


IMPACT REPORT FY21-22





"NYSI is a steward of and critical partner in an athlete-centric Singapore high-performance sport ecosystem.

Our aim is to support youth athletes to realise their sporting aspirations and potential, thereby inspiring the Singapore spirit and uniting the nation."

- Dr Su Chun Wei, Director, NYSI



Dr Low Chee Yong, NYSI Deputy Director, giving the opening address at the NYSI Youth Coaching Conference 2022.

"Our vision at NYSI is to have role model youth athletes developed through multiple, inclusive pathways who are seamlessly supported by an integrated Singapore high-performance sports system."

- Dr Low Chee Yong, Deputy Director, NYSI

362

no. of youth-
carded athletes
supported

550

no. of Sports
School athletes
supported



Charmaine Lim, NYSI Strength & Conditioning Specialist, conducting a training session.

IMPACT BY NUMBERS



Chan Tin Wing, NYSI Dietitian, providing support to swimmer Maximillian Ang.

4,199

total no. of sport science sessions

IMPACT BY NUMBERS

1,285

no. of strength &
conditioning sessions

420

no. of performance analytics
sessions

946

no. of nutrition sessions

363

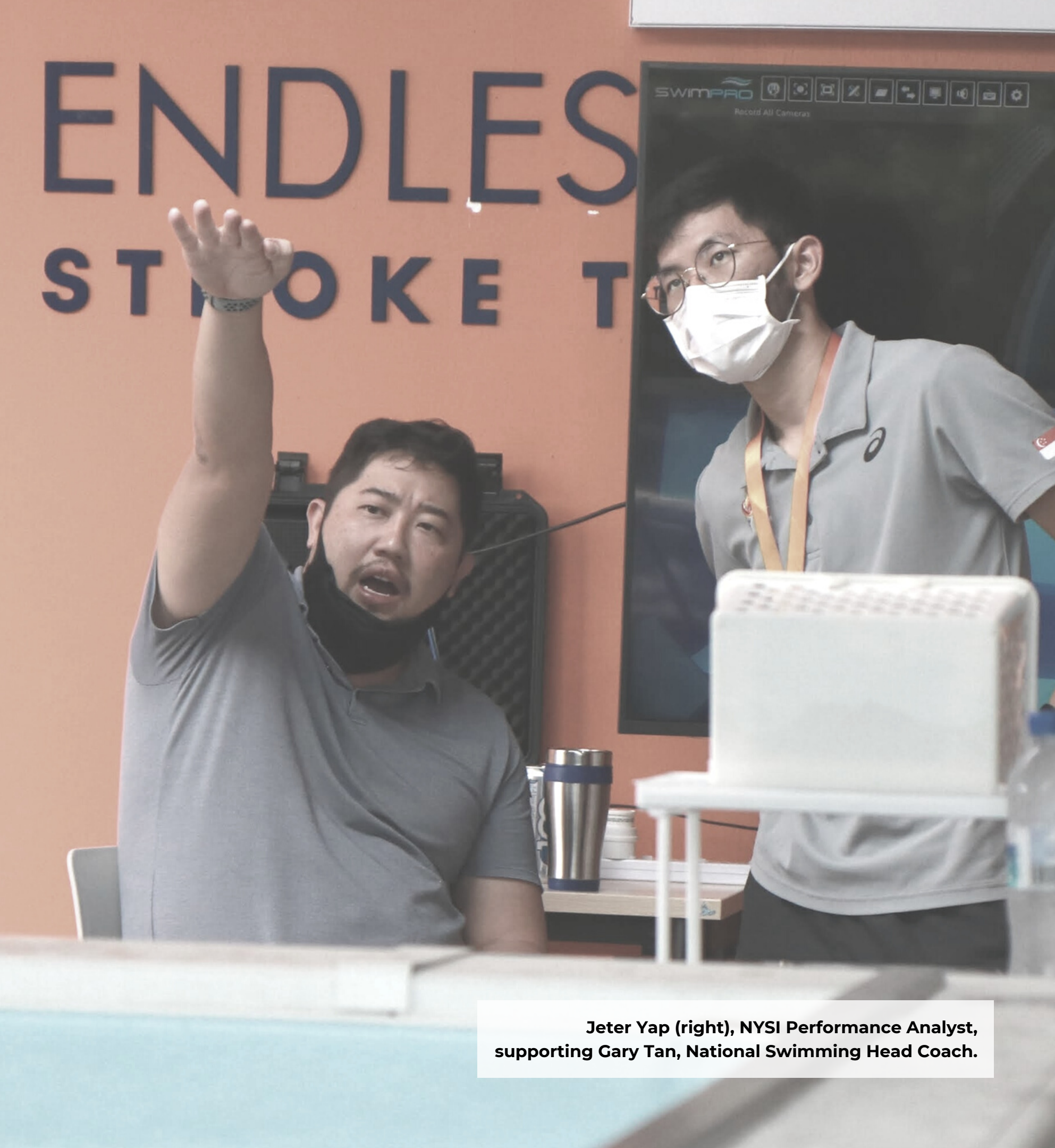
no. of physiology sessions

880

no. of physiotherapy sessions

323

no. of psychology sessions



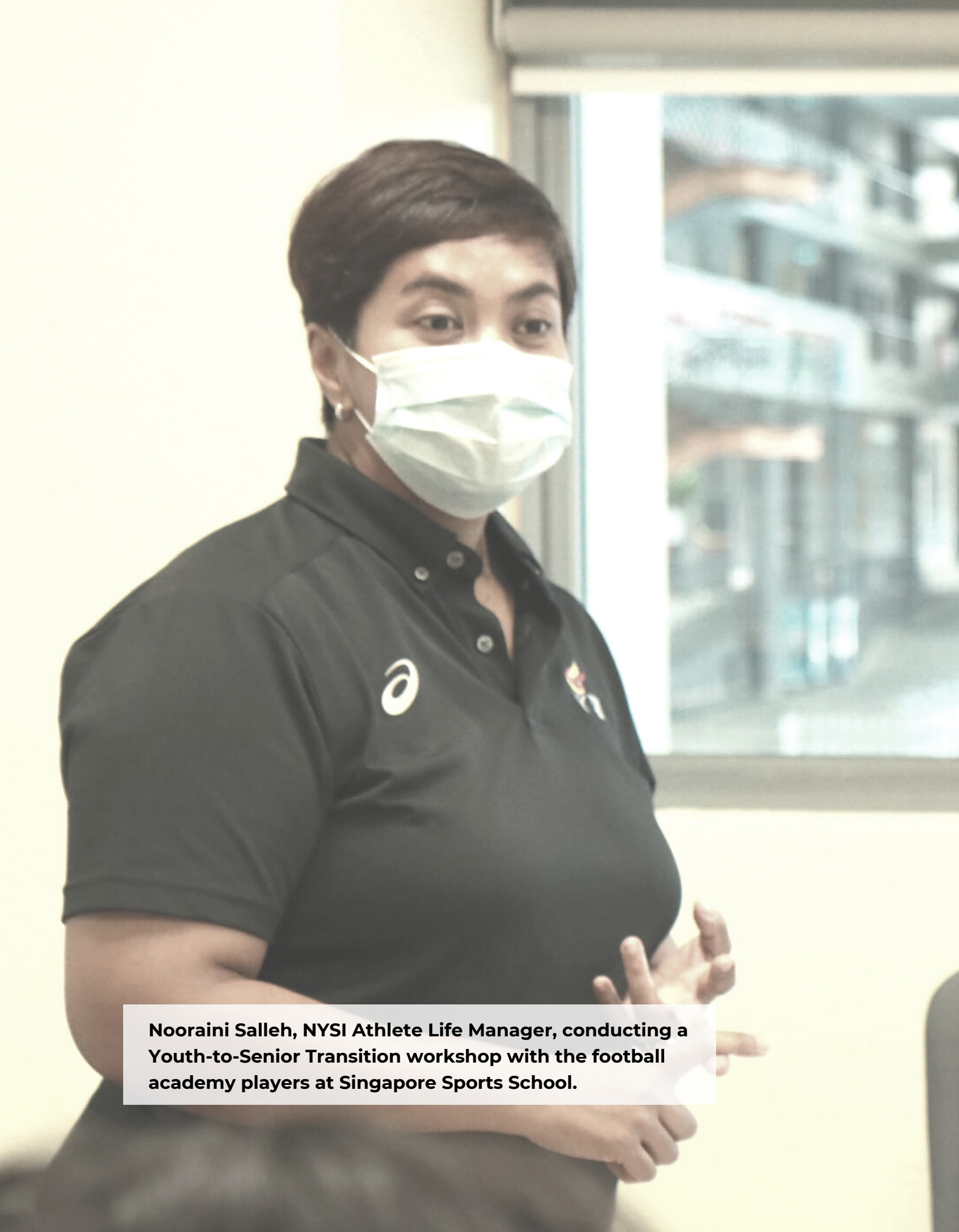
Jeter Yap (right), NYSI Performance Analyst, supporting Gary Tan, National Swimming Head Coach.



Julian Lim, NYSI Strength & Conditioning Specialist, explaining a training set.



Shermaine Lou, NYSI Sport Psychologist, conducting a workshop with the swimmers at Singapore Sports School.



Nooraini Salleh, NYSI Athlete Life Manager, conducting a Youth-to-Senior Transition workshop with the football academy players at Singapore Sports School.


ATHLETE LIFE

The Athlete Life department continued its rollout of the Youth-to-Senior Transition Programme in support of Sports School and NSA athletes.

To enhance our support for youth athletes, Athlete Life staff with professional counselling skills were also brought on board to provide better mental health support and meet the athletes' psychosocial needs.

205

no. of athlete life sessions



Nur Adilah Binte Masismadi, NYSI Performance Pathways Manager, coordinating support with Bill Lee, SCF Head Kayak Sprint Coach.

CANOE/KAYAK

Transdisciplinary Support

The NYSI Performance Pathways team drives the transdisciplinary support for youth-carded athletes in our high-performance system. This approach sees NYSI specialists actively integrate the different disciplines – physiology, strength and conditioning, nutrition, psychology, physiotherapy, performance analytics, and counselling – to find solutions to real-world problems that our athletes face. The NYSI support for the Singapore Canoe Federation (SCF) illustrates this approach.

HOLISTIC ECOLOGICAL APPROACH

Lewis Chew (left), NYSI Performance Pathways Manager, conducted a Holistic Ecological Approach study in collaboration with SCF. The aim of the study was to help SCF develop a thriving athletic talent development environment so that the sport would have a better athlete development pathway.

Lewis Chew, NYSI Performance Pathways Manager, at the NYSI Youth Coaching Conference 2022.

INJURY PREVENTION

Andrea Chen (left), NYSI Physiologist, conducted screenings of all youth-carded kayakers. This ensured that each youth athlete knew what they had to focus on to prevent injury, e.g., limiting their body rotation to focus on activating their obliques, or how a tight hip flexor was impacting their trunk rotation.

Andrea Chen, NYSI Physiotherapist, doing a trunk rotation analysis for one of the kayakers to prevent injuries.



PHYSIOLOGICAL ASSESSMENTS

Dr Zac Leow (top left), NYSI Physiologist, and Jeter Yap (right), NYSI Performance Analyst, also spent time with the athletes to conduct K4 1000m lactic measurements and VO₂ peak tests. The team then came up with bespoke workout proposals based on those results.



TALENT OPTIMISATION PROGRAMME

The NYSI Talent Optimisation Programme provides athletes who have the ability and desire to transfer to another sport a shot at representing Singapore at major games. One such athlete is David Mok (right).



David was spotted by Helena Wong in Jan 2021 at the Institute of Technical Education and she convinced him that he had the ability to represent Singapore in weightlifting.

David, who used to rope skip, then decided to enrol at the Singapore Sports School to pursue a polytechnic diploma to give himself the best environment to balance his sport and studies.

David went on to set a new national snatch record in 55kg category and qualify for the 2022 Commonwealth Games.



Lewis Chew, NYSI Performance Pathways Manager, and Coach Helena Wong oversee the training of David Mok, a weightlifter in the NYSI Talent Optimisation Programme.

SINGAPORE ATHLETE DEVELOPMENT PLAYBOOK

NYSI developed a playbook to consolidate our key learnings over the past five years. The playbook integrates stakeholders' efforts through a uniquely Singaporean athlete development framework which provides everyone with a common language.



Dr Esther Chia, NYSI Head of Talent Identification and Development, wrote the Playbook with her team and in collaboration with representatives from Singapore Sports School and SportSG.

FDES FRAMEWORK

One of the three key anchors in the playbook is the FDES framework.

The framework provides guiding principles for how an athlete's development should look like at the various stages, and the different stakeholders' roles in nurturing the athletes.

The framework provides a whole-of-sport overview that is meant to be practical and flexible for each sport.



ACTIVESG
MINISTRY OF EDUCATION

COACHSG & NATIONAL SPORTS ASSOCIATIONS

SINGAPORE SPORTS SCHOOL
NATIONAL YOUTH SPORTS INSTITUTE

SINGAPORE SPORT INSTITUTE



FDES FRAMEWORK

The framework illustrates developmental drivers at the sport- and systems-level to allow stakeholders a clearer understanding of their role and that of others in the ecosystem.

213

no. of online participants at 2021 Youth Athlete Development Conference

Schvelle Ng, NYSI Talent Identification Specialist, moderating a panel of elite youth athletes at the conference.



IMPACT BY NUMBERS

4,472

total no. of students at the YADC fringe event

Dr Joanna Li, NYSI Talent Identification Specialist, taking students on a learning journey.





Jun Mizushima, NYSI Youth Coaching Manager, sharing with the coaches attending the Youth Coach Acceleration Programme.

YOUTH COACHING

The NYSI Youth Coaching department collaborated with CoachSG to develop the SG-Coach Competency Framework.

To enhance learning and provide additional coach continuing education hours, YC Online 2 was launched as well.

A Youth Coaching Acceleration Programme was also initiated for selected promising youth coaches.

253

no. of coaches
signed up for YC
Online 1

75

no. of coaches
signed up for YC
Online 2

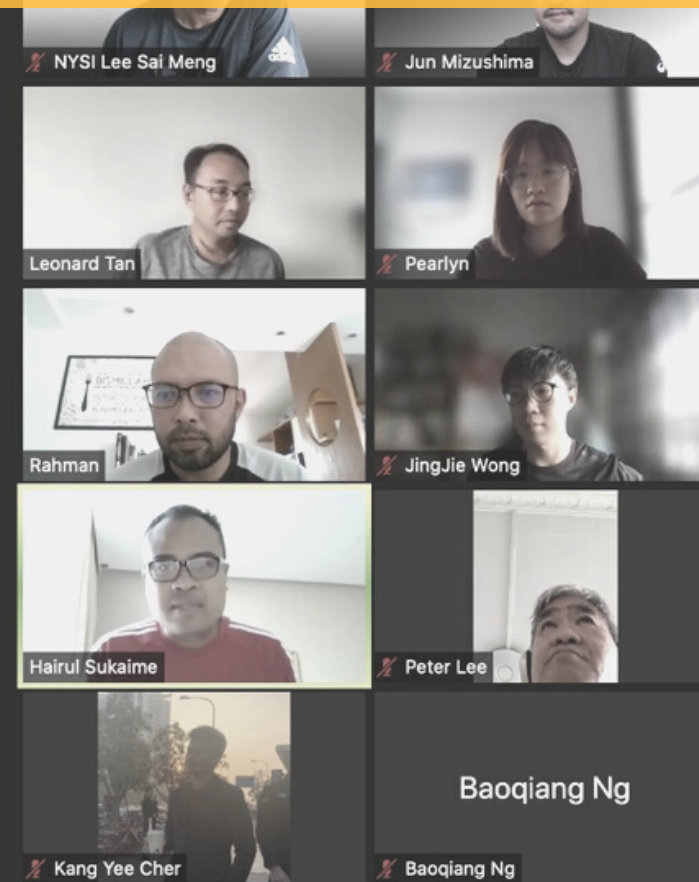


Joanne Loo, NYSI Youth Coaching Team Lead, sharing about her experience as a netball coach.

IMPACT BY NUMBERS

NATIONAL
YOUTH
SPORTS
INSTITUTE

Blended-Learning Workshop
Lifelong learner, Growth Mindset, Role model



7

no. of blended-
learning
workshops

77

no. of participants at
blended-learning
workshops

167

no. of participants at 2022 Youth
Coaching Conference

Participants onsite at the 2022 Youth Coaching
Conference which had a hybrid format.



IMPACT BY NUMBERS



Jun Mizushima (second from right), NYSI Youth Coaching Manager, with
participants of the Youth Coach Acceleration Programme.

11

no. of coaches in Youth Coach
Acceleration Programme

RESEARCH

NYSI's Research and Development (R&D) department focuses on optimising the performance of youth athletes through applied sport science research support.

The R&D department also collaborates with local and international sports institutes and universities.

Over the years, the NYSI R&D approach has evolved from a multidisciplinary to a transdisciplinary one, with the NYSI-Sports School Living Lab at the forefront of such projects.



Dr Neha Malhotra, NYSI Sport Psychologist and Research Coordinator, conducting a workshop on how to prepare for performance for the Bowling Academy athletes at Singapore Sports School.

1,122

no. of Research Bytes
(RB) subscribers

13

total no. of RB releases



IMPACT BY NUMBERS



6 no. of RB videos

4 no. of RB newsletters

3 no. of RB video interviews

PREDICTING YOUTH ATHLETE SLEEP QUALITY AND THE DEVELOPMENT OF A TRANSLATIONAL TOOL TO INFORM PRACTITIONER DECISION MAKING. SPORTS HEALTH, 14(1), 77-83.

Suppiah, H. T., Swinbourne, R., Wee, J., He, Q., Pion, J., Driller, M. W., Gastin, P. B., & Carey, D. L. (2022).

The positive relationship between sleep and overall athlete health has gained increasing recognition over the last decade.

A cross-sectional study with level 3 evidence was carried out to identify key predictor variables or athlete self-report measures, using feature reduction techniques involving questionnaires completed by 115 elite youth athletes.

Results revealed that the sleep quality of elite youth athletes is best predicted by specific sport participation, training, and sleep hygiene habits.

From a practical perspective, these findings could inform education and interventions around the identified training and sleep factors to optimise the sleep characteristics of elite youth athletes.



EXP

**THE IMPACT OF TOURNAMENT LOAD ON
NEUROMUSCULAR FUNCTION, PERCEIVED WELLNESS
AND COACH RATINGS OF PERFORMANCE DURING
INTENSIFIED YOUTH NETBALL COMPETITION.
JOURNAL OF SCIENCE IN SPORT AND EXERCISE**

Lee, M., Wee, J., Dobbin, N., Roman, Q., Choong, G. (2022).

There is a paucity of research on intensified tournament load on neuromuscular function, perceived wellness and coach ratings of performance amongst youth netballers.

This study examined these factors across two six-day netball tournaments across 39 female youth netballers and found that a higher tournament load resulted in greater increases in neuromuscular fatigue, reduced perceived wellness, and lower ratings of performance.

From a practical perspective, pre-tournament preparation and monitoring strategies should be considered to minimise the physiological disturbances during an intensified tournament.



Marcus Lee, NYSI Physiologist, was the lead author of this paper published in the Journal of Science in Sport and Exercise.

PLACEMENT OF INERTIAL MEASUREMENT UNITS IN RACKET SPORTS: PERCEPTIONS OF COACHES FOR IMU USE DURING TRAINING AND COMPETITION. INTERNATIONAL JOURNAL OF RACKET SPORTS SCIENCE, 3(1), 45-55.

Wylde, M. J., Masismadi, N. A., Low, C. Y., Callaway, A. J., & Williams, J. M. (2021).

Inertial measurement units (IMU) are a crucial part of sports performance analysis and have been used in racket sports to measure limb loading. However, coaches have concerns over the potential of the IMUs interfering with athlete movement.

This study surveyed 58 racket sport coaches and the results revealed that coaches had concerns regarding the IMUs causing inconvenience and discomfort to the athletes and their appearance, even though they understand the benefits of collecting data.

From a practical perspective, IMUs have the potential to be part of regular monitoring in racket sports but practitioners should seek to address coaches' concerns to enhance their acceptance and athletes' adherence.



Matthew Wylde, NYSI Head of Sport Science, was the lead author of this paper published in the International Journal of Racket Sports Science.

