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JOINT MEDIA RELEASE

Driving Innovation for Healthier, Longer Lives

Second phase of the Future Health Technologies programme (FHT2) targets clinical translation of promising AI and robotics across musculoskeletal health, mental well-being and rehabilitation aimed at narrowing Singapore's healthspan-lifespan gap

Singapore, 28 March 2026 — To drive innovation in healthy ageing technologies, the Singapore-ETH Centre's Future Health Technologies (FHT) 2 Programme — in partnership with the National Research Foundation (NRF), Singapore, ETH Zurich, NHG Health and Nanyang Technological University, Singapore (NTU Singapore) — was launched today. Together with Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine), Duke-NUS Medical School, University of Zurich, and Bond University, the FHT2 programme aims to translate cutting-edge research into practical solutions that advance foundational research and help Singaporeans stay mobile, mentally well, and independent for longer. This second phase is funded by a S$37.9million investment, including a S$30.5million commitment from NRF Singapore as well as contributions from ETH Zurich, NHG Health, and NTU Singapore.

Mr John Lim, Chief Executive Officer, National Research Foundation and Chief, Public Sector Science & Technology Policy and Plans Office, officiated the launch of the FHT2 programme at the Scientific Congress held as part of the NHG Health Musculoskeletal Day 2026.

The move marks another step that Singapore is taking towards closing the gap between how long individuals live and how healthy they live.

Addressing Critical Healthcare Challenges

While life expectancy in Singapore is one of the highest in the world at 85 years, its health expectancy is around 74 years. Individuals on average spend their last 11 years in ill health, marked by disability and disease. The FHT2 programme addresses this challenge through three integrated focus areas: Musculoskeletal Health and Mobility; Mental Well-being and Cognitive Health; as well as Rehabilitation and Recovery.

"The FHT2 programme marks a shift towards proactive, technology-enabled healthcare. By strengthening musculoskeletal health alongside mental well-being and rehabilitation, we can address the root causes of functional decline of our ageing population more effectively and improve their quality of life and independence," said Assistant Professor Bryan Tan, Co-Director of the FHT2 programme and Co-Chair of the Musculoskeletal Integrated Care (MusIC) Workgroup at NHG Health. He is also an orthopaedic consultant surgeon-scientist at Woodlands Hospital, and an Assistant Professor at the Lee Kong Chian School of Medicine, NTU Singapore.

Translating Innovations Across Three Key Areas

- **Musculoskeletal Health and Mobility**
  Musculoskeletal disorders account for the largest share of Years Lived with Disability (YLDs) at 25.0%[1]. Additionally, falls cause 85%[2] of geriatric trauma cases seen in Singapore's emergency departments, with the resulting fractures being the primary cause of disability among older adults. Hip fractures in particular carry one-year mortality rates of 10-20%.

  To address these significant health challenges, the musculoskeletal health module focuses on six interconnected innovation areas spanning prevention to personalised treatment. Key developments include AI-enhanced digital twin technology for rapid fracture prediction and advanced fall risk assessment through community-based wearable sensors. The module will also include community-based fall prevention programmes for those found to be at elevated fall risk. The deployment of computer vision technology through projects such as VIGILANT[3] builds on the foundation established in FHT1 and introduces new capabilities in FHT2.

  The module also encompasses AI-powered risk communication systems and patient-derived bone organoid models to investigate how patients will respond to different interventions. Findings from the module's projects will inform assessment models designed to simulate how the risk of injurious falls in Singapore can be most effectively managed, directly aligning with the goals of Healthier SG *(refer to Annex A: Fact sheet — Musculoskeletal Health Innovations for FHT2*).

- **Mental Well-being and Cognitive Health**
  In the mental well-being and cognitive health domain, FHT2 is developing a Precision Digital Therapeutics platform that integrates LLMs, behavioural science, and real-world data. This core infrastructure can potentially be reusable to build apps across multiple use cases that aims to support personalised, scalable interventions aligned with preventive, personalised care. For example, the platform will be used to explore conversational, resilience-building support for anxiety, depression and stress in youth as a use case.

  To address cognitive decline, FHT2 will further develop an application from FHT1, to assess and train cognition embedded in real-world navigation. This can enable community-based monitoring and more targeted care pathways that support ageing in place.

- **Rehabilitation and Recovery**
  The rehabilitation module seeks to create scalable technologies for upper limb rehabilitation following stroke, including soft robotics and AI-enabled interventions designed for home use. It addresses practical barriers such as access, cost and continuity of care by bringing advanced rehabilitation directly to patients' homes.

  The integrated approach across all three modules aims to achieve measurable reductions in fall- and fracture-related admissions, improve cognitive and mental health outcomes, and increase uptake and effectiveness of upper-limb stroke rehabilitation, ultimately extending healthy years of life for the world's including Singapore's ageing population.

International Collaboration Driving Clinical Translation

"This programme exemplifies the power of international collaboration in addressing complex healthcare challenges," said Professor Manu Kapur, Director of Singapore-ETH Centre and an ETH

[1] Global Burden of Disease (GBD) 2023 Study

[2] Yeo, Y. Y. C., Lee, S. K., Lim, C. Y., Quek, L. S., & Ooi, S. B. S. (2009). A review of elderly injuries seen in a Singapore emergency department. Singapore Medical Journal, 50(3), 278-283.

[3] The VIGILANT (Vision Integrated Intelligent Assessment) walkway system, developed by Rehabilitation Research Institute of Singapore, NTU and Woodlands Hospital, uses AI and computer vision to measure physical biomarkers like gait speed and grip strength to predict falls, frailty, and cognitive decline.

Zurich professor. "ETH Zurich, through SEC, brings together its research and innovation capabilities with Singapore's clinical expertise and implementation experience, developing solutions with relevance for health issues faced by ageing populations globally."

Looking ahead to the programme's next phase, Professor Benedikt Helgason, Director of the FHT2 programme and ETH Zurich professor, added: "The FHT programme was driven by a bold vision to reimagine health systems powered by technology, centred on people and integrated into everyday life. With FHT2, we are now translating these innovations into real-world healthcare settings to deliver meaningful impact."

Added Professor Joe Sim, Group CEO of NHG Health: "NHG Health is excited to embark on FHT2 in collaboration with ETH Zurich and NTU. We are grateful for the research grant from the National Research Foundation, which demonstrates confidence in the programme's potential to reimagine care and support healthy ageing across physical, mental and cognitive domains. We look forward to working closely with our FHT2 partners to leverage the programme's clinical translation capabilities to deploy proven AI-driven sensing, robotics, as well as coaching and modular behavioural systems into real-world solutions that can be adapted and implemented at our hospitals, polyclinics, communities and homes."

Building on Strong Foundations

FHT2 builds on the success of the FHT1 programme, which concluded in March 2026. Key achievements from the current programme include validated gait-based fall risk models using low-cost sensors; digital twin modelling and simulation approaches for fracture prediction; the SPACE (Spatial Performance Assessment for Cognitive Evaluation) cognitive screening tool for early detection of dementia; the LvL UP smartphone app that was tested with over 1,000 participants; and the RehabGym concept with robotic rehabilitation devices for stroke patients, successfully commercialising the ReHandyBot through Articares and advancing the Tenoexo soft robotic hand orthosis for home-based therapy *(refer to Annex B: Fact sheet - Building on Strong Foundations: FHT1 Achievements).*

Building on these foundations, FHT2 emphasises clinical translation, moving promising technologies from research laboratories into real-world healthcare settings by 2030, while shifting care upstream from treatment to early detection, prevention and functional recovery in the community.

The flagship Scientific Congress advocating proactive, life-course musculoskeletal health management was attended by some 300 participants, including experts from the clinical, scientific, academic communities.

Health Fiesta Celebrates Community Wellness

Concurrent with the Scientific Congress, Minister for Health and Coordinating Minister for Social Policies Mr Ong Ye Kung officiated the Health Fiesta, which brought together more than 800 residents and community partners to celebrate holistic musculoskeletal health. The event, themed "Move Well, Live Well, from Early Years to Golden Years", demonstrates the practical application of FHT2's community-focused approach to healthy ageing. It featured interactive activities designed to engage residents across all age groups in understanding and maintaining their musculoskeletal health throughout their lives. Community partners also showcased preventive health programmes and demonstrate how the built environment can be transformed to encourage physical activity and healthy living. During a tour of the exhibition booths, Minister Ong viewed the prototype of a new pod design for the Community Health Post (CHP) which will be rolled out at NHG Health's enhanced CHPs progressively after the pilot.

At the Health Fiesta, residents also learnt more about NHG Health's frailty screening and management programme, "Be Fit, not Frail" (BFF), where seniors aged 60 and above are assessed on five areas — cognitive function, mood and emotional wellbeing, nutrition status, as well as

mobility and fall prevention. (*refer to NHG Health's Factsheets on Community Health Pod, and Be Fit, not Frail*).

Both the Scientific Congress and Health Fiesta represent a key milestone in Singapore's commitment to preventive healthcare, demonstrating how research, clinical expertise, and community engagement are working together to address the challenges of an ageing population and bridge the healthspan-lifespan gap.

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About Future Health Technologies 1 (FHT1)
The FHT is the third large research programme of the Singapore-ETH Centre, which was established by ETH Zurich and Singapore's National Research Foundation (NRF), as part of NRF's Campus for Research Excellence and Technological Enterprise (CREATE). The programme brings together leading Singapore- and Swiss-based universities and hospitals including ETH Zurich, Nanyang Technological University, Singapore (NTU Singapore), National University of Singapore (NUS), Duke-NUS Medical School, NHG Health, National University Health System (NUHS), SingHealth, and Bond University.

About Future Health Technologies 2 (FHT2)
The FHT2 programme represents a unique collaboration between four leading institutions:

- ETH Zurich and Singapore-ETH Centre (SEC): Providing engineering innovation and research leadership
- NHG Health: Contributing clinical expertise and implementation pathways
- Nanyang Technological University (NTU Singapore): Offering technological development and validation capabilities

The programme also involves collaborators from Duke-NUS Medical School, NUS Medicine, National University Health System (NUHS), University of Zurich, and Bond University, creating a comprehensive research ecosystem.

FHT2 is set to launch immediately following the conclusion of FHT1 in March 2026, ensuring continuity of research momentum and clinical partnerships.

About the NRF
The National Research Foundation, Singapore (NRF), set up on 1 January 2006, is a department within the Prime Minister's Office. The NRF sets the national direction for research and development (R&D) by developing policies, plans and strategies for research, innovation and enterprise. It also funds strategic initiatives and builds up R&D capabilities by nurturing research talent.

Learn more about the NRF: www.nrf.gov.sg

About the Singapore-ETH Centre (SEC)
The Singapore-ETH Centre (SEC), established in 2010 as a partnership between ETH Zurich and Singapore's National Research Foundation, serves as a nexus for operationalising science-policy collaboration. The SEC synergises Swiss and Singaporean R&D capabilities to address pressing national and global challenges, focusing on sustainable urban systems, climate change, and human health and expanding towards emerging frontiers like AI for Science, High Performance Computing, and Education.

As a platform for innovation test-bedding, the SEC aims to build scientific excellence in its research programmes, and integrate research with policymaking and agency practice to solution towards translation and impact. Close engagement with Singapore stakeholders — including planners,

regulators, and practitioners — allows new technologies and frameworks to be piloted in real-world settings and scaled for potential societal adoption. For more information, visit https://sec.ethz.ch/

About NHG Health

NHG Health is a leading public healthcare provider in Singapore recognised for its quality clinical care and its commitment in enabling healthier lives through preventive health, innovative solutions and person-centred programmes tailored to every life stage. Our integrated health system, which spans primary care, hospitals and national specialty centres, includes Tan Tock Seng Hospital, Khoo Teck Puat Hospital, Woodlands Hospital, Yishun Community Hospital, NHG Polyclinics, the Institute of Mental Health, National Skin Centre and the National Centre for Infectious Diseases.

Together with academic and industry partners, we advance medical education, research and healthcare innovation in Singapore, addressing areas that are critical to Singapore's population needs. As the Regional Health Manager for Central and North Singapore, NHG Health partners general practices and health and social care agencies to ensure the physical, mental and social well-being of residents in the community.

Together, we are committed to building healthier and resilient communities, and Adding Years of Healthy Life to the people we serve. More information at www.nhghealth.com.sg. Follow us on Facebook | Instagram | LinkedIn | TikTok

About NTU

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 35,000 undergraduate and postgraduate students in the Business, Computing & Data Science, Engineering, Humanities, Arts, & Social Sciences, Medicine, Science, and Graduate colleges.

NTU is also home to world-renowned autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Earth Observatory of Singapore, Nanyang Environment & Water Research Institute and Energy Research Institute @ NTU (ERI@N).

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

Ranked amongst the world's top universities, the University's main campus is also frequently listed among the world's most beautiful. Known for its sustainability, NTU has achieved 100% Green Mark Platinum certification for all its eligible building projects. Apart from its main campus, NTU also has a medical campus in Novena, Singapore's healthcare district.
For more information, visit www.ntu.edu.sg

GLOSSARY

Future Health Technologies	未来健康科技
John Lim Chief Executive Officer National Research Foundation Chief, Public Sector Science & Technology Policy and Plans Office	林华恩 新加坡国立研究基金会总裁 公共部门科技政策规划署署长
Professor Joe Sim Group Chief Executive Officer NHG Health	沈恒毅教授 集团首席执行总裁 国立健保集团
Assistant Professor Bryan Tan Consultant Surgeon-Scientist for Orthopaedics Woodlands Hospital NHG Health	陈弈嘉助理教授 骨科顾问外科医生兼科学家 兀兰医院 国立健保集团
Professor Manu Kapur Learning Sciences and Higher Education, ETH Zurich Director, Singapore ETH Centre	Manu Kapur教授 学习科学和高等教育 苏黎世联邦理工学院 新加坡-苏黎世联邦理工学院中心 总监
Professor Benedikt Helgason Institute for Biomechanics, ETH Zurich Director of the Future Health Technologies 2, Singapore ETH Centre	Benedikt Helgason 教授 生物力学研究所 苏黎世联邦理工大学 未来健康科技 2 总监 新加坡-苏黎世联邦理工学院中心
Prof Domenico Campolo Professor, School of Mechanical & Aerospace Engineering Co-Director, Rehabilitation Research Institute of Singapore	Domenico Campolo 教授 南洋理工大学机械与宇航工程学院 联合主任 新加坡康复研究院

Annex A: Fact sheet — Musculoskeletal Health Innovations that FHT2 plans to embark on

In the coming years, the musculoskeletal health module will drive innovation across six interconnected areas with projects that span prevention to personalised treatment. These are as follows:

1) **Advanced Fall Risk Assessment:** Community-based wearable sensors and hospital-based computer vision-enabled deep phenotyping will enhance earlier and more accurate identification of fall risks.

2) **Precision Fracture Prediction:** AI-enhanced digital twin modelling will be used to predict fracture risk in seconds rather than days, going beyond conventional Dual-energy X-ray Absorptiometry (DXA) scans to cover both skeletal and soft tissue biomechanics. Integrated with the hospital systems, this capability will inform highly personalised treatment pathways.

3) **AI-Powered Risk Communication:** The use of large language model systems to capture and translate complex risk profiles into personalised risk education, digital dashboards and SmartRx recommendations, tailored to individuals' health literacy, language, culture and cognitive abilities that improve their understanding and adherence to preventive health.

4) **Community-Based Prevention:** Building on the success of the SAFE-TECH[4] trial, the SAFE-TECH GO toolkit integrates strength, balance, and coordination training with precision digital therapeutics, enabling scalable and sustainable fall-prevention programmes and behavioural change within community care settings such as Active Ageing Centres.

5) **Personalised Medicine with Bone Organoids:** Three-dimensional bone organoid models will predict patient-specific drug responses, allowing clinicians to optimise fracture prevention strategies for high-risk groups.

6) **Systems-Level Impact Assessment:** A Continuous Value Assessment model will simulate national-level health and economic outcomes in support of evidence-based policy for reducing the admission rates of fall-associated injuries among elderly, aligned with the national Healthier SG initiative.

[4] The SAFE-TECH study, which ran from August 2024 to February 2026, aimed to determine the effectiveness of a comprehensive falls prevention programme, conducted in venues near the homes of the seniors for greater convenience.

Annex B: Fact sheet — Building on Strong Foundations: FHT1 Achievements (March 2020 to March 2026)

The first phase of Future Health Technologies delivered innovations across four key areas:

1) **Early Detection and Prevention:** FHT1 developed the SPACE (Spatial Performance Assessment for Cognitive Evaluation) cognitive screening tool that can detect early dementia signs through a simple iPad game, validated with over 1,300 participants from community and clinical cohorts in Singapore. The programme established major longitudinal cohorts including the TARGET and PIONEER[5] studies, creating comprehensive datasets for ageing and cognitive health research.

   Alongside cognitive assessment, FHT1 created low-cost wearable sensors that assess fall risk in older adults with greater accuracy than traditional methods. The programme also created advanced computer models using digital twin technology that better predict hip fractures and launched the SAFE-TECH fall prevention trial, which combines AI-driven technology with multi-component intervention programmes for high-risk seniors.

   Comprehensive health technology assessments were conducted to evaluate the clinical and economic impact of these innovations, supporting their translation in healthcare practice.

2) **Digital Health Interventions:** Researchers built a comprehensive digital therapeutics platform featuring coaching agents and mobile health tools. The LvL UP lifestyle intervention — a smartphone app that uses chatbot coaching to prevent non-communicable diseases and common mental disorders — was successfully tested with over 1,000 participants, including women with gestational diabetes history, demonstrating significant improvements in health behaviours.

3) **Stroke Rehabilitation Technology:** FHT1 established the RehabGym concept, combining multiple robotic rehabilitation devices that enable stroke patients to receive intensive therapy from hospital to home. The ReHandyBot device was successfully commercialised through Singapore company Articares, while the lightweight Tenoexo soft robotic hand orthosis showed promising results in home-based rehabilitation.

4) **Secure Data Infrastructure:** The programme implemented the SECure cluster, a trusted data environment with direct connectivity to NHG Health's Tan Tock Seng Hospital, ensuring secure management of health data throughout the research lifecycle whilst establishing ethical frameworks for AI use in healthcare.

   These proven technologies and partnerships provide the foundation for FHT2's expanded mission to transform healthcare delivery across Singapore.

[5] TARGET and PIONEER refer to specific initiatives designed to advance digital health, real-world data analytics, and personalised, patient-centred care. They focus on leveraging AI, electronic health records, and wearable devices to improve patient outcomes and treatment efficiency.