

In its third year of existence, NYSI continued to focus resources on targeted sports and youth athletes for better national outcomes.

To provide better support for youth athletes outside of SSP and improve the youth sports ecosystem, NYSI plugged gaps by building

seamless youth athlete and coach development pathways.

In view of our small talent pool, NYSI strove to support, identify and transfer high-performing youth athletes to reduce attrition and optimise talent.

NYSI IMPACT BY NUMBERS



1,575
Sessions

266
Youth Athletes



253
Sessions

5,582
Youth Athletes



1,236
Sessions

500
Youth Athletes



3,064
Sessions



6,348
Youth Athletes



548
Coaches



150
Parents

164

164 industry professionals attended the 3rd Youth Athlete Development Conference

211

211 coaches attended the 3rd Youth Coaching Conference

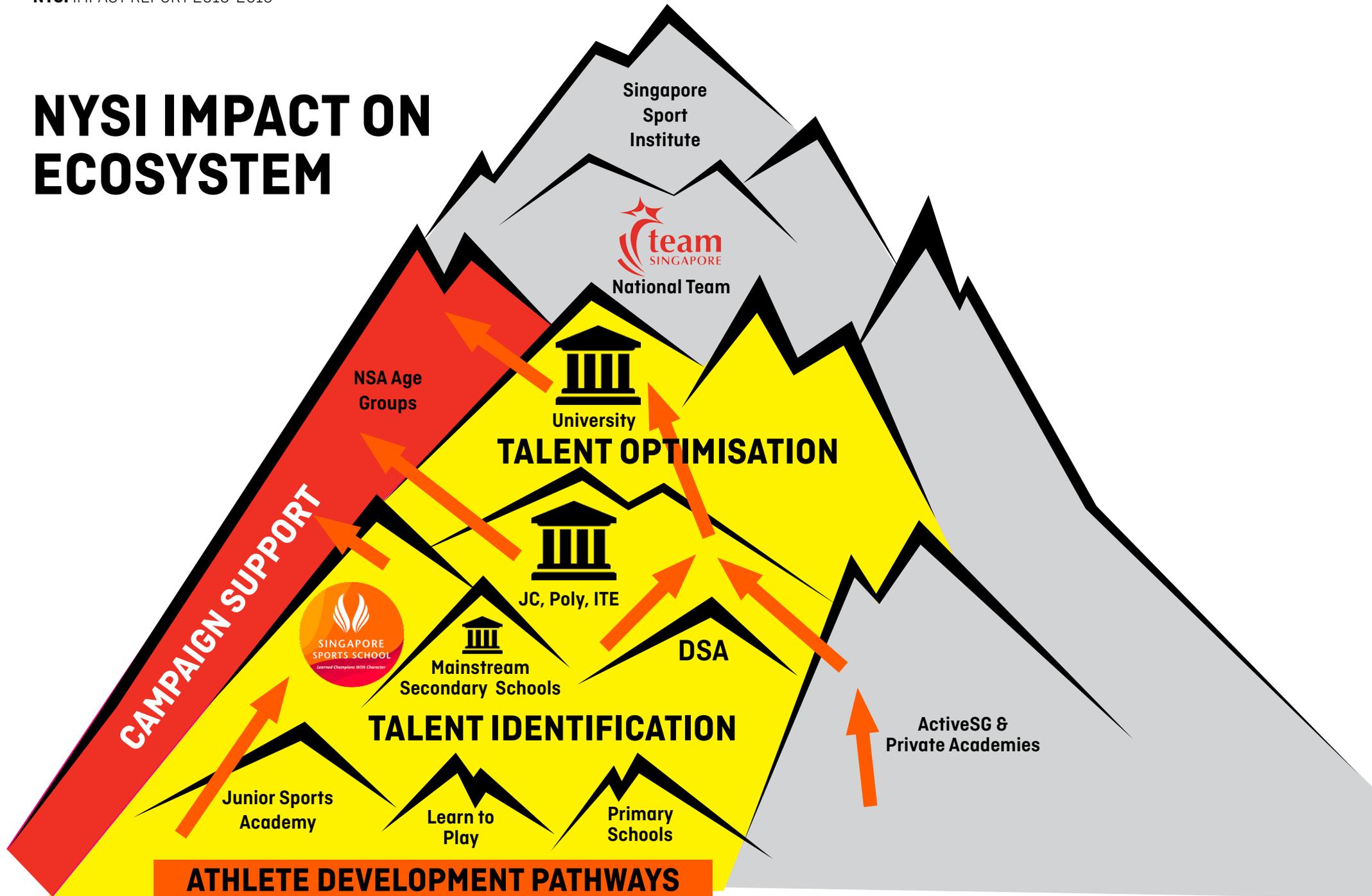
300

NYSI tested over 300 youth athletes for the TOP Athlete Programme

10

NYSI Sport Science staff have published 10 papers since 2016

NYSI IMPACT ON ECOSYSTEM



CAMPAIGNS NYSI HAS SUPPORTED

NYSI has supported the Singapore National Olympic Council, National Sports Associations, the Ministry of Education, and the Singapore University Sports Council in their overseas campaigns.

The support for our youth athletes has included strength and conditioning, psychology, nutrition, performance analysis, physiotherapy, coaching, and athlete life.



● **Youth Olympic Games**
Buenos Aires, Argentina
6-18 Oct 2018

CAMPAIGNS NYSI HAS SUPPORTED



NYSI SUPPORTED 18 ATHLETES FROM 10 SPORTS IN YOUTH OLYMPIC GAMES LEAD-UP



NYSI supported 18 Singaporean youth athletes in the lead up to the Youth Olympic Games (YOG) held in Buenos Aires, Argentina from 6 to 18 October 2018. They represented Singapore in 10 sports.

Six of our athletes finished top-8 in their sport. Jaslyn Hooi came closest to medalling when she finished fourth in the women's badminton singles tournament. Her achievement was all the more remarkable as she had an ankle sprain in the preliminary round.

LEFT: The Singapore contingent at the 2018 Youth Olympic Games.

Back row, L-R: Ong Jung Yi, Koen Pang, Matthew Lim, Kampton Kam.

Middle row, L-R: Alexander Lim, Chia Teck Pin, Christie Chue, Maximilian Ang, Mark Chan, Joel Koh.

Front row, L-R: Amanda Mak, Marsha Shahrin, Sophia Meyers, Emma Middleditch, Gan Ching Hwee, Goi Rui Xuan, Jaslyn Hooi.

Six of our athletes finished top-8 in their sport. Jaslyn Hooi came closest to medalling when she finished fourth in the women's badminton singles tournament.

"I do wonder if my performance would have been better if I hadn't sprained my foot but I have no regrets because despite that sprain, I really gave my all at YOG," Jaslyn reflected.

"Jocelyn Yong (NYSI Physiotherapist) rushed down immediately to make sure I was okay after she heard the news (of my sprain). From then on, she was with me every step of the way during the games."

NYSI Sport Science staff held workshops and one-on-one sessions for the athletes to prepare them.

"As some of the athletes had not been to a major games prior to YOG, it was important that they kept their head in the nutrition game regardless of the distractions, unfamiliarity and stress of the YOG," said Dr Jamie Lye, who conducted nutrition workshops to help the youth athletes become independent and self-sufficient.

Gabriel Choong, NYSI Physiologist, also worked with the youth athletes on sleep. He noticed an improvement in their sleeping habits which allowed them to train and prepare better leading up to the YOG.



"Jocelyn Yong (NYSI Physiotherapist) rushed down immediately to make sure I was okay after she heard the news (of my sprain). From then on, she was with me every step of the way during the games."

– Jaslyn Hooi, women's badminton

ABOVE: Jaslyn Hooi came closest to a medal with a fourth-place finish in the YOG women's singles tournament.



“I feel that the help NYSI provided me with has benefitted me holistically, both physically and mentally.”

– Kampton Kam, high jumper

“The youth athletes learnt the importance of sleep and good pre-sleep routine to get enough good quality sleep after the one-to-one discussions. Results of the sleep monitors we loaned to them showed improved sleep quality and quantity, which meant they were practicing and reaping the positive outcomes of better recovery,” Gabriel shared.

“YOG being my first major games and international world competition, I had no idea what to expect,” said Kampton Kam, who represented Singapore in the high jump and finished 7th.

Kampton was ranked top-10 in the world in his age-group heading into the YOG. In the build-up to the games, NYSI worked with him and his

coach to deliver targeted nutrition, psychology, physiotherapy and strength and conditioning support.

Our 2018 Youth Olympians

- Kampton Kam** Athletics
- Jaslyn Hooi** Badminton
- Joel Koh** Badminton
- Tamara Ong** Gymnastics
- Matthew Lim** Fencing
- Sophia Meyers** Sailing
- Chia Teck Pin** Sailing
- Marsha Shahrin** Sailing
- Alexander Lim** Sailing
- Amanda Mak** Shooting
- Mark Chan** Sport Climbing
- Gan Ching Hwee** Swimming
- Christie Chue** Swimming
- Ong Jung Yi** Swimming
- Maximillian Ang** Swimming
- Koen Pang** Table Tennis
- Goi Rui Xuan** Table Tennis
- Emma Middleditch** Triathlon

LEFT: Kampton Kam finished 7th at the YOG.

Athletes that finished top-8:

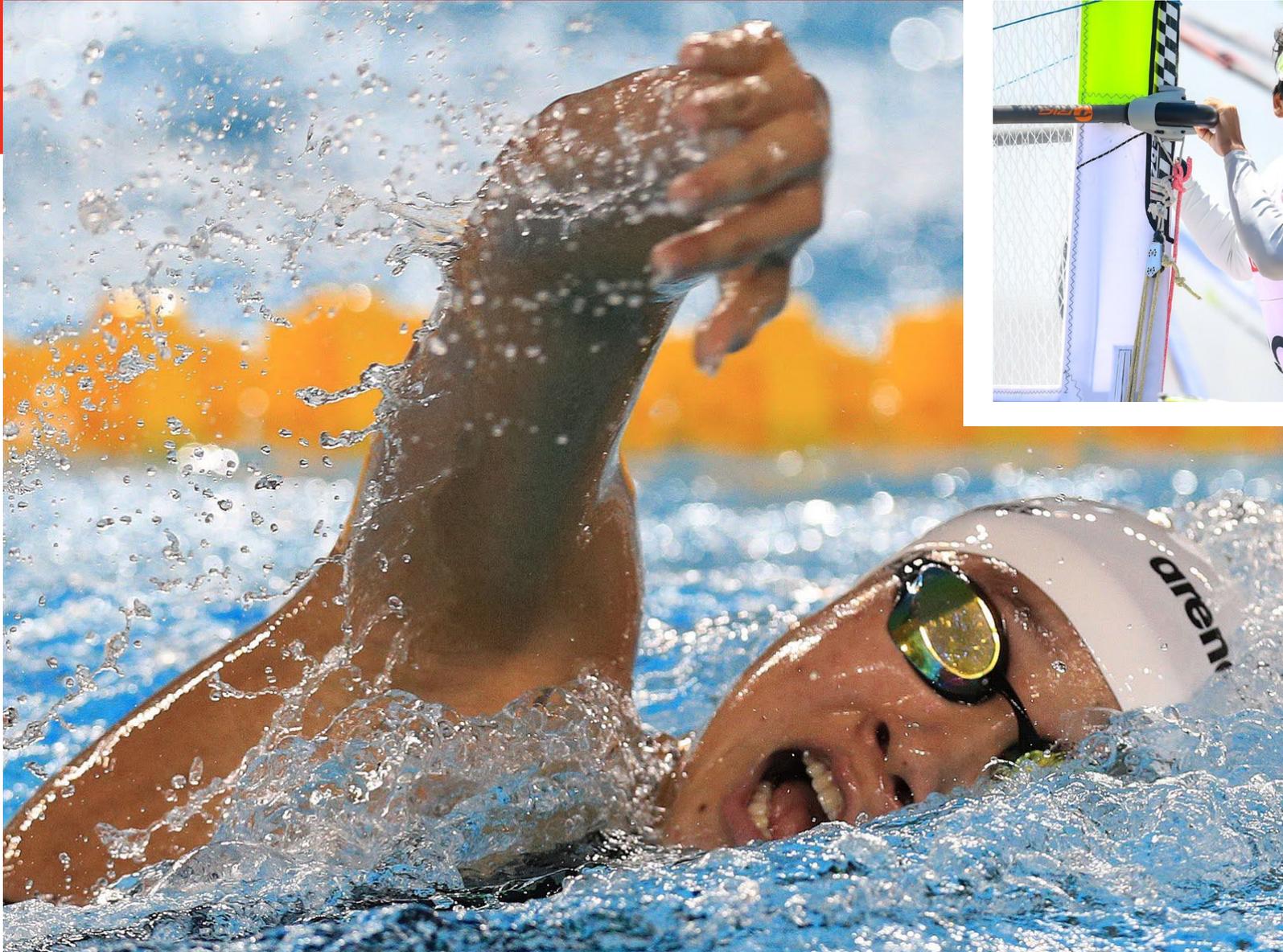
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|---|---|
| Kampton Kam Athletics, High Jump, 7th | Alexander Lim Windsurfing, 7th |
| Jaslyn Hooi Badminton, 4th | Maximillian Ang Swimming, 200m Breaststroke, 7th |
| Gan Ching Hwee Swimming, 800m Freestyle, 6th | Koen Pang Table Tennis, 8th |



ABOVE: Maximillian Ang, Swimming, 200m Breaststroke, 7th.



RIGHT: Koen Pang, Table Tennis, 8th.



ABOVE: Alexander Lim,
Windsurfing, 7th.

LEFT: Gan Ching Hwee,
Swimming, 800m
Freestyle, 6th.

YOUTH NETBALLERS WON BRONZE TO SURPASS EXPECTATIONS AT 2018 WORLD UNIVERSITY C'SHIP



WUNC team players and officials

Top row, L-R: Christopher Koh, Sherlyn Ng Yun Lin, Brenda Poh Ing Ting, Callista Koh Xin Zhi, Vera Phang Jia Li, Alicia Tan Li Yin, Sabina Cheah Xuan, Andrea Chen (NYSI), Nur Adilah binte Masismadi (NYSI), Caroline Ang (SUSC).

Bottom row, L-R: Marilyn Cheong, Rindy Lok, Tabitha Ong Jie Yi, Dawne Lim Wan Yi, Tan Shi Ni, Chanya Lee, Joanne Loo (NYSI), Kynneth Chang (SUSC).

The Singapore university netball team clinched the bronze medal at the 2018 FISU World University Netball Championship (WUNC) held in Kampala, Uganda from 17-21 September 2018.

The National Youth Sports Institute (NYSI) provided the 12 student-athletes financial, sport science, and coaching support in the lead up to the Championship.

Joanne Loo, NYSI Netball Head Coach, led Singapore to an opening match win against Kenya (39-38), before proceeding to defeat Zimbabwe (45-40) and Sri Lanka (62-37).

Singapore lost to South Africa (11-92) and hosts Uganda (19-77). Despite the loss against USA (37-41), the team emerged third on goal difference.

“WUNC is one of the most amazing and inspiring coaching journeys I have been on. We were very process-driven as we wanted to achieve our team objectives in both attack and defense. With that, the results took care of itself,” Joanne commented.

Supporting the coaches in the lead up was the NYSI Sport Science team in the areas of psychology, nutrition, physiology, strength and conditioning, and physiotherapy.

Christopher Koh, the assistant coach, said, “The support from NYSI is very good in terms of the provision of facilities and resources for training.”

“The support from NYSI is very good in terms of the provision of facilities and resources for training.”

– Christopher Koh, assistant coach

“We wouldn’t have made it this far without NYSI’s constant support and belief that the WUNC is a competitive platform that can inspire potential Institute of Higher Learning (IHLs) student-athletes. There were many obstacles along the way but the NYSI heads working collectively with Joan Yuliani and Caroline Ang (Singapore University Sports Council representatives) kept assuring us and helped us work around the constraints every time,” recalled Joanne.

The netballers responded positively to the NYSI support.

“WUC was one of my best netball experiences. I enjoyed playing together with a really bonded, driven team. It was an eye-opening experience as it was my first international competition and to be given the opportunity to lead the team alongside Tabitha Ong (Captain),” said Alicia Tan (Vice-Captain).

“NYSI Coaching improved my skills and understanding of the



game. S&C and physiology better prepared my body for the physical demands of the game. Psychology helped us to better understand our team and focusing on a common goal. Nutrition also taught us how to take care of our bodies which are very beneficial to us athletes,” she added.

“NYSI Coaching improved my skills and understanding of the game.”

– Alicia Tan, Vice-Captain

Team List:

- | | |
|--------------------------------|------------------------------|
| Alicia Tan Li Yin (22, NTU) | Merilyn Cheong (21, NTU) |
| Brenda Poh Ing Ting (24, SIM) | Rindy Lok (19, NUS) |
| Callista Koh Xin Zhi (22, SIM) | Sherlyn Ng Yun Lin (20, NUS) |
| Chanya Lee (21, NTU) | Tabitha Ong Jie Yi (23, NUS) |
| Sabina Cheah Xuan (23, SUSS) | Tan Shi Ni (23, NUS) |
| Dawne Lim Wan Yi (23, NUS) | Vera Phang Jia Li (20, NUS) |

ABOVE: Tabitha Ong of Singapore in action against hosts Uganda.

NYSI STABILISED TRACK AND FIELD ATHLETE DEVELOPMENT PATHWAY

In December 2018, Singapore track and field student-athletes returned from the ASEAN University Games (AUG) with two gold, four silver, and five bronze medals. It was Singapore's best track and field medal haul since the 2010 AUG. The AUG provides a good indication of the athletes who will go on to compete at the Southeast Asian (SEA) Games.

At every major games, track and field offers upwards of 40 medals. Singapore has struggled to do well in the sport in recent decades at the SEA level. At the 2017 SEA Games, Singapore returned with two gold, two silver, and four bronze medals.

The National Youth Sports Institute (NYSI) provided financial and sport science support for the student-athletes in the lead up to the Games. This AUG support is part of NYSI's overall support to stabilise the track and field athlete development pathway.

Brian See, 23, of the National University of Singapore, threw personal bests in both the discus and shot put at AUG, finishing second and fourth respectively. Apart from financial support, an NYSI Sport Dietitian provided nutrition support to help Brian gain 5kg in muscle mass in the lead up to AUG. An NYSI Strength and Conditioning Specialist also provided support to improve the quality of Brian's training.

"The nutrition support I received from NYSI was really helpful – before, during and after competition," said the second-year NUS civil engineering undergraduate.

"For example, I learnt that having sips of isotonic drinks during competition is really helpful to ensure that the brain remains active, and also had advice



"The nutrition support I received from NYSI was really helpful – before, during and after competition."

- Brian See of NUS

TOP: Brian See, 23, of NUS, threw a personal best 14.72m to win the shot put silver at the 2018 AUG in Myanmar.



TOP: Local IHL student-athletes got an opportunity to learn from the experiences of the visiting Waseda University track and field team in February 2019.

LEFT: Ivan Ee, NYSI Performance Analyst, takes a video of a Waseda University sprinter for analysis.



on the certain kinds of food I should consume before and after competition to help with preparation and recovery," added Brian.

Track and field suffers from a high attrition rate. To reduce attrition among athletes after major life stages (O- and A-Levels, International Baccalaureate, National Service), NYSI put in place support for younger track and field student-athletes. NYSI brought together promising student-athletes and actively sought to place them in training groups to help them adjust to the next stage of life.

NYSI also established collaborative partnerships with Waseda University of Japan and the Japan Association of Athletics Federations (JAAF). The partnership saw Japanese training contingents visit Singapore to train and share their experience with local coaches and student-athletes. The partnership also paved the way for IHL student-athletes to train in Japan as well.

AUG 2018 Medalists

GOLD

Shanti Pereira
100m (11.74s)
200m (24.12s)

BRONZE

Vanessa Lee
5,000m (19:43.94)

SILVER

Ang Chen Xiang
110m Hurdles (14.44s)

Nicole Low
10,000m (40:40.22)

Nabin Parajuli
3,000m Steeplechase (9:58.04)

Brian See
Shot Put (14.72m)

Jeevaneesh S/O Soundararajah
5,000m (15:47.80)

Jeevaneesh S/O Soundararajah
10,000m (33:28.64)

Ang Wei Lu
Long Jump (5.37m)

Vanessa Lee
3,000m Steeplechase (11:46.80)

YOUTH SHUTTLERS GET OVERSEAS EXPOSURE THROUGH NYSI-HKSI COLLABORATION

The National Youth Sports Institute (NYSI) struck an understanding with the Hong Kong Sports Institute (HKSI) in 2018 to provide higher level overseas training opportunities for Singaporean youth athletes.

Since 2013, HKSI has been hosting Joint Development Camps to provide sparring opportunities for their youth athletes. In 2013 and 2014, HKSI hosted youth athletes from the Japan Sport Council, and in 2017 and 2018, they played host to the Sichuan Hong Kong Jockey Club (HKJC) Olympic Games School.

The collaboration with HKSI also provided opportunities to share sport science data, talent identification protocols, and staff exchange.

NYSI sent six male and two female badminton athletes to a Joint Development Camp that HKSI hosted from 4-8 March 2019. There were also 16 youth athletes from the Sichuan HKJC Olympic Games School.

The four-day camp included sport-specific training, friendly competitions and sport science workshops. The participating contingents were only required to cover the cost of travel to and from Hong Kong. HKSI covered the cost of accommodation, airport transfers, meals and facilities.

Kevin Lim, Singapore Badminton Association (SBA) High Performance Manager led the eight-person contingent to Hong Kong. "The sparring session with the Hong Kong Youth Team was definitely very fruitful and beneficial for our youth players as their standards are generally above



"The sparring session with the Hong Kong Youth Team was very fruitful and beneficial for our youth players as their standards are generally above us, especially for the girls. The support given to us by the HKSI personnel was exceptional."

- Kelvin Lim, SBA High Performance Manager

ABOVE: 8 badminton athletes were selected to join the Joint Development Camp organised by the Hong Kong Sports Institute (HKSI).

BELOW: The youth athletes learnt how to make a nutritious meal during the Nutrition workshop.



us, especially for the girls," said Mr Lim. "The support given to us by the Hong Kong Sports Institute personnel was exceptional. They were always on hand to meet our needs, training or otherwise."

Mr Lim also observed that the Hong Kong and Sichuan athletes were physically stronger than the Singaporeans.

The collaboration has opened the door for NYSI to send youth athletes from other sports. In addition to badminton, there are opportunities in the future to send Singaporean youth athletes to train with Hong Kong athletes in sports where Hong Kong has had Asian Games success. These sports include athletics, fencing, gymnastics, sailing, table tennis and wushu.

Boys

Melcom Lim
Lee Zhiyuan
Kubo Junsuke
Wesly Koh
Lucas Saw
Justyn Sim

Girls

Ong Xi Qing
Ashley Lim

NYSI PROVIDED TRAINING SUPPORT FOR SINGAPOREAN YOUTH SAILORS THROUGH COLLABORATION WITH WAIS



The National Youth Sports Institute (NYSI) supported a contingent of 8 Singaporean youth sailors to train in Perth, Australia, to prepare for the upcoming Youth Sailing World Championships from 13 to 20 July 2019.

NYSI collaborated with the Western Australian Institute of Sport (WAIS) to set up two training camps for the sailors in Perth from 24 to 30 March 2019.

The 29er sailors headed to Royal Freshwater Bay Yacht Club while the radial sailors trained at Fremantle Sailing Club.

NYSI made full use of the strong winds in Perth which are similar to the conditions in Gdynia, Poland, the venue of the Youth Worlds, and designed the camp to increase the training frequency, volume, and intensity.

“NYSI was able to support these athletes and provide them valuable training hours to hone skills that can be employed not only just for the Youth Worlds, but for the rest of their athletic development,” said Xu Yuanzhen, NYSI Performance Pathway Manager.

NYSI collaborated with the Western Australian Institute of Sport (WAIS) to set up training camps for the sailors in Perth.

The training camp allowed the sailors to reinforce good training and competition habits. They were able to independently discern between food options, maximise their nutritional value during meals for performance, and remain hydrated throughout the trip. They also conducted their own physical training and stretching routines.

Left to right: Shawn Goh, Poh Yong Hao, Faith Hailey Toh, and Riane Lee launching their boats for training.





ABOVE: Singapore Sailing Federation Coach Jackson Ho (second from left) gives the 29er sailors some rigging tips for their boats.

Laser Radial Sailors

- Chin Jia Xuan
- Simone Chen Wenqi
- Lee Wonn Kye
- Lee Hao Zhe

29er Sailors

- Faith Hailey Toh
- Riane Lee
- Shawn Goh Aik Swee
- Poh Yong Hao

A session was also held where sailors who had sailed before in Gdynia shared their experience with their teammates.

“Over the course of the training camp, I was reminded of how persistent the sailors were in the face of challenges. There were days where the athletes sailed for up to 7 hours in testing winds,” said Yuanzhen.

To help accelerate the learning curve of the sailors, NYSI hired a professional video crew to capture video footage of the sailors in action. The training videos, shot from multiple angles, are meant to reinforce the youth sailors’ learning.

“The Icarus crew were well versed in sailing and assertive about the quality of the recordings. This is important for us as performance analysts to be critical about the areas that we want to capture in a video feedback session,” said Ivan Ee, NYSI Performance Analyst.

NYSI TESTED OVER 5,000 UPPER PRIMARY STUDENTS IN 2019 JSA TRIALS

The National Youth Sports Institute (NYSI) tested 5,182 upper primary school students in March 2019 in selection trials for the Junior Sports Academy (JSA). This is an increase from the 4,301 students tested in 2018. This is the fourth year running that NYSI has helped design and conduct these selection trials to support the Ministry of Education.

The students were put through a battery of tests to assess their speed, agility, balance, power, and endurance. The best 1,000 movers will get an opportunity to learn four sports in the JSAs. Students learn each sport in a 15-week programme before moving on to the next sport.

“The JSA trials allow us to identify some of our best movers early so that we can give them the opportunity to learn multiple sports in the academies,” said Dr Esther Chia, NYSI Head of Talent Identification and Development. “The scientific research literature shows that many athletes who do well at senior levels play multiple sports in their developmental years and do not specialize until their late teens.”

For Mr Wong Chia Ming, 40, whose child is in Loyang Primary School, the JSA trials were an opportunity for his son.



LEFT: Amelia Tan of NYSI demonstrates the ball toss test at the JSA Selection Trials to upper primary school students.



TOP: Matthew Wyld (left) and Dr Harry Lim of NYSI demonstrate the vertical jump test to upper primary school students at the JSA Selection Trials.



LEFT: Ivan Ee of NYSI demonstrates the Y-balance test to upper primary school students at the JSA Selection Trials.

“The JSA trials allow us to identify some of our best movers early so that we can give them the opportunity to learn multiple sports in the academies.”

– Dr Esther Chia, NYSI Head of Talent Identification and Development

“My son has been involved in badminton, football, and swimming since he was in Primary 2. When he received the letter I thought it was a great opportunity to expose him to more sports,” said Mr Wong.

In 2019, NYSI also piloted a one-year development programme (30 weeks) for four sports. This gave students with an interest to deepen their learning in a sport.

NYSI also piloted transformational coaching practices for four JSA classes. NYSI provided workshops for the coaches of these classes, taking them through the principles of transformational coaching. NYSI Youth Coaching staff also served as mentors for these JSA coaches to help them put transformational coaching principles into practice.

The upper primary students also got a chance to try out the ‘I LIKE’ online software, a product developed jointly with Ghent University. The software helped students find out what sports they would potentially enjoy playing based on their preferred movement patterns.

“‘I LIKE’ allows a child to understand the range of sports he or she may be better at. This may encourage a child to try a variety of sports,” said Dr Chia. “It is also more likely for the child to pursue excellence in the sport that he or she enjoys.”

NYSI also engaged parents of JSA students to show them the options available to their children after the JSA programme is completed. Dr Harry Lim, NYSI Psychologist, also gave a talk for parents to better understand how to manage the various transition phases and potential challenges their child may face.

NYSI ESTABLISHED NATIONAL PROGRAMME TO IDENTIFY AND TRANSFER TALENTED STUDENT-ATHLETES



In 2018, NYSI put in place the TOP Athlete Programme, a systematic and deliberate plan of identifying and transferring talented youth athletes.

ABOVE: NYSI identified Vera Phang (back row, second from right) for transfer into netball. She had no prior experience in the sport.

When the Singapore team won the bronze medal at the World University Netball Championship in September 2018, one of the 12 student-athletes in the team was Vera Phang Jia Li. A year before, the business studies undergraduate was playing basketball and had never played netball.

When Joanne Loo, NYSI Netball Head Coach, first scouted her, the then 19-year-old was playing captain's ball on a Sentosa beach during an NUS sports carnival.

"My first impression of her is that this girl was a tall, tough nut. She had the physical presence and even got gritty during the captain's ball game against the stronger men," recalled Joanne. "Upon selection, she went through a fitness assessment together with the rest of the netball players. Overall, she exhibited a good physiological performance and topped the vertical jump test."

"As a swimmer in primary school and a basketballer in secondary school, Vera adapted to the new netball environment very quickly. The inclusive culture set by her teammates and led by captains also contributed to the success of this talent transfer. We hope to help Vera transit into Women's Water Polo in the near future," added Joanne.

"It was an eye-opening experience for me as it was my first netball competition and I was really grateful for this opportunity," said Vera. "NYSI's support helped me prepare in terms of strength, as well as ways to recover."

In 2018, NYSI put in place the TOP Athlete Programme, a systematic and deliberate plan of identifying and transferring talented youth athletes like Vera. Since there are only about 30,000 live births every year in Singapore, the programme aims to give as many talented youth athletes the chance to go as far as they can in the national high-performance system.

“The TOP Athlete Programme is part of an overall focus to increase the quality and quantity of youth talent for the national high-performance system,” said Dr Esther Chia, NYSI Head of Talent Identification and Development.

“We want to maximise the potential of our youth athletes. Some youth athletes develop later in life and we want to identify them and give them a shot at donning national colours. Others may have found themselves hitting a ceiling in a sport. We want to give them the chance to represent Singapore in another sport if they have the ability and desire to do so,” added Dr Chia.

The programme has seen NYSI staff visit all Singapore universities and the Institute of Technical Education (ITE). NYSI also held an open testing for the public at the National Stadium over a weekend. NYSI staff have tested just over 300 student-athletes since the start of the programme with a battery of tests that assess speed, strength, and endurance. Student-athletes who met the benchmarks were invited back for a second round of testing where they were put through a VO2 max test.

One such athlete is Koh Wei Shien, 24, of the National University of Singapore. The psychology undergraduate grew up in the United States of America from the age of 3 to 18 and played a variety of sports – American football, track, basketball, and soccer.

The TOP Athlete Programme is meant to support youth athletes like Wei Shien who have the potential but receive no systematic help. NYSI has put in place a support programme to help him qualify for the 2019 Southeast Asian Games as part of the Singapore 4x400m relay team. The programme provides him coaching, nutrition, performance analysis, and strength and conditioning support.

“The TOP Athlete Programme is part of an overall focus to increase the quality and quantity of youth talent for the national high-performance system.”

– Dr Esther Chia, NYSI Head of Talent Identification and Development



ABOVE: Koh Wei Shien running the beep test. NYSI went down to Eusoff Hall, NUS, to conduct testing for the TOP Athlete Programme.

NYSI EXPOSED YOUTH URBAN SPORTS ATHLETES TO HIGH PERFORMANCE ENVIRONMENT IN UK



The National Youth Sports Institute (NYSI) collaborated with the Youth Sport Trust (YST) in 2017 to provide an opportunity for high performing youth athletes to participate in their 2018 Talent Inspiration Programme (TIP).

Supported by the National Lottery funding from Sport England, and delivered by YST, the 2018 School Games provides a multi-sport platform for talented youth athletes from across the United Kingdom. Over a span of four days, 1,036 youth athletes competed across 11 sports, five of which included disability disciplines, at venues within the Loughborough University campus.

A group of eight Singaporean youth athletes from Sport Climbing, Skateboarding, and BMX Racing were selected through their respective National Sports Associations (NSAs). They were

LEFT: Luke Goh (second from left) of Singapore takes aim during the Laser Run.

given the opportunity to participate in a Laser Run event. Apart from this, the youth athletes also attended various workshops conducted by former British athletes who achieved success in their sport. These workshops included Mock Press Conferences, Planning for Improvement, Planning for Performance, and Athlete Wellbeing.

A Singaporean youth athlete said, "It was a tough but fun experience competing in Laser Run. This experience allowed me to be able to try another sport which I have never participated before. It gave me the opportunity to gain more exposure and to make friends with many other athletes."

Overall, it was a positive experience for the athletes and 88% of the youth athletes indicated they would attend the programme again in a post-trip survey.



<p>Sport Climbing</p> <p>Ayeisha Johnstone Janice Gwee Jarrell Soh Glenna Tan Luke Goh</p>	<p>BMX Racing</p> <p>Teo Yun Khai Mas Ridzwan</p>	<p>Skateboarding</p> <p>Muhammad Shadiq</p>
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ABOVE: The Singaporean youth athletes with former British Paralympic swimmer, Kate Grey, who conducted the Mock Press Conference workshop.



“With the inclusion of youth urban sports in the Tokyo and Paris Olympic Games, many countries will be looking to rapidly develop athletes in these sports.”

– Matthew Wylde, NYSI Head of Performance Analysis

“I saw how the Talent Inspiration Programme allowed young athletes from diverse backgrounds a chance to learn and be inspired by great sportsmen,” said Xu Yuanzhen, NYSI Performance Pathway Manager.

“Until recently, youth urban sports such as Sport Climbing, Skateboarding and BMX had not been part of the high performance sport narrative,” said Matthew Wylde, Head of Performance Analytics.

“However, with the inclusion of these sports in the Tokyo and Paris Olympic Games, many countries will be looking to rapidly develop athletes in these sports. The TIP provided us with the perfect opportunity to expose our youth urban sports athletes to a high performance environment,” added Matthew.

LEFT: Ayeisha Johnstone (#5, yellow) and Glenna Tan (yellow) of Singapore taking part in the Laser Run.

“A HOLISTIC APPROACH OPTIMISES THE ENVIRONMENT FOR TALENT DEVELOPMENT” – DR STAMBULOVA

The National Youth Sports Institute (NYSI) held its third Youth Athlete Development Conference at The Projector, Golden Mile Tower on Friday, 9 November 2018.

Conference guest speaker, Dr Natalia Stambulova, spoke about the importance of creating an optimal sporting environment.

“A lot of young athletes are coming in at the grassroots level. When they continue in the development pathway, more people start dropping out. Therefore, having a holistic approach optimises the environment for talent development,” said Dr Stambulova, a professor at Halmstad University, Sweden.

The second conference guest speaker, Dr Shona Halson, focused on sleep and its effect on performance. Dr Halson said, “When sleep is inconsistent, training is inconsistent. When you can level out sleep and get it at an appropriate level, then training starts to become more consistent.”

If Singapore wanted to change its sports culture, Dr Stambulova said a dual career system is important.



RIGHT: Dr Stambulova sharing about the importance of the athletic talent development environment.

If Singapore wanted to change its sports culture, a dual career system is important.

“WE HUMANS SUFFER FROM COGNITIVE BIASES. THE SCIENTIFIC METHOD CAN OVERCOME THE PERSONAL EXPERIENCE WEAKNESS IN COACHING” – DR HALPERIN



The National Youth Sports Institute (NYSI) held the 3rd Youth Coaching Conference (YCC) at the Institute of Lifelong Learning from 25 to 26 January 2019.

Conference guest speaker, Mr Andrew Pichardo, a PhD candidate of SPRINZ AUT, spoke on the importance of a nurturing environment for long term sporting success.

“When we want to create a nurturing environment, you have to be creative in ways to engage youth athletes and keep them coming back for more,” Mr Pichardo said.

When asked about training easily-distracted adolescents, Mr Pichardo emphasised the need to make the training engaging while keeping the purpose of the drill in mind. He also said it was necessary to “give positive reinforcement to groups of kids who can do it”.

The second conference speaker, Dr Israel Halperin, a postdoctoral researcher at the Memorial University of Newfoundland, highlighted ways to bridge the science-practice gap for coaches. Dr Halperin provided strategies on how coaches can adopt an Evidence-Based Practice (EBP) so that they can use sport science to improve their craft.

“We humans suffer from a number of cognitive biases. Our memory is malleable. There are so many different biases that influence our thinking and cloud our judgment, therefore we do not make an optimal decision,” Dr Halperin explained. “If done properly, the scientific method can overcome many of the personal experience weakness.”

The NYSI sport science staff also introduced participants to the Adaptive Skills Training Model (ASTM). To enhance performance in the main sport, ASTM adapts similar movement patterns in training to stimulate movement connectivity and skill transference through variation. Facilitated by NYSI staff, participants had to think through and try out ways to incorporate ASTM into their sport.



ABOVE: Mr Andrew Pichardo applied the Youth Physical Development Model for training youth athletes in a workshop by demonstrating certain mobility drills that youth coaches can use for warm-ups.

LEFT: Dr Israel Halperin (centre) and Mr Andrew Pichardo (extreme right) answering questions from the participants. “Email them,” was Dr Halperin’s encouragement to coaches who do not have access to sports scientists. He said that sports scientists welcome working with coaches.

YOUTH ATHLETES RECEIVED NYSI R&D SUPPORT



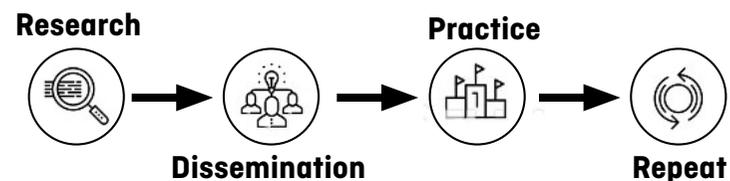
The research initiatives are driven by the need to translate exercise and sport science research findings into pragmatic applications for the practitioner.

ABOVE: Dr Haresh Suppiah, NYSI Senior Sport Physiologist, has led the NYSI Sport Science team in the various research projects over the years.

NYSI’s Research & Development (R&D) facilitates novel multidisciplinary projects in applied sport science to improve the performance of Singaporean youth athletes.

The research initiatives are driven by the need to translate exercise and sport science research findings into pragmatic applications for the practitioner.

Beyond its applied R&D projects, the team works towards enhancing awareness of research findings and industry best-practices, within the field of athlete development, through its various scientific communication platforms.



He, Q, & Suppiah, H. T. (2019). **Daylight Savings Time Transitions on Football Injuries and Key Performance Indicators in the Bundesliga: A Web-Scraping Approach.** Sport Performance Science Reports, 38

Summary of findings

The research explored the effects of sleep disruption due to daylight savings time on injury incidence and football performance. A novel data collection method (web-scraping) was utilized to obtain data from matches played in Germany’s top three leagues. Findings showed a 37.5% increase in injury incidences following daylight savings onset. Beyond these findings, the study also highlighted novel data collection methods using Python programming to the sports science community.

Wee, J.F., Lum, D., Lee, M., Roman, Q., Ee, I & Suppiah, H. T., [2019]. **Validity and reliability of portable gym devices and an iPhone app to measure vertical jump performance.** Sport Performance Science Reports, 36

Summary of findings

We assessed the accuracy of three different commercially available gym devices and a mobile application in measuring the vertical jump. The mobile application was highly accurate across three jump measures. The study highlights for coaches the availability of affordable, yet rigorous, measures to assess athlete performance using wearables or mobile devices.

Suppiah, H. T., Low, C. Y., Choong, G. C. W., & Chia, M. [2016]. **Restricted and unrestricted sleep schedules of Asian adolescent, high-level student athletes: effects on sleep durations, marksmanship and cognitive performance.** Biological Rhythm Research, 47(4), 505-518.

Summary of findings

Napping has often been highlighted as a useful countermeasure against daytime sleepiness. While napping has positive outcomes, our findings highlight varying influences of a nap on different sports performance measures. For instance, performing a sprint test within an hour of waking from a nap could result in poorer performance times. In a practical sense, there is a need to consider the athlete’s age, napping habits and performance variable of interest when determining if a nap will be useful or detrimental to sport performance.

IMPACT BY NUMBERS

No. of research papers published in

2016



2

No. of research papers published in

2017



1

No. of research papers published in

2018



4

No. of research papers published in

2019



3

To read more about NYSI sport science research, please click on the QR code:



NYSI Scientific Communication Initiatives



16

No. of Research Bytes interviews: 16 interviews with top international sport scientists and researchers



6

No. of Research Bytes videos: 6 videos on sleep, hydration, coaching



4,610

Research Bytes EDMs: 4,610 opens (start to date), 43.4% average open rate

IMPACT BY NUMBERS



\$285k

Research grant funding secured: \$285k



3

No. of research projects involving SSP (2016-present): 3

1. Fluid balance and hydration practices of high-performance Singaporean youth athletes
2. Effect of light therapy on performance and daytime sleepiness in youth shooting athletes
3. Exercise induced cardiac remodelling in elite Asian youth athletes: A model of positive cardiac adaptation (EICR) [ongoing]