the World Health Organisation (WHO) on strategies for controlling non- communicable diseases in the response to COVID-19.

Future hopes

Public health is influenced by a wide range of social, economic and environmental factors which lie beyond the remit of the healthcare sector. Much like how the late Mr. E.W. Barker was a statesman in diverse policy arenas spanning law, the environment, and national development — I aspire towards a public service career in multi-sectoral policymaking to tackle the various social determinants of health inequalities in Singapore.

Advice to future scholarship holders

Do explore the plethora of educational opportunities that NIE and NTU has to offer, such as international exchange programs, general education electives in broader disciplines, and research schemes with faculty. Completing NTU's Undergraduate Research Experience on CAmpus (URECA) programme with Dr. Stephen Burns, studying the physiology of exercise and nutrition on cardiometabolic health, was the impetus which motivated me to pursue a PhD in population health.

Importantly, do engage with and consult the dedicated, student-oriented staff and faculty. I am most grateful to them for nurturing several areas of my academic and professional development:

1) Expanding my interests in public health: (Mr. Azhar Yusof, Dr. Govindasamy Balasekaran, Prof. Michael Chia, Dr. Stephen Burns, Dr. Swarup Mukherjee, Dr. Teo-Koh Sock Miang, and Dr. Yang Yifan)

2) Research and analytical skills: (Dr. Adrian Kee, Dr. Stephen Burns, Dr. Veni Kong, and Dr. Yang Yifan)

As the SSM and PESS programmes bring together a pool of talented, like-minded individuals passionate about sports, do relish this esprit de corps, and get to know fellow classmates on an authentic level.

3) Community Service and Leadership: (Dr. Chow Jia Yi, Prof. John Wang, Ms. Julisa Binti Sulaiman, Dr. Koh Koon Teck, and Ms. Lee Jing Pei)

Finally, I am thankful to the late Mr. Edmund William Barker, his family, as well as donors of the E.W. Barker Fund for their contributions toward advancing scholarship in the science, management, and anthropology of sports and physical education.

Victoria Chan

E.W. Barker Scholar
SSM Class of 2014

I graduated from the Sport Science & Management (SSM) programme in 2015. Being awarded the E.W. Barker Scholarship lightened my financial burden, allowing me to focus more on my academics whilst providing an opportunity to pursue my passion in sailing as a student athlete. This eventually led to me clinching 1 gold and 2 silver medals at the 2011 and 2015 Southeast Asian Games and became the first Singaporean to achieve a podium finish at the World University Games in 2011 with a silver medal.

As a scholar, I was motivated to take up leadership roles to contribute back to the school community, including Treasurer of the Physical Education and Sports Science Committee and Secretary of the Yachting

Club, walking away with valuable life skills such as teamwork, communication and event management.

I currently work as a programme manager at PAssion WaVe @ Marina Bay, a curated community space under People's Association that offers a broad range of waterfront lifestyle programmes for the community. With the support of my organisation, I am glad to be returning to Nanyang Technological University to pursue my Master of Mass Communication at Wee Kim Wee School of Information in August 2020.

My advice to future recipients of the E.W. Barker Scholarship is to be open to change and seize every opportunity to keep moving forward to achieve your goals.

I would not be where I am in life without the generous support provided by this scholarship and urge those with the means to contribute to helping another generation of student athletes.

Shaun Kwek Seng Erng

E.W. Barker Scholar
SSM Class of 2019

Our sports/academic achievements and service contributions during our SSM days

I continued paddling even after my graduation from Singapore Polytechnic Dragon Boat (SPDB) Team and joined Nanyang Technological University Dragon Boat (NTUDB) Team since my first year in Sport Science & Management (SSM). Together with my brothers, throughout my four years in NTUDB, we managed to win the Prime Minister Cup – the highest achievement in the dragon boat competition among all the universities in 2015/16 and 2017/18. NTUDB managed to be titled as the team of the year for 2016, 2017 and 2018.

This exposure allowed me to have a real experience in the "Management" aspect in SSM as I decided to revamp the whole event structure and stations from scratch. Despite being the sole organiser of the entire event, I learnt the importance of having social connections with people in different industries.

Currently, I am leading NTUDB as a vice-captain for the season of 2018/19, mainly to utilise my knowledge I gained from SSM and my dragon boat experience accumulated since 2010, to aid the team and coach in the preparation of the team's physical conditioning in both land and water training. I was able to work closely with Ashley, my coach from NTUDB, who was also my coach while I was rowing in the National Youth Dragon Boat Team representing Singapore for the World Dragon Boat Race Championship in 2011. I was able to have proper communication with my coach and garner a common understanding on the pedagogy and periodisation of the team's performance.

SSM equipped me with relevant knowledge needed for me to be able to value add to the team's growth and it was truly satisfying to see results blooming with the aid of sport science. After going through some notable core modules like Anatomy, Sports Physiology, Biomechanics, Sports injuries, Sports Psychology, Heath & Wellness and Coaching, it opened my views on how interlinked these modules were and how one can actually use this knowledge and apply it to the relevant industry. I am glad to have a coach and a team that allowed me to demonstrate my knowledge and benefit from it.

As an E.W. Barker scholar, I was given the opportunity to host the annual E.W. Barker Challenge in 2017. This exposure allowed me to have a real experience in the "Management" aspect in SSM as I decided to revamp the whole event structure and stations from scratch. Despite being the sole organiser of the entire event, I learnt the importance of having social connections with people in different industries. Without Juliana, I would not be able to have the designs done up impeccably for the event. The event would not be successful without the assistance from the SSM Society as well.

How the E.W. Barker scholarship has helped us accomplish our academic and sports achievement.

I would like to thank the Barker family for the financial support through the scholarship. Being one many students who require financial aid, having the scholarship did not make me rich, but allowed me to feel debtless, and indirectly gave me more time for me to continue to be a competitive student-athlete. University is indeed different from my days in Polytechnic. The need to have constant revision throughout every week and not allowing any snowball effect accumulating over the week is definitely the key to survive academically. Without the E.W. Barker Scholarship, I would probably not be able to sustain my degree education. Having my tuition fees offset by the scholarship allowed me to continue excelling in dragon boat. Even working part-time outside of school, I could barely sustain a balance between my studies, work, and personal interest and being an athlete.

What we are currently pursuing

Currently, I am working towards being a PE teacher, which also mean that I will be enrolling myself in Postgraduate Diploma in Education (PE). After learning the importance of motor skills and getting to know about children with special needs, with no proper base work done at the young age, there is no point in talking about having athletes to excel at the professional level where the fundamentals are not sorted out while they were young. I am seeing myself contributing to the teaching industry with the knowledge gained through SSM.

Future hopes

I hope to see SSM students reaching out to the masses to help the public garner a better perspective on how science can be better utilised to benefit people of all age groups to lead a healthier lifestyle and enjoy the benefits derived from sports and physical activities.

Advice to future scholarship holders

Academic studies are important, but they are not everything. I took a daring move to take up a degree in SSM as my passion lies in sports even though I graduated from SP with a diploma with merit in Mechanical Engineering. Many people, even in their 30s are still figuring out what exactly what they want to do in life. Remember this, follow your passion and not giving up is more important than scoring straight A's and not enjoying the process. Once you are in the working field, you are locked down to work till your desired retirement age. Do you want to get stuck in doing work you enjoy doing? Or doing work you resent doing? Think long term. A degree is just a paper. Getting that paper without working experience is futile. Whenever possible, venture out into the working world and explore different industries, and feel which career is your cup of tea. Do not forget to enjoy the process while you still can!


Canon
Canon

Keith Saw

E.W. Barker Scholar
SSM Class of 2020

Our sports/academic achievements and service contributions during our SSM days

As a student-athlete representing Singapore in tenpin bowling, I have achieved one Gold Medal at the 2017 Southeast Asian Games, one Bronze Medal at the 2018 World Men's Bowling Championship and a third place finish at the H.H. Emir Cup in Qatar. However, all these achievements may not have been possible without the help of Sport Science & Management (SSM), who gave me the chance to participate in these competitions during the school period.

How the E.W. Barker Scholarship has helped us accomplish our academic & sport achievements

With the E. W. Barker Scholarship, I am able to balance between academic and sports without having to worry much about the financial aspects. The reduced worry allowed me to have more time to focus on being a student-athlete. In addition, the pride of being an E. W. Barker scholar reminds me to perform to the best of my abilities at all times, to be the best person I can be.

the pride of being an E. W. Barker scholar reminds me to perform to the best of my abilities at all times, to be the best person I can be.

What we are currently pursuing

Currently pursuing a degree in SSM and representing Singapore as a National tenpin bowler.

Future hopes

I hope to be part of the development of sports in Singapore. I wish to share my experiences and leverage them to grow the next generation of Singaporean athletes.

Advice to future scholarship holders

Opportunity is rare, when given, seize it, and cherish it.

Vivian Kor

E.W. Barker Scholar
SSM Class of 2020

Our sports/academic achievements and service contributions during our SSM days

I was given the opportunity to organise the 2018 E.W. Barker Challenge alongside two other scholars. The entire process from the planning, organising, sourcing and to execution of the event was enriching and fulfilling. I enjoyed every moment of it and it allowed me to expand my network and interact with other key members such as the Sport Science & Management (SSM) professors and members of the SSM Society. It was a fulfilling and rewarding experience.

I also did my internship at Lagardère Sports during my final year. As part of my internship, I was part of the Events Operations department as Lagardère Sports was the event organiser throughout the five-year contract with Women's Tennis Association (WTA) to host the annual WTA tennis tournament. 2018 being the last year was extremely important, and together with four other interns from SSM, we were part of the team behind the grand final WTA held in Singapore. I was extremely grateful to be part of the final edition of the WTA women's tennis tournament held in Singapore. The six months of internship was a gruelling experience. I was given new learning opportunities and was taken out of my comfort zone. I questioned my abilities in completing the objectives, but with the help of my colleagues and my SSM interns, we crossed the finishing line together and ended the event and internship on a great note. It is an experience that I will never forget and an accomplishment that I hold close to my heart.

It is an experience that I would never forget and an accomplishment I hold close to my heart.

How the E.W. Barker Scholarship has helped us accomplish our academic & sport achievements

The E.W. Barker Scholarship has allowed me to pursue my degree with a free mind, having less load on my shoulders in terms of financial matters. It allowed me to free up more time to participate in the areas of interest towards my sport, tennis, as I was actively participating in club and tournaments. Aside from that, I was able to direct my focus on my academic areas, as I explored more about sports management and the industry.

What we are currently pursuing

I am currently pursuing a career in the Sports Analytics sector.

Future hopes

I hope to move forward with the great experience I have garnered throughout the course of my study in SSM. I hope to secure a career in the Sports Analytics industry and apply my knowledge in different sports, and my deep passion and interest that I carry in sports in the future. I always see myself working in the sports industry and I carry high hopes that the sporting future in Singapore will only rise up in the near future. I am certainly excited and thrilled to witness what is to come.

Advice to future scholarship holders

My advice to future scholarship holders is to be open minded and to always seek opportunities to learn. Learning is a lifelong process and while we are young, never be afraid to step out of your comfort zone. You never know where these chances may take you and the new passion and interests that you may develop along the way.


NTU

E.W. Barker Challenge 2018

7. ONTO THE NEXT LAP

Associate Professor Koh Koon Teck

Head, Physical Education & Sports Science Academic Group

As we take stock and reflect on the aims and the intended goals of E.W. Barker Professorship and Scholarship, we are delighted with the affirmations provided by the past E.W. Barker Professors and E.W. Barker Scholarship recipients. Established more than a decade ago, the programmes nurtured and supported 28 Sport Science & Management (SSM) scholars. The positive comments given by industry partners about the quality of our SSM programme in preparing future-ready students are most encouraging. There is huge progress in the development of sports in Singapore over the

years, and many of our E.W. Barker scholars are 'paying it forward' and contributing their professional knowledge and skills to the sports fraternity by securing employment at Sport Singapore, the Ministry of Health, the Ministry of Education or as leaders in the fitness industry. They continue to add vibrancy, knowledge and management expertise and in doing so, raise the standards of excellence in sports and its associated industries.

In celebrating these achievements, it is timely to envision how the E.W. Barker Professorship and Scholarship schemes can scale new heights and benefit the physical education (PE) and sports community in the next decade and beyond. To be future-ready, staying relevant and responsive to the changing landscape in PE and sports are vital. Besides having world-class researchers and renowned practitioners provide critical lenses to improve our programmes and enhance the ecosystem of the PE and sports in Singapore, it is prudent to tap the academic and professional networks to expand our international reach and increase our global visibility.

The E.W. Barker Professors are specially invited for their academic and applied expertise and they hail from all corners of the globe, near and far-Malaysia, Australia, the United Kingdom, the United States of America and Canada. In a sense it is likened to bringing the 'ocean of PE and sports expertise in a drop' to 'a drop in the ocean' that is Singapore

All the E.W. Barker Professors foregrounded the special time and place occupied by the staff and students of PESS, NIE NTU. They provided strong affirmation for the excellent physical facilities, the talented and committed faculty and staff, the innovative curriculum anchored on a values-based and future-oriented pedagogy, the cutting-edge research grounded on strong theory-practice, the strong emphasis on practice-theory nexuses, and the quality teaching that is student-centred. PESS continues to attract the international and national sports intelligentsia for short and longer stints with a vibrant exchange of ideas and mutual learning. Indeed, Professor Laurence Chalip commended PESS for providing joint training in sports science and sports management for its graduates as unique, and potentially a distinct advantage that can rapidly propel PESS, NIE NTU, Singapore as an international leader in sports science and sports management.

The thoughtfully formulated and implemented research and development programmes for sports that fully integrate PESS with the industry via student internship and faculty research partnership are strategic and deliberate manoeuvres that situate NIE NTU, Singapore at the forefront of sports development worldwide. Nationally, the intermesh of PE, sports, sports coaching, and research, creates a vibrant 'maker-space' among students, faculty and staff for learning that is potentially life-wide, life-deep and life-long.

One measure of the impact of the Professorship scheme is the several thousands of PE teachers, coaches, sport administrators and athletes who benefited from the public talks. PESS faculty members continue to have research and publication collaborations with past and present E.W. Barker Professors. Moreover, these E.W. Barker Professors are the beacons that shine for PESS, NIE NTU, Singapore. Collectively, PE and sports in Singapore and the good name of our university is propagated and affirmed in countries near and far.

There is huge demand for qualified professionals in the sports industry as Singapore and Asia are hosting more global sporting events. In this regard, it is timely to launch a unique postgraduate programme in SSM to meet this growing demand for stronger and better qualified people to conceptualise, organise and run world-class sports events within and outside of Singapore. The feedback provided by the E.W. Barker professors, scholars, and industry partners guided the development of a pertinent and high-quality curriculum of this newly established postgraduate programme. The new programme will be attractive and useful to sport administrators in Asia, through which they will be equipped with relevant and in-depth knowledge of handling large-scale global events in the region.

One of the many wishes Mr. Barker had was to promote sports at all levels and benefit more people as reiterated by his family members. Going forward, the E.W. Barker Scholarship would be enhanced to benefit students with financial difficulties to allow more to pursue studies in the SSM. Eligible students with a good track record of commitment and passion in promoting and developing sports will benefit from the new scheme. We are confident that these schemes under the auspices of the E.W. Barker Professorship and Scholarship

schemes provide the key ingredients for motivating future generations of students to be active contributors to PE and sports and leaders who are humble, honest and humane in thought and deed.

PESS is doing more to better engage current and past E.W. Barker scholars and graduates via the SSM Alumni Association, social and sports events that allow current and former students to expand and deepen networks. The alumni who own or run businesses can lend support by providing internship opportunities for current students, and we hope that this perpetuates a laudable circle of learning, growing and 'paying it forward'.

These initiatives, among others allow PESS, NIE NTU, Singapore to be ready for the next decade and beyond. Majulah E.W. Barker Professorship and Scholarship schemes!

E.W. Barker Challenge 2019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