



TRAINING ROADMAP FOR PHYSIOTHERAPIST IN CLINICAL EXERCISE



MINISTRY OF HEALTH
SINGAPORE



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FOREWORD

Physiotherapists have long been established as movement experts here in Singapore and abroad. Exercise Prescription, as part of the larger Movement entity, is particularly an area that is close to the heart of what we do in our work every day.

Exercise therapy is an integral part of our practice, regardless of our clinical area of focus. In Musculoskeletal and Sports physiotherapy, exercise is often prescribed alongside other physical forms of therapy; in Neurology physiotherapy, exercise training may take the form of highly guided and customized functional movements in repetitions to stimulate the neural pathways; in Cardiopulmonary physiotherapy, exercise therapy takes on another dimension, where careful assessment of heart and lung functions underlie accurate and safe exercise testing and prescribing.

With Healthier SG's emphasis on preventive and population health, exercise as medicine has become even more relevant. Physiotherapists are increasingly reaching out to the communities to influence the health behaviours of those in the early stages of chronic diseases, or at risk of developing them. Other than directly interacting with the patients or population, we are also sharing our expert knowledge with care extenders, such as health coaches, trainers, as well as Silver Generation Ambassadors.

As our population ages and the burden of chronic diseases rises, we as physiotherapists must build on our strength in helping the population, by keeping apprised of effective non-medicinal approaches, to combat the debilitating effects of diseases. To do this well, besides being grounded in core competencies, physiotherapists should gain mastery in safe and efficacious exercise testing, prescribing and progression at the right level of intensity.

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FOREWORD

continued

The training roadmap for Physiotherapist in Clinical Exercise details the functions, key tasks, and competencies of the role, and lists training programmes to help us progress from intermediate to advanced levels of practice. The roadmap also guides relevant stakeholders such as our healthcare counterparts and institutions, training providers, and funding agencies, in our workforce transformation efforts to meet the evolving needs of our patients.

We would like to thank the panel that was convened to develop this roadmap, under the leadership of Ms Sng E-Lynn, Senior Manager, Cardiac Physiotherapy Services at National Heart Centre, and A/Prof Ng Li Whye Cindy, Senior Principal Physiotherapist, Singapore General Hospital. The group has devoted a lot of time and effort to painstakingly map out this detailed roadmap.

Let's continue to bring our profession to greater heights and benefit our patients and population through improvement in our skills and knowledge. For Healthier SG, let's advocate Exercise is Medicine!



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TRAINING ROADMAP FOR PHYSIOTHERAPIST IN CLINICAL EXERCISE





JOB ROLE DESCRIPTION AND PRE-REQUISITES

	Intermediate	Advanced
● Job Role Description	<p>A physiotherapist in clinical exercise has an interest in exercise testing and prescription. He/She is required to risk stratify and establish exercise progression guidelines to achieve the patient's goals.</p> <p>He/She may work in acute or community setting with some experience in managing management of patients with non-communicable diseases (NCDs) and other co-morbidities. They should be collaborative, adaptable and possess problem-solving abilities to manage challenges on the ground.</p>	<p>An physiotherapist in advanced clinical exercise conducts appropriate and safe fitness and physical assessments, and prescribes appropriate and effective exercise of the right dose to prevent, manage and improve non-communicable diseases (NCDs). He/She is required to risk-stratify and transit patients to the appropriate care setting for continuity or escalation of care.</p> <p>He/She may work in any setting i.e., inpatient, outpatient, primary care, and community care, as part of the healthcare team and/or along with MOH One-Rehab plans to transit patients into the community. They should be collaborative, adaptable and possess problem-solving abilities to manage challenges on the ground.</p>
● Job Role Pre-requisites	<p>Qualifications: Degree in Physiotherapy</p>	
	<p>Type of work experience</p> <p>Minimum 2 years of PT experience with some experience in exercise testing and prescription.</p>	<p>Type of work experience</p> <p>Minimum 3 years of PT experience, with some experience in cardiopulmonary, musculoskeletal and/or geriatrics/ neurological rehabilitation.</p>



CRITICAL WORK FUNCTIONS AND KEY TASKS

Critical Work Functions	Key Tasks	
	Intermediate	Advanced
1 Conduct client assessment and therapy planning	<ol style="list-style-type: none"> 1. Conduct physical, psycho-social, discipline specific and impairment-based assessment to determine required therapeutic interventions. 2. Evaluate history and physical examination findings using clinical reasoning to develop an appropriate patient-centric intervention plan. 3. Formulate client-centred and SMART (Specific, Measurable, Attainable, Relevant, Timely) goals in collaboration with client and relevant stakeholders. 4. Select appropriate and specific outcome measures to enable evaluation of therapy progress and outcomes. 5. Provide therapy recommendations. 6. Communicate the assessment results, therapy plan, goals and outcome measures to client and other relevant stakeholders. 	<ol style="list-style-type: none"> 1. Conduct appropriate and relevant cardiopulmonary functional assessment to determine required therapeutic interventions (use clinical reasoning to select the relevant assessment tools and understand when to terminate the tests when required). 2. Carry out relevant cardiopulmonary exercise tests with or without ECG, relevant strength and balance testing as well as anthropometric measurements to specifically prescribe individualized exercises to manage impairments, taking into account of medications, other co-morbidities, musculoskeletal issues, frailty, neurological deficits, cardiovascular limitations etc. (this is specific to clinical exercise). 3. Communicate with relevant stakeholders on the assessment outcomes, treatment plans and goals. 4. Use relevant Patient Related Outcome Measures (PROMs) to evaluate therapy interventions. 5. Identify and assess at-risk individuals appropriately for disease prevention



CRITICAL WORK FUNCTIONS AND KEY TASKS

Critical Work Functions	Key Tasks	
	Intermediate	Advanced
2 Perform therapy interventions, rehabilitation and client education	<ol style="list-style-type: none"> 1. Perform appropriate intervention based on findings, goals and treatment plans 2. Evaluate therapy progress and outcomes using selected therapy outcome measures at regular intervals 3. Modify therapy plan based on client performance and motivation, safety as well as therapy outcome measures collected 4. Communicate the intervention plan, outcome measures, progress and discharge criteria to clients and relevant stakeholders 5. Empower client and caregiver on methods to enhance health, mobility and function 6. Provide clients and caregiver with education and training in self-management 7. Assist to develop and implement client and caregiver educational materials and training programmes. 8. Formulate discharge and continuity of care plans based on client performance in consultation with relevant stakeholders 	<ol style="list-style-type: none"> 1. Deliver appropriate interventions to manage non communicable diseases as well as improve or maintain physical function (strength and fitness), cognitive function, pain and psychological well-being based on findings, goals and treatment plans. 2. Formulate patient-centric, value-add and SMART (Specific, Measurable, Attainable, Relevant & Timely) goals 3. Understand the interactions between disease pathophysiology, medications, and physical and cognitive impairments so as to set both short and long term goals as well as to prescribe relevant, effective exercise program 4. Determine required minimum frequency of treatment to achieve effective outcomes 5. Modify interventions when indicated according to disease progression and response to therapy and medical interventions 6. Communicate and discuss collaboratively with medical doctor looking after patient regarding patient's physiological responses to exercise therapy that may include suggestion to review medication dosage 7. Progress goals and plans using shared decision making model of care with patients, caregivers and other relevant stakeholders (clinicians) 8. Use relevant behavioural therapy tools to engage and empower patients & caregivers to make lifestyle changes (inclusive of rehabilitation). 9. Risk stratify and transit patients to the appropriate care setting for continuity or escalation of care.



SKILLS AND COMPETENCIES

• Technical Skills & Competencies ("TSCs")	Intermediate	Advanced	
	Level 3	Level 4	Level 5
Client Advocacy		✓	
Client Assessment for Physiotherapy	✓	✓	✓
Client Education in Rehabilitation Therapy		✓	
Development on Intervention Plan for Physiotherapy	✓	✓	
Effective Client Communication	✓	✓	✓
Goal Setting in Rehabilitation Therapy	✓	✓	
Inter-professional Collaboration		✓	
Management of Stakeholders		✓	
Therapy Discharge Planning	✓		✓
Therapy Intervention Evaluation	✓	✓	
Therapy Intervention Implementation	✓	✓	✓



SKILLS AND COMPETENCIES

- **Critical Core Skills (“CCSs”)**

	Intermediate	Advanced
Adaptability	Basic	Intermediate
Collaboration	Basic	Intermediate
Communication	Intermediate	Intermediate
Decision making	Basic	Intermediate
Problem solving	Basic	Intermediate

Please refer to [SSG's website](#) for the CCS Reference Document.



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Stakeholder Engagement and Partnerships

TSC: Client Advocacy

TSC Description	Advocate for rights of client groups and services
TSC Proficiency Level	Level 4
TSC Proficiency Description	Advocate empowerment of clients and caregivers for complex and/or escalated cases. Provide guidance to junior therapists where necessary.
Knowledge	<ul style="list-style-type: none">• Therapist's role in client advocacy as part of a multi-disciplinary group• Scenarios that require client advocacy• Strategies and methods to empower clients with self-advocacy skills• Negotiation techniques
Abilities	<ul style="list-style-type: none">• Help clients identify the external barriers that may affect their intervention plans• Mentor junior staff on the right avenues and techniques for advocacy



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Client Assessment for Physiotherapy

TSC Description	Select and apply assessment methods and tools appropriate for clients and interpret findings	
TSC Proficiency Level	Level 3	
TSC Proficiency Description	Conduct assessment of routine cases independently and seek guidance for assessment of complex and/or novel cases. Articulate new trends and evidence-based practices in client assessments	
Knowledge	<ul style="list-style-type: none"> • Fundamental principles of musculoskeletal, geriatric, diabetes and stroke theory and practice • Ability to assess musculoskeletal, geriatric, diabetes and stroke conditions • Biopsychosocial models • World Health Organisation's International Classification of Functioning, Disability and Health Framework (WHO ICF framework) • Evidence based physiotherapy assessments • Range of presentations and issues faced in common medical and multiple conditions • Criteria for selection of assessment methods and tools • Range of assessment and types of tools required • Multi-disciplinary assessment methods • Infection Control policies and procedures • Standards of clients care and safety • Workplace Safety and Health (WSH) requirements 	<ul style="list-style-type: none"> • Difference in exercise prescription of acute vs intermediate long term care rehabilitation needs • Commonly used medications in patients with musculoskeletal, geriatric, diabetes and stroke conditions Knowledge of normal and abnormal physiologic responses to exercise for the different patient groups mentioned • Validated outcome measures and psychometric properties (e.g. SF 36, IPAQ) for the different medical conditions • Application and implication of maximal and submaximal aerobic testing. • Indications, precautions and contraindications to exercise testing, exercise prescription and exercise outcomes • Knowledge of literature and evidence based of exercise prescription for the different patient groups mentioned

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TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

CONTINUED

● **TSC Category:** Patient Care

TSC: Client Assessment for Physiotherapy

TSC Proficiency Level	Level 3
Abilities	<ul style="list-style-type: none">• Verify the clients' identity and condition with supervisory staff if required• Prepare patient/ family/ environment for assessment• Obtain consent from patient/family/medical team for assessment• Identify and obtain crucial information that is relevant to the case through history taking• Select appropriate and relevant assessments for routine and basic cases independently and complex cases with guidance• Perform assessments for routine and basic cases• Identify limitations in the assessment• Modify assessment techniques as required• Report unexpected client responses or problem areas in the conduct of the assessment to supervisor• Interpret results for routine and basic cases• Interpret results for complex cases with guidance• Integrate case findings information from case notes and other stakeholders• Demonstrate ability to integrate results from different assessments for routine and complex cases• Document the assessment conducted in case notes in accordance to organisational procedures and guidelines• Perform the necessary, applicable and relevant outcome measures, aerobic testing and condition-specific assessment



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Client Assessment for Physiotherapy

TSC Description	Select and apply assessment methods and tools appropriate for clients and interpret findings
TSC Proficiency Level	Level 4
TSC Proficiency Description	Conduct assessment of routine and complex cases independently, demonstrating flexibility in selection and modification of assessment methods. Provide guidance to junior therapists where necessary. Assist in the appraisal of new trends and evidence-based practices in client assessments
Knowledge	<ul style="list-style-type: none">• Range of presentations and issues faced in complex medical conditions• Transdisciplinary assessment methods and findings• Range of evidence-based assessment methods and skills for complex medical conditions• Advanced clinical methods and techniques• Current practice guidelines/recommendations for the prevention, evaluation, treatment and management of chronic diseases.
Abilities	<ul style="list-style-type: none">• Select appropriate assessment methods for complex cases• Integrate and modify the assessment methods where relevant• Involve multidisciplinary teams in assessment of complex cases• Interpret results for complex cases in collaboration with other professionals• Integrate assessment results to develop differential diagnosis



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Client Assessment for Physiotherapy

TSC Description	Select and apply assessment methods and tools appropriate for clients and interpret findings
TSC Proficiency Level	Level 5
TSC Proficiency Description	Evaluate existing assessment practices with reference to new trends and evidence-based practices in client assessments
Knowledge	<ul style="list-style-type: none">• Specialized clinical methods and techniques• Framework of strategic care to ensure cost-effective service delivery• Evaluation criteria for new assessment methodologies and tools• Impact of new trends and assessment tools to systems in organizations
Abilities	<ul style="list-style-type: none">• Interpret results for cases requiring expert or specialized knowledge• Share specialty knowledge with care teams• Review assessments conducted by other healthcare professionals• Develop guidelines and protocol to ensure diagnostic accuracy and clinical standards



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Patient and/or Client Education and Health Promotion **TSC:** Client Education in Rehabilitation Therapy

TSC Description	Communicate with clients and caregivers to deliver and facilitate the continuity of care
TSC Proficiency Level	Level 4
TSC Proficiency Description	Educate clients and caregivers on client conditions, relevant self-management techniques and interventions to improve client conditions for routine and complex cases independently. Develop and review client education materials and processes. Provide guidance to junior therapists where necessary.
Knowledge	<ul style="list-style-type: none">• New and emerging technologies and tools to support client education• Techniques to engage challenging clients• Concepts of adult learning principles and learning transfer principles• Reflective teaching concepts and techniques• Understanding transtheoretical model of behaviour change
Abilities	<ul style="list-style-type: none">• New and emerging technologies and tools to support client education• Techniques to engage challenging clients• Concepts of adult learning principles and learning transfer principles• Reflective teaching concepts and techniques• Ability to use motivational interviewing or cognitive behaviour therapy to encourage lifestyle changes.



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Development on Intervention Plan for Physiotherapy

TSC Description	Develop targeted intervention plans according to client conditions and needs
TSC Proficiency Level	Level 3
TSC Proficiency Description	Select and plan for interventions for routine cases independently and seek guidance for selection and planning of interventions for complex and/or novel cases. Articulate new trends and evidence-based practices in intervention planning
Knowledge	<ul style="list-style-type: none">• Principles of evidence based clinical reasoning• Strategies to help clients to perform at the necessary level of function• Intervention methods effective for managing routine conditions and complex conditions with guidance as required• Potential contraindications and precautions from therapy interventions administered• Evidence-based intervention practices• Clinical outcomes measures based on interventions administered• Basic technology tools to compliment physiotherapy intervention• Range of skills relevant to intervention planning for routine cases• Multi-disciplinary approaches to therapy planning intervention methods effective for managing routine conditions.• Approaches for therapeutic outcomes• Precautions to complex conditions• Factors that can influence a client's motivation to continue with therapeutic interventions• Fundamentals of medical condition and multiple comorbidities and their potential effects on therapy intervention

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TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

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TSC Category: Patient Care		TSC: Development on Intervention Plan for Physiotherapy
TSC Proficiency Level	Level 3	
Abilities	<ul style="list-style-type: none">• Work with client and/or caregiver to address needs• Able to competently perform intervention planning for routine and complex cases based on organisational/ departmental standards• Demonstrate appropriate prioritisations and client review frequency• Consider person, environment and occupation perspectives• Identify clinical outcomes that are likely to be gained from intervention plan• Identify complications likely to develop in the absence of therapy intervention independently• Identify precautionary measure during interventions• Assess client's suitability to participate in the intervention plan being considered• Educate client on their conditions and needs• Integrate assessment findings in intervention planning of other professionals• Monitor clinical outcomes that are evidence-based according to client assessment findings• Communicate intervention plan to client and/or caregiver• Use technology to compliment physiotherapy intervention• Ability to provide the necessary analysis and intervention that is relevant and applicable• Apply the appropriate exercise prescription principles in acute and intermediate long term care rehabilitation needs• Use of FITT (frequency, Intensity, Time and Type) principle in the intervention• Appropriate mode, volume and intensity of exercise to produce desired outcomes	



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Development on Intervention Plan for Physiotherapy

TSC Description	Develop targeted intervention plans according to client conditions and needs
TSC Proficiency Level	Level 4
TSC Proficiency Description	Select and plan for interventions for routine and complex cases independently. Demonstrates flexibility in the modification of intervention plans where necessary. Provide guidance to junior therapists where necessary. Assist in the appraisal of new trends and evidence-based practices in intervention planning
Knowledge	<ul style="list-style-type: none">• Range of skills relevant to intervention planning for complex cases• Advanced clinical methods and techniques
Abilities	<ul style="list-style-type: none">• Successfully negotiate short-term and/or long-term goals with clients with challenging and complex needs• Ascertain clients' understanding of the problems and the intervention plans• Identify clients' motivation influences to implement plans• Modify interventions accordingly in response to complex cases• Plan for possible contingencies that may affect intervention plans• Discuss pros and cons and/or risks• Manage risks associated with the intervention plan• Make referrals to other health professionals when necessary• Evaluate clinical outcomes that are evidence-based according to client assessment findings• Applying strategies to reduce risk of adverse events during exercise.• Optimizing patient compliance and adherence of exercise prescription.• Developing an exercise prescription based on a client's clinical status and goals.



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Effective Client Communication

TSC Description	Demonstrate effective communicative skills when communicating with clients and caregivers
TSC Proficiency Level	Level 3
TSC Proficiency Description	Communicate assessment results, intervention plans, outcomes to clients and/or caregivers for routine cases and seek guidance for complex and/or novel cases
Knowledge	<ul style="list-style-type: none"> • Range of communication techniques (verbal, written or action) • Methods to build trust and rapport with client • Counselling techniques • Cultural considerations to be taken into account in client communication • Organisation guidelines and procedures on client communication • Ethical and legal considerations in the handling and communication of sensitive or confidential information • Conflict resolution techniques that facilitate communication among exercise cohorts
Abilities	<ul style="list-style-type: none"> • Engage in effective verbal communication and active listening skills • Adopt appropriate communication style to achieve intended objectives with the intended audience • Communicate with clients and caregivers to deliver care and facilitate the understanding of clients' needs • Develop rapport with client and caregivers • Explain client's results and therapy plan in a clear and concise manner cognisant of the patient's health literacy • Discuss and negotiate therapy plans, goals and discharge plans with clients and/or caregiver • Use appropriate communication techniques to convey results, expected goals and outcomes to clients and caregivers • Recognize the need for progression and communicating updates on exercise prescriptions in acute and intermediate long term care settings • Use feedback to optimize participant training sessions • Applying verbal and non-verbal communications with diverse participant populations. • Understand client needs and learning styles that may impact exercise sessions and exercise testing procedures



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Effective Client Communication

TSC Description	Demonstrate effective communicative skills when communicating with clients and caregivers
TSC Proficiency Level	Level 4
TSC Proficiency Description	Communicate assessment results, intervention plans, outcomes, service recovery plan to clients and caregivers for routine and complex cases independently. Provide guidance to junior therapists where necessary
Knowledge	<ul style="list-style-type: none">• Negotiation techniques• Conflict management techniques• Types of service recovery
Abilities	<ul style="list-style-type: none">• Guide clients and caregivers to manage expectations and concerns• Identifies barriers and motivates patient to adhere to lifestyle changes and exercise prescription• Summarize and interpret client assessments for complex cases• Adapt verbal and non-verbal communication accordingly in challenging situations or situations that involve multiple and/or competing interests• Communicates exercise prescription, exercise techniques and progression of exercises for optimal compliance and effectiveness



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Effective Client Communication

TSC Description	Demonstrate effective communicative skills when communicating with clients and caregivers
TSC Proficiency Level	Level 5
TSC Proficiency Description	Develop and review departmental communication guidelines when engaging with clients and caregivers for routine and complex cases
Knowledge	<ul style="list-style-type: none">• Leading practices in the communication of therapy-related topics to relevant stakeholders• Mediation techniques
Abilities	<ul style="list-style-type: none">• Guide therapists on using appropriate communication techniques during client communication• Develop relevant procedures to guide newer therapists in communicating with clients and/or caregivers• Present complex, sensitive or contentious information to relevant stakeholders• Disseminate latest and/or accurate information related to continuity of care to clients with complex conditions• Guide others in producing and delivering effective written and electronic communication to clients



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Goal Setting in Rehabilitation Therapy

TSC Description	Set appropriate treatment goals
TSC Proficiency Level	Level 3
TSC Proficiency Description	Collaborate with client to develop and refine intervention goals in accordance to specific, measurable, attainable, realistic, and timely (SMART) principles for routine cases and seek guidance for complex and/or novel cases.
Knowledge	<ul style="list-style-type: none">• World Health Organisation's International Classification of Functioning, Disability and Health Framework (WHO ICF framework)• Principles of specific, measurable, attainable, realistic, and timely (SMART) goals• Relevant outcome measures which can be used to track the effect of interventions• Effective communication techniques• Clients' differing ability to learn, prognosis, time allocation for intervention and ability to follow through new routines or techniques• Factors that can influence a client's motivation in achieving intervention goals• Impact of patient and care giver participation• Discharge planning procedures• Roles and goals of other disciplines working on a common case

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TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

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● **TSC Category:** Patient Care

TSC: Goal Setting in Rehabilitation Therapy

TSC Proficiency Level

Level 3

Abilities

- Set and review specific, measurable, attainable, realistic, and timely (SMART) short-term and long-term goals which are client-centred in collaboration with client and/or caregivers for routine cases and may seek guidance for complex cases
- Develop a problem list and contributing factors to client's problems
- Assess factors that may have an impact on client goals
- Select appropriate measures that reflect achievement of goals set by client
- Monitor client's achievements of goals
- Incorporate discharge planning considerations during goal setting
- Engage client and/or caregiver for goal setting for rehabilitation needs
- Consider and integrate client's preferences, available evidence, clinical expertise and available resources in client management in goal setting
- Identify improvements in complex cases under guidance
- Consider goals of other disciplines and align towards a common outcome as agreed by the team
- Establish exercise progression guidelines to achieve the goals based on
- Acute vs Intermediate Long Term Care
- Musculoskeletal, geriatric, stroke and diabetes conditions
- Adjust the FITT framework in response to individual changes in exercise program



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care		TSC: Goal Setting in Rehabilitation Therapy
TSC Description	Set appropriate treatment goals	
TSC Proficiency Level	Level 4	
TSC Proficiency Description	Guide therapists in developing therapy goals for complex cases.	
Knowledge	<ul style="list-style-type: none">• Evidence-based research in goal setting and monitoring• Clinical knowledge in specialty areas• Prognostication of disease progression, responses to therapy and therapy outcomes• Contribution of patient factors to optimizing therapy outcomes	
Abilities	<ul style="list-style-type: none">• Guide therapists on how to identify factors which may have impact on clients' goals• Review goals set by therapists• Update goal setting and monitoring practices based on evidence-based practices• Introduce new practices and approaches in goal setting• Prognosticate the responses to therapy and therapy outcomes	



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Stakeholder Engagement and Partnerships

TSC: Inter-professional Collaboration

TSC Description	Apply an integrated approach to coordinate and deliver inter-professional interventions to clients
TSC Proficiency Level	Level 4
TSC Proficiency Description	Facilitate interprofessional interventions to provide integrated care to clients
Knowledge	<ul style="list-style-type: none">• Techniques to develop processes and procedures to facilitate inter-professional cooperation• Strategies to drive collaborative practices within the team
Abilities	<ul style="list-style-type: none">• Work closely with relevant stakeholders and/or agencies to deliver healthcare services• Review and develop processes and procedures to enhance collaborative practices as an inter-professional team• Develop goals, objectives and expectations for inter-professional teams• Facilitate cooperative work practices and allocation of resources for the inter-professional team



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Stakeholder Engagement and Partnerships

TSC: Management of Stakeholders

TSC Description	Plan and implement strategies to build and manage constructive and positive relationships with stakeholders
TSC Proficiency Level	Level 2
TSC Proficiency Description	Develop plans to build positive and trustworthy relationships with stakeholders to attain joint objectives
Knowledge	<ul style="list-style-type: none"> • Communication management for different target audiences • Conflict resolution techniques • Community resources between hospitals, community facilities, regulatory bodies and other relevant organizations • Concept of emotional intelligence
Abilities	<ul style="list-style-type: none"> • Facilitate networking opportunities to build relationships with stakeholders • Conduct stakeholder impact analyses to assess the impact of new policies, programmes and processes on different stakeholders • Employ engagement techniques to manage stakeholders impacted by new policies, programmes and/or processes and fulfil alignment with mutual objectives • Develop ideas to facilitate stakeholder buy-in of new policies, programmes and/or processes



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Therapy Discharge Planning

TSC Description	Assess clients' readiness for discharge, and identify appropriate follow-up on the care to be provided to patients and/or clients
TSC Proficiency Level	Level 5
TSC Proficiency Description	Develop frameworks and procedures relevant to discharge planning as part of a multi-disciplinary team.
Knowledge	<ul style="list-style-type: none">• Organization policies, standards and guidelines pertaining to discharge of clients• Emerging technological trends relevant to facilitating discharge or monitoring effectiveness of self-care
Abilities	<ul style="list-style-type: none">• Develop guidelines and procedures in performing discharge planning• Foster partnerships with external stakeholders to enhance continuity of care• Streamline procedures and processes for discharge planning• Drive adoption of emerging technology to expedite and facilitate discharge processes



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Therapy Intervention Evaluation

TSC Description	Evaluate the effectiveness of therapy interventions through the monitoring of progress and outcomes of client recovery, values and goals as well as clinical indicators
TSC Proficiency Level	Level 3
TSC Proficiency Description	Monitor and evaluate intervention outcomes of routine cases independently. Seek guidance for modification of therapy goals for complex and/or novel cases
Knowledge	<ul style="list-style-type: none">• Clinical outcome indicators in evaluating interventions administered• Department clinical standards• Key research for interventions• Factors that can affect the outcomes of the interventions provided• Expected outcomes given a specific intervention approach based on research
Abilities	<ul style="list-style-type: none">• Evaluate outcomes using appropriate outcome measures• Analyze possible reasons for variations between actual and expected outcomes• Develop alternative intervention strategies, including the rationale for application• Modify therapy goals as needed based on integration of findings from evaluations• Interpret results of intervention evaluation of other disciplines• Review recommendations for modification of activities, and methods to address client needs



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care

TSC: Therapy Intervention Evaluation

TSC Description	Evaluate the effectiveness of therapy interventions through the monitoring of progress and outcomes of client recovery, values and goals as well as clinical indicators
TSC Proficiency Level	Level 4
TSC Proficiency Description	Monitor and evaluate intervention outcomes of routine and complex cases independently. Provide guidance to junior therapists where necessary
Knowledge	<ul style="list-style-type: none">• Organization policies, standards and guidelines pertaining to intervention evaluation• Methods to assess efficacy of therapy intervention• Specialized intervention methods and techniques• Validated standard for outcome measures
Abilities	<ul style="list-style-type: none">• Implement instruments and outcome measures that are valid, reliable and appropriate to monitor complex intervention plans



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Therapy Intervention Implementation

TSC Description	Provide the appropriate interventions based on clients' needs and conditions
TSC Proficiency Level	Level 3
TSC Proficiency Description	Provide therapy interventions for routine cases independently and seek guidance for the provision of interventions for complex and/or novel cases. Articulate new trends and evidence-based practices in intervention implementation
Knowledge	<ul style="list-style-type: none">• Client care plans and goals developed for the client• Evidence-based intervention approaches• Range of skills relevant to intervention techniques for routine and complex cases• Types of equipment and resources available for use in interventions• Appropriate use of assistive devices• Appropriate handling/ positioning of clients for various intervention methods, if applicable• Factors that will affect participation in therapy• Biopsychosocial approaches to enhance treatment effectiveness• Possible client reactions to prescribed interventions• Methods to modify activities or equipment to minimise risk for clients during intervention• Appropriate use of support personnel for various interventions• Acceptable timeframe in which to complete intervention• Workplace safety and health protocols and guidelines, policies and procedures for infection control and emergency response• Clinical incident management framework• Reporting and documentation procedures for client assessments and interventions• Contributing factors that will affect client participation• Pain science and DOMS (delayed-onset of muscle soreness)

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TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

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● **TSC Category: Patient Care**

TSC: Therapy Intervention Implementation

TSC Proficiency Level	Level 3
Abilities	<ul style="list-style-type: none">• Demonstrate clinical reasoning skills in conducting the appropriate intervention to achieve set therapy outcomes• Administer routine intervention independently in an effective and safe manner• Demonstrate safe handling of clients and equipment• Acknowledge and consider the impact and implications of the intervention on the client and other relevant stakeholders• Demonstrate awareness and sensitivity to clients and/or carers during intervention• Demonstrate awareness of how the intervention impacts upon client outcomes• Communicate goals, therapy approaches and training to clients and carers• Communicate clear and accurate instructions appropriate to the client's level of understanding• Engage, motivate and counsel clients during the course of the intervention• Identify risk factors associated with the client's condition• Take prompt and appropriate actions in response to the client's adverse reaction to intervention• Manage incidents during interventions according to organisational procedures• Use an inter-professional team approach in delivering interventions, where applicable• Provide recommendations for modification of activities, and methods to address client needs• Integrate new evidence-based interventions into existing practice, under guidance• Prescribe and progress exercise programs, according to the FITT principle, in a safe and effective manner• Teach and demonstrate appropriate exercises for populations with special considerations• Modify exercises based on age, physical condition, and current health status• Modify exercise intensity within pain limits



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Therapy Intervention Implementation

TSC Description	Provide the appropriate interventions based on clients' needs and conditions
TSC Proficiency Level	Level 4
TSC Proficiency Description	Provide therapy interventions for both routine and complex cases independently. Provide guidance to junior therapists where necessary. Assist in the appraisal of new trends and evidence-based practices in intervention implementation
Knowledge	<ul style="list-style-type: none">• Range of skills relevant to intervention techniques for complex cases• Emerging therapy interventions for complex cases• Advanced clinical methods and techniques
Abilities	<ul style="list-style-type: none">• Apply advanced interventions• Use advanced clinical reasoning skills to modify interventions based on the integration of evaluation results, observation of client performance as well as safety issues• Facilitate inter-professional interventions, where applicable• Assist juniors as appropriate to manage incidents during interventions according to organizational procedures



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care

TSC: Therapy Intervention Implementation

TSC Description	Provide the appropriate interventions based on clients' needs and conditions
TSC Proficiency Level	Level 5
TSC Proficiency Description	Evaluate existing intervention practices within the department based on evidence-based practices
Knowledge	<ul style="list-style-type: none">• Specialized clinical methods and techniques• Evaluation criteria for new intervention tools• Impact of new trends and interventions to systems in organizations• Strategies to manage clients experiencing adverse reactions to interventions
Abilities	<ul style="list-style-type: none">• Apply specialized interventions• Analyzes new trends and suitability for adoption within organization.• Provide consultation for interventions in complex clinical cases through integration of clinical reasoning and specialized knowledge and skills• Model and promote expert-level critical thinking to explore and analyze evidence, cases and situations• Share specialty knowledge with inter-professional team members• Consultant for staff training in new techniques• Implement interventions for cases requiring expert or specialized knowledge



PROGRAM LISTING

The programs below have been assessed by the MOH Panel for Physiotherapy to fulfil the evaluation that are harmonized with the MOH In-Service Scholarships. They are subjected to updates and serve as a reference only. Available training programs that are subsidized by Skills Future Singapore (SSG) will be listed on [SSG's website](#).

The MOH Panel for Physiotherapy has assessed that behavioural change is a suggested area of training to be considered in this Training Roadmap. However, as there are many training programmes available on behavioural change, institutions should decide which behavioural change programme is most suitable for their staff to attend.

Title of Program	Training Provider
Intermediate Clinical Exercise Testing and Prescription	Singapore Institute of Technology
Advanced Clinical Exercise Physiotherapy for Metabolic, Oncologic, Cardiovascular & Pulmonary Disease	Singapore Institute of Technology
Advanced Clinical Exercise Physiotherapy for Neurology – to be developed (date TBC)	Singapore Institute of Technology
Advanced Clinical Exercise Physiotherapy for Orthopaedics and Return to Work – to be developed (date TBC)	Singapore Institute of Technology

ACKNOWLEDGEMENT

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