Queensland Health

Clinical Task Instruction

Skill Shared Task

S-MT10: Review and progress a transfer and/or walking training program

VERSION CONTROL

Version:	2.0		
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The CTI reflects best practice and agreed process for conduct of the task at the time of approval and should not be altered. Feedback, including proposed amendments to this published document, should be directed to AHPOQ at: allied_health_advisory@health.qld.gov.au.

This CTI must be used under a skill sharing framework implemented at the work unit level. The framework is available at: https://www.health.qld.gov.au/ahwac/html/calderdale-framework.asp

Please check https://www.health.qld.gov.au/ahwac/html/clintaskinstructions.asp for the latest version of this CTI.

Scope and objectives of clinical task

This CTI will enable the health professional to:

- supervise and review a transfer and/or walking rehabilitation program including monitoring and progression of exercises, where the program is prescribed and overseen by a health professional with expertise in functional rehabilitation as a collaborative practice/shared care strategy.
- provide education to the client and/or care givers (nursing staff/carer) regarding the rehabilitation program including purpose, specific program details, monitoring thresholds and practice requirements.
- contribute to the local care plan based on observation of the client's functional performance and progress.

Local implementation

- The local health service will define the parameters for the local implementation of this CTI. The health service will determine the scope of the individual health professional with regard to:
  - weight bearing status i.e. full weight bearing, weight bearing as tolerated, partial weight bearing, non-weight bearing.
  - types of walking aid/s e.g. four wheeled walker, hopper frame, crutches, walking stick.
  - stairs.
  - environments, particularly outdoor walking/community settings.
  - client groups e.g. community, neurological, elderly, orthopaedic.
- The local scope of the skill shared task will be approved by the health service and recorded in the CTI Performance Criteria Checklist.

Requisite training, knowledge, skills and experience

Training

- Mandatory training requirements relevant to Queensland Health/Hospital and Health Service (HHS) clinical roles are assumed knowledge for this CTI.
- If not part of mandatory requirements, complete patient manual handling techniques including the use of walk belts.
- Completion of the following CTIs or equivalent professional competence:
  - S-MT08: Assess and manage falls risk and risk reduction strategies for older persons in community settings using the FROP-Com
  - S-MT01: Assess functional walking
  - S-MT05: Assess standing balance
  - S-MT07: Assess standing transfer.
- If the use of mobility aids, stairs and/or outdoor environments is within the scope of the local implementation:
  - S-MT02: Prescribe, train and review of walking aids

  - S-MT04: Assess stair walking
  - S-MT06: Assess outdoor walking.
- If relevant for monitoring of the clients' performance within the scope of the local implementation:
  - S-MT03: Timed Up and Go (TUG) Test.

Clinical knowledge

- To deliver this clinical task, a health professional is required to possess the following theoretical knowledge:
  - the principles of functional retraining programs including task specificity, part practice, task progression, use of compensatory strategies and task modification.
  - providing feedback during task performance including the use of verbal cueing, manual guidance, measurement (time, repetitions, length/height, scales, outcome tools), mirror/video, etc.
  - common problems associated with walking and transfers e.g. lower limb strength/weakness/flexibility, balance, cognition/perception.
  - the rationale for common strategies used to retrain sit to stand, standing balance and functional walking including adjustment of the environment (seating height, table support, step height), positioning and manual guidance, part practice, use of feedback (scales, mirrors, verbal), and cueing strategies.
  - common training parameters for a functional retraining program including repetitions, frequency, duration, client dose response, and required observations/feedback during client performance.
  - local service protocols/procedures/guidelines for mobility and transfer exercise programs, care pathways, equipment maintenance requirements and/or telehealth scheduling as relevant for the local implementation.
- The knowledge requirements will be met by the following activities:
  - completing training program (as above).
  - reviewing the Learning Resource.
  - receiving instruction from the lead allied health professional in the training phase.

Skills or experience

- The following skills or experience are not specifically identified in the task procedure but support the safe and effective performance of the task or the efficiency of the training process and are:
  - **required** by a health professional in order to deliver this task:
    - competence in measurement of clinical observations relevant to mobilising/exertion where this requirement is relevant to the healthcare setting and client group. This may include blood pressure, heart rate, pulse oximetry, pain scales and/or exertion scales.
    - competence in the use of mobile oxygen where this is relevant to the healthcare setting.
    - experience in prescribing, training and reviewing healthcare programs.
    - if telehealth is part of the service model, competence in the use of telehealth equipment.

Indications and limitations for use of a skill shared task

The skill share-trained health professional shall use their independent clinical judgement to determine the situations in which this clinical task can be delivered. The following recommended indications and limitations are provided as a guide to the use of the CTI, but the health professional is responsible for applying clinical reasoning and understanding of the potential risks and benefits of providing the task in each clinical situation.

Indications

- The client has been assessed as having deficits with stand transfers, standing balance and/or walking and has been prescribed a functional retraining program by a health professional with expertise in the task. The program is to be implemented as a collaborative practice/shared care with the skill share-trained practitioner. Implementation may include synchronous (real-time) or asynchronous telehealth input from the lead professional.

Limitations

- Limitations listed in CTIs S-MT01, S-MT05, S-MT07 and S-MT08 apply.
- Limitations will be applied for walking aids CTI S-MT02, stairs CTI S-MT04, outdoor environments CTI S-MT06 and/or TUG test CTI S-MT03 if they are in scope for the task.
- Since reviewed by the health professional that prescribed the functional retraining program, the client has become unable to participate e.g. is medically unstable or acutely unwell, functional presentation has deteriorated or no longer consents to treatment.
- The client's functional presentation has deteriorated since last review e.g. the amount of assistance with standing transfers has increased, standing balance duration has reduced, Berg Balance score has deteriorated, walking performance has worsened, timed up and go (TUG) test score increased, etc. Discuss with the medical team and the health professional that prescribed the rehabilitation program prior to commencing the task.
- The client has experienced a fall since the last review of the prescribed functional retraining program. The client will require a falls risk assessment prior to re-engagement in the functional retraining program and discussion with the prescribing health professional for the rehabilitation program prior to reinstating the program. Implement local processes prior to commencing the task.
- The client's condition has changed and would require skills beyond those of the skill shared-trained practitioner e.g. weight bearing status, type of walking aid, stairs, environment. Liaise with the health professional that prescribed the rehabilitation program to develop a plan for access to care.

Safety and quality

Client

- The skill share-trained health professional shall identify and monitor the following risks and precautions that are specifically relevant to this clinical task:
  - shoes should be enclosed, well-fitting and with good traction. If the client does not have shoes, socks/stockings should be removed and bare feet should be documented as part of the assessment, and appropriate safety measures considered including floor surface texture, temperature, etc.
  - thresholds for exercise performance will be client-specific and require appropriate monitoring. These may include blood pressure, heart rate, pulse oximetry, pain scales and/or exertion scales. If equipment and/or tools are not available, liaise with the prescribing health professional to determine alternative monitoring requirements.

Equipment, aids and appliances

- Equipment used during the functional re-training program should be checked for safety, maintenance and appropriateness to the client's needs prior to use. This may include safe working load (SWL) for weight, height of seat to meet hip precautions, brakes working order, maintenance or calibration testing tag is current.

Environment

- The environment set-up should support the rehabilitation goals. This may include removal/inclusion of distractions, placement of equipment (mirror/cones/blocks/chair), location of practice (bedside/gym/parallel bars/outside), inclusion of telehealth equipment.

Performance of clinical task

1. Preparation

- Review the planned functional retraining program for training parameters and equipment needs to perform the task e.g. blocks, cones, and feedback tools e.g. stopwatch, tape measure, mirror.
- Gather the required equipment and check for suitability to client needs e.g. SWL, height.
- Place items in the planned environment and confirm that the set-up meets rehabilitation goals.

2. Introduce task and seek consent

- The health professional checks three forms of client identification: full name, date of birth, **plus one** of the following: hospital unit record (UR) number, Medicare number, or address.
- The health professional introduces the task and seeks informed consent according to the Queensland Health Guide to Informed Decision-making in Health Care, 2nd edition (2017).

3. Positioning

- The client's position during the task should be:
  - as required to perform the functional retraining program i.e. either sitting or standing initially.
- The health professional's position during the task should be:
  - standing, generally in front of and slightly to the side of the client in a position to provide manual assistance if necessary, for safety, manual guidance and feedback as per the retraining program requirements.

4. Task procedure

- The task comprises the following steps:
  1. Use information collected from the medical chart and subjective assessment to determine the client's current suitability to participate in the prescribed functional retraining program. If unsuitable, due to a change in the client's presentation, cease the task and discuss with the medical team (if indicated) and the health professional that prescribed the functional retraining program. See Indications and Limitations section and Figure 1 in the Learning resource.
  2. Assess the client's physical performance for transfers and walking and determine the client's suitability to participate in the prescribed program. See Indications and Limitations section and Figure 1 in the learning resource. If unsuitable, cease the task and discuss with the medical team and the health professional that prescribed the rehabilitation program.
  3. Implement the prescribed functional retraining program by:
     - describing the prescribed functional activity to the client and/or demonstrating as required.
     - setting up the required practice environment for the planned activity.
     - requesting the client perform the activity, monitoring performance using assessment skills for the functional task.
     - providing feedback during the activity to improve performance.
  4. After the activity, provide feedback to the client regarding overall performance and achievement of session goals.
  5. Based on the client's performance, determine progression to the next activity in the prescribed functional retraining program. Repeat steps 2-4 until the prescribed program has been completed or the task is ceased.

5. Monitoring performance and tolerance during the task

- Common errors and compensation strategies to be monitored and corrected during task include:
  - poor performance of the activity. Check the activity set-up e.g. seat height, step height, number of repetitions client achieved on past performance. Adjust if required. If poor performance persists, adjust the training parameters of the activity to improve ease of performance e.g. increase seat height, reduce step height, reduce duration/repetitions/frequency. If no immediate improvement in performance, cease the task and discuss with the health professional that prescribed the rehabilitation program.
  - the client performs the task, but compensatory strategies are included (see CTIs S-MT01, S-MT05, S-MT07 for details). Adjust the task to reduce the use of compensatory strategies i.e. by

altering the environment, using verbal cueing or providing manual guidance. Determine if the client is able to perform the task within the training parameters. If compensatory strategies continue, cease the task and discuss with the health professional that prescribed the rehabilitation program.

  - the client performs the task appropriately within the required rehabilitation program parameters. Consider progressing the program to challenge the client to work within a training threshold. See Progression below.
  - the client reports pain during or after task performance. Monitor the client using a pain rating scale during task performance and pause the activity. Discomfort from exercise should settle quickly once the exercise is ceased. If the client has been unable to attain a training threshold, consider altering the environment and/or equipment to reduce the physical requirements e.g. higher seat, lower step. If pain persists or does not settle quickly with exercise cessation, contact the medical team to request a review of the client's pain. Discuss the parameters for exercise performance with the prescribing health professional before recommencing the rehabilitation program.
- Monitor for adverse reactions and implement appropriate mitigation strategies as outlined in Safety and quality section above.

6. Progression

- Task progression strategies may be implemented by the skill share-trained professional if this is indicated by the client's performance. This may include:
  - changing the training environment e.g. altering the number of distractions, such as quiet gym progressed to open gym area.
  - reducing the level of support provided, such as the amount of verbal prompting, cueing or manual guidance/support provided e.g. standing beside the wall progressed to open area, light assistance progressed to supervision.
  - increasing the training parameters (resistance/duration/sets/frequency/repetitions) e.g. for sit to stand increase resistance by lowering the seat height, and for weight shifting/stepping by increasing the step height. See Table 1 in the Learning resource.
  - incorporating the activity into the functional task e.g. mini squats progressed to sit to stand, stepping on/off block progressed to stairs.
- Significant changes to the program including introducing new exercises or discontinuing exercises should be discussed with the professional who prescribed the program.

7. Document

- Document the outcomes of the task as part of the skill share-trained health professional's entry in the relevant clinical record, consistent with documentation standards and local procedures.
- The skill shared task should be identified in the documentation as "delivered by skill shared-trained (insert profession) implementing "CTI S-MT10: Review and progress a transfer and/or walking training program" (or similar wording).

References and supporting documents

- Caillou N, Delignieres D, Nourrit-Luca D, Lauriot B (2003). Overcoming spontaneous patterns of coordination during acquisition of a complex balancing task. Canadian Journal of Experimental Psychology 56: 284-294. Doi: 10.1037/h0087404
- Carr JH, Shepherd RB (1991). A motor relearning program for stroke (2nd Ed). Butterworth-Heinemann: Oxford.
- Carr JH, Shepherd RB, Gordon J, Gentile AM, Held JM (1987). A motor relearning programme for stroke (2nd Ed). Butterworth-Heinemann Ltd: Oxford.
- Esco MR (2013). Information on resistance training for health and fitness. American College of Sports Medicine.
- Fell DW (2004). Progressing therapeutic intervention in patients with neuromuscular disorders: a framework to assist clinical decision making. Journal of Neurological Physical Therapy 28(1):35-46. DOI: 10.1097/01.NPT.0000284776.32802.1b.
- Kirtley C, Whittle MW, Jefferson RL (1985). Influence of walking speed on gait parameters. Journal of Biomedical Engineering. 7(4):282-8.
- Pdphe.net (2020). Training thresholds. Available at: https://www.pdhpe.net/factors-affecting-performance/how-does-training-affect-performance/principles-of-training/training-thresholds/
- Queensland Health (2017). Guide to Informed Decision-making in Health Care (2nd edition). Available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0019/143074/ic-guide.pdf
- Wuest, van de Langenberg R, de Bruin, ED (2013). Design considerations for a theory-driven exergame-based rehabilitation program to improve walking of persons with stroke. European Review of Aging and Physical Activity 11:119-129. DOI: 10.1007/s11556-013-0136-6.
- Zong-Ming, Li (2006). Functional degrees of freedom. Motor control 10(4): 301-310. doi: 10.1123/mcj.10.4.301.

Assessment: performance criteria checklist

S-MT10: Review and progress a transfer and/or walking training program

Name: **Position:** **Work Unit:**

Performance Criteria	Knowledge acquired	Supervised task practice	Competency assessment
	Date and initials of Lead HP	Date and initials of Lead HP	Date and initials of Lead HP
Demonstrates knowledge of fundamental concepts required to undertake the task through observed performance and the clinical reasoning record.			
Identifies indications and safety considerations for task and makes appropriate decision to implement task, including any risk mitigation strategies, in accordance with the clinical reasoning record.			
Completes preparation for task including reviewing the planned functional retraining program, collecting required equipment and checking for suitability to the client's needs.			
Describes task and seeks informed consent.			
Prepares environment and positions self and client appropriately to ensure safety and effectiveness of task, including reflecting on risks and improvements in clinical reasoning record where relevant.			
Delivers task effectively and safely as per CTI procedure, in accordance with the learning resource. a) Clearly explains and demonstrates task, checking client's understanding. b) Appropriately determines the client's suitability to participate in the prescribed functional retraining program, including review of the client's medical record. c) Implements the prescribed functional retraining program by: - appropriately describing and/or demonstrating the activity. - correctly setting up the practice environment for the activity. - accurately assesses and describes the client's performance during the task.			

- provides timely, accurate and appropriate feedback during the task. d) Determines client's capacity to participate in each prescribed activity before commencing. During task, maintains a safe clinical environment and manages risks appropriately.			
Monitors for performance errors and provides appropriate correction, feedback and/or adapts task to improve effectiveness, in accordance with the clinical reasoning record.			
Documents in clinical notes including reference to task being delivered by skill share-trained health professional and CTI used.			
If relevant, incorporates outcomes from task into intervention plan e.g. plan for task progression, interprets findings in relation to care planning, in accordance with the clinical reasoning record.			
Demonstrates appropriate clinical reasoning throughout task, in accordance with the learning resource.			

Notes on the service model in which the health professional will be performing this task:
Comments should include details regarding scope on weight bearing status, types of walking aids, stairs, enviornments, client groups, etc.

Comments:

Record of assessment of competence		
Assessor name:	Assessor position:	Competence achieved: / /

Scheduled review
Review date / /

S-MT10: Review and progress a transfer and/or walking training program

Clinical reasoning record

- The clinical reasoning record can be used:
  - as a training resource, to be completed after each application of the skill shared task (or potential use of the task) in the training period and discussed in the supervision meeting.
  - after training is completed for the purposes of periodic audit of competence.
  - after training is completed in the event of an adverse or sub-optimal outcome from the delivery of the clinical task, to aid reflection and performance review by the lead practitioner.
- The clinical reasoning record should be retained with the clinician's records of training and not be included in the client's clinical documentation.

Date skill shared task delivered: _____

1. Setting and context

- insert concise point/s outlining the setting and situation in which the task was performed, and their impact on the task

2. Client

Presenting condition and history relevant to task

- insert concise point/s on the client's presentation in relation to the task e.g. presenting condition, relevant past history, relevant assessment findings

General care plan

- insert concise point/s on the client's general and profession-specific/allied health care plan e.g. acute inpatient, discharge planned in 2/7

Functional considerations

- insert concise point/s of relevance to the task e.g. current functional status, functional needs in home environment or functional goals. If not relevant to task - omit.

Environmental considerations

- insert concise point/s of relevance to the task e.g. environment set-up/preparation for task, equipment available at home and home environment. If not relevant to task - omit.

Social considerations

- insert concise point/s of relevance to the task e.g. carer considerations, other supports, client's role within family, transport or financial issues impacting care plan. If not relevant to task - omit.

Other considerations

- insert concise point/s of relevance to the task not previously covered. If none - omit.

3. Task indications and precautions considered

Indications and precautions considered

- insert concise point/s on the indications present for the task, and any risks or precautions, and the decision taken to implement/not implement the task including risk management strategies.

4. Outcomes of task

- insert concise point/s on the outcomes of the task including difficulties encountered, unanticipated responses

5. Plan

- insert concise point/s on the plan for further use of the task with this client including progression plan (if relevant)

6. Overall reflection

- insert concise point/s on learnings from the use of the task including indications for further learning or discussion with the lead practitioner

Skill share-trained health professional	**Lead health professional (trainer)**
Name:	Name:
Position:	Position:
Date this case was discussed in supervision:	**/ /**
Outcome of supervision discussion:	e.g. further training, progress to final competency assessment

Review and progress a transfer and/or walking training program: Learning resource

Required reading

The skill share-trained health professional, in collaboration with the lead health professional, will consider where learning gaps exist and the extent of required reading. This will be based on the trainee's current scope of practice, experience and knowledge.

Frameworks for functional rehabilitation

- Fell DW (2004). Progressing therapeutic intervention in patients with neuromuscular disorders: a framework to assist clinical decision making. Journal of Neurologic Physical Therapy 28(1):35-46. DOI: 10.1097/01.NPT.0000284776.32802.1b. Available at: http://journals.lww.com/jnpt/Fulltext/2004/03000/Progressing_Therapeutic_Intervention_in_Patients.5.aspx
- Gentile's motor skill taxonomy p121. Wuest S, van de Langenberg R, de Bruin, ED (2013). Design considerations for a theory-driven exergame-based rehabilitation program to improve walking of persons with stroke. European Review of Aging and Physical Activity 11:119-129. Available at: https://eurapa.biomedcentral.com/articles/10.1007/s11556-013-0136-6

Transfer and/or walking retraining

- Dal Bello-Haas V, Tryssenaar J (2018). Part IV: Service Delivery for the Aging Client: Chapter 32: Rehabilitation. In Functional Performance in Older Adults (4th Ed). FA Davis Company Publishers: Philadelphia. Available through CKN e-books for Queensland Health staff. Sections for review:
  - The rehabilitation team p493-495
  - Personal and environmental factors to consider p499-501
- Physiopedia (2020)
  - Gait Re-education in Parkinson's Disease. Available at: http://www.physio-pedia.com/Gait_Re-education_in_Parkinson%27s_Disease
  - Gait training in stroke. Available at: https://www.physio-pedia.com/Gait_Training_in_Stroke
  - Principles of exercise. Available at: https://www.physio-pedia.com/Principles_of_Exercise

Local resources

- Local service protocols/procedures/guidelines for mobility and transfer exercise programs, care pathways, maintenance of equipment requirements as relevant for the local implementation.
- The lead health professional may identify key texts that are relevant to the rehabilitation approach and available in the local setting. For example:
  - Carr JH, Shepherd RB, Gordon J, Gentile AM, Held JM (1987). A motor relearning programme for stroke (2nd Ed). Butterworth-Heinemann Ltd: Oxford.
  - Carr JH, Shepherd RB, Gordon J, Gentile AM, Held JM (1987). Movement science: foundations for physical therapy in rehabilitation. Heinemann Physiotherapy: London.

- Shumway-Cook A, Woollacott MH (2017). Motor control: translating research into clinical practice (5th Ed). Wolters Kluwer: Philadelphia.

Example readings for specific client populations

The scope of the local implementation will define the client population. Additional learning materials may need to be located. The following readings are provided as examples for common client groups.

Rehabilitation of the older person

- Dal Bello-Haas V, Tryssenaar J (2018). Part IV: Service Delivery for the Aging Client: Chapter 32: Rehabilitation. What makes older adult rehabilitation unique? p492-493. In Functional Performance in Older Adults (4th Ed). FA Davis Company Publishers: Philadelphia. Available through CKN e-books for Queensland Health staff.

Stroke rehabilitation

- Sullivan KJ, Mulroy S, Kautz SA, Stein J, Zorowitz R, Harvey R, Macko R, Winstein C (2009). Chapter 21: Walking recovery and rehabilitation after stroke, p323-342. In Stroke Recovery and Rehabilitation. Demos Medical Publishing LCC: New York. Available through CKN e-books for Queensland Health staff.
- Walker MF, Sunnerhagen KS, Fisher RJ (2013). Evidence-based community stroke rehabilitation. Stroke 44: 293-297 doi.org/10.1161/STROKEAHA.111.639914. Available at: http://stroke.ahajournals.org/content/44/1/293.full

Orthopaedic rehabilitation

- Manske RC, Nigrini CM, Brotzman B (2011). Chapter 6: The Arthritic Lower Extremity. In Clinical Orthopaedic Rehabilitation – an evidence-based approach. 3rd Ed. Ed's Brontzman SB, Manske RC, Daugherty K. Elsevier Mosby: Philadelphia. Available through CKN e-books for Queensland Health staff.

Parkinson disease

- Exercise is Medicine Australia Factsheet (2014). Parkinson disease and exercise. Available at: http://exerciseismedicine.com.au/wp-content/uploads/2018/06/2014-Parkinsons-Disease-FULL.pdf
- Parkinson's Foundation (2020). Exercise. Available at: https://www.parkinson.org/Understanding-Parkinsons/Treatment/Exercise

Principles of functional retraining programs

- Carr, Shepherd, Gordon, Gentile and Held (1987) describe functional retraining as involving four steps:
  1. Analysis of the task – observation of the task including compensatory strategies, comparison of performance to normal movement patterns and a decision of retraining strategies.
  2. Practice of missing components – ongoing analysis and evaluation of performance, providing instruction and feedback (verbal, visual and manual guidance).
  3. Practice of the task - ongoing analysis and evaluation of performance, providing feedback, re-evaluation of the task.
  4. Transference of training - providing opportunity to practise in context and consistently outside of the therapy session e.g. training of staff or care givers to support correct performance during task performance e.g. every time they perform sit to stand, walking.

  This CTI focuses on steps 2-4. Prescription of the retraining program occurs in step 1.
- Task specific training is based on the assumption that practice of functionally specific activities (through muscle action, postural adjustments) will improve performance (Wuest, Van de Langenberg, de Bruin, 2013). To achieve optimal outcomes of rehabilitation, the activities should be matched to the client's functional abilities and limitations, programs should be sufficiently challenging yet achievable, and aimed at return to usual function for the client (Fell, 2004). For example, the sitting balance requirements for a sedentary retiree would be different to that of a working stockman.
- Practice of the activity is guided by the training parameters (Esco, 2013). The training prescription will outline the following parameters:
  - the activity to be performed (mode)
  - for how long (duration)
  - how hard (intensity)
  - how often (frequency).
- Determining the training dose will be based on the client's performance of the activity.
- The training threshold is defined as the minimum level of intensity needed in order to stress the body enough to cause an adaptation or improvement in performance (Pdhpe.net, 2020). Exercise has both an aerobic and anaerobic component. The exercise is not considered to be effective when the minimum training threshold is not achieved Training thresholds differ between people due to gender, body type, age, fitness level, etc. Finding the training threshold ensures the client can perform the required movement pattern and yet challenging enough to produce physiological changes.
- If the task is too easy (i.e. normal movement patterns are performed consistently within training parameters) or too difficult (i.e. poor movement pattern or introduction of compensatory strategies are performed or performance does not meet training parameters/thresholds to be beneficial), the activity will need to be adjusted to be more or less complex, so that the client continues to be challenged but the exercise goal is achievable. See Table 1 for examples.

For an understanding on training parameters for exercise prescription read:

- Suleman A (2016). Exercise prescription. Medscape. Read sections: Background, overview and general guidelines. Available at: http://emedicine.medscape.com/article/88648-overview#a1

Table 1 Examples of training parameters for transfers and mobility

Training Parameter	Sitting Balance	Sit to Stand	Standing Balance	Walking
Mode	Upright sitting and reaching forward to pick up an object from a table	Sit to stand, focusing on bringing shoulders and knees forward with manual guidance	Upright standing with eyes open/eyes closed	Calf raises on the edge of a block with a goal to improve push off during walking
Duration	See Frequency	See Frequency	10 seconds	See Frequency
Intensity	Maintaining sitting balance during reaching task	Seat height @ 55cm	Maintain normal standing balance during task	In standing with hand support on parallel bars calf raises on the edge of a 5 cm block
Frequency	6 reps, 3 sets	8 reps, 2 sets	10 reps, 1 set	8 reps, 3 sets
Increasing the dose	Reaching further (measured in centimetres or body posture observation e.g. arm straight +10cm reach) Increasing the number of reps e.g. 10 reps, 3 sets	Reducing the amount of manual guidance Increasing the number of reps and/or sets until 12-15 reps, 3 sets Reducing the seat height to 50cm will increase the torque and force required to stand up	Alter base of support e.g. feet together, step standing, single leg stance with eyes open/eyes closed	Increase the number of reps to 12 reps, 3 sets Reduce/remove hand support Single leg calf raises to increase the load Progress to walking and include verbal cueing of push off during walking

Principles for adjusting task complexity

There are a number of factors that can be adjusted to alter task complexity and ensure that the client is practicing an activity that is achievable, yet challenging.

- Base of support. The base of support refers to the area beneath a person/object. The larger the base of support the more stable the person/object is. This is why standing is less stable than sitting and why walking aids, which increase the base of support, increase a client's walking stability. Functional retraining for clients with balance issues focuses on reducing the base of support. For example, whilst maintaining balance in sitting, standing or during walking, bringing the feet closer together will reduce the base of support. Changing a client's walking aid (for example from a four wheeled walker to a walking stick) will alter the base of support and the balance requirements. For more information read: Physiopedia (2020). Base of Support. Available at: http://www.physio-pedia.com/Base_of_Support
- Centre of gravity. The centre of gravity of the human body is a hypothetical point around which the force of gravity appears to act. Maintaining balance is easier when the centre of gravity is lower and centered within the base of support. Lifting arms or reaching (particularly outside the base of support) will move the centre of gravity and require a 'reaction' to maintain stability. Functional

retraining for clients with balance issues focuses on anticipatory/preparatory and ongoing postural adjustments to movements of the centre of gravity. For example, in sitting or standing, turning the head/trunk, reaching in various directions or lifting/carrying an item moves the centre of gravity, and so a reaction is required to maintain balance. For more information read: Physiopedia (2020). Centre of Gravity. Available at: http://www.physiopedia.com/Centre_of_Gravity

- Degrees of freedom. The human musculoskeletal system has many degrees of freedom with countless movement options available. The coordination of movements and body postures will determine the movement pattern (Zong-Ming 2006). Poor movement patterns result from inadequate coordination. Functional retraining for clients with poor coordination requires practice with normal timing, force and movement patterns (Caillou, Delignieres, Nourrit-Luca, Lauriot 2003). This may include reducing the number of 'active' degrees of freedom the client needs to control, or the 'coupling' of movements in various degrees of freedom, which are constrained to function as one. For a client with poor knee control during sit to stand, providing manual guidance of the knee (forward and downward pressure) reduces the degrees of freedom the client needs to control. Progression then involves reducing the amount of support as performance improves. The coupling of movement is apparent when considering the impact of walking speed on ankle dorsiflexion and knee flexion during the swing phase i.e. peak knee flexion moment is strongly related to walking speed (Kirtley, Whittle, Jefferson 1985).
- Part practice. Part practice can reduce the complexity of the task by allowing singular focus on a component of the task. For example, in standing, practicing stepping forward/backwards on one leg with a focus on knee control in stance. This allows feedback and concentration to be focused on one aspect of the task. It is important that part practice is then incorporated into practice of the whole task to allow transference as whole task practice also allows the timing and rhythm of the movement to occur (Carr and Shepherd 1991). For more information, read: Carr JH, Shepherd RB (1991). p32-34. A motor relearning program for stroke (2nd Ed). Butterworth-Heinemann: Oxford.
- Cognitive demands and attention. For most people, transfers and walking are an automated task, requiring minimal cognitive input and allowing us to concentrate on other things e.g. walking and talking, observing and responding to our environment. When learning a new task or relearning a task, an increase in concentration on the task performance is required. Functional retraining may include the graded introduction of cognitive demands. Generally, training will start in quiet, distraction free environments. As performance improves distractions can be increased (by moving from quiet to noisier/busier environments), or increasing attention on other things during task performance (talking, counting), or by reducing the amount of feedback provided e.g. reducing visual input by closing the eyes for sitting/standing balance, or changing cueing during the task e.g. removing external timing (metronome) or visual (lines on floor) for a client with Parkinson's Disease. For more information, read: Beurskens R, Bizon JL (2012). Review article – Age-related deficits of dual-task walking: a review. Neural Plasticity. Article ID 131608, 9 pages. Available at: https://www.hindawi.com/journals/np/2012/131608/
- Variety of practice experiences. The goal of task retraining is to be able to perform transfers and walking in a variety of environments, settings and situations. Initially, however, the practice environments, settings and situations may be limited due to safety. As the client improves the broadening of environments, settings and situations will allow consistency of practice. Task specific training includes consistent practice of the task, this includes during random practice, individual and therapist supported practice sessions. Practice of the task reinforces the correct movement patterns (Carr and Shepherd 1991). This requires staff, carers and clients to be aware of any cues and manual guidance used to facilitate the client's correct performance of the task. For

example, manual guidance for foot placement to stand up beside the bed, off the toilet/shower commode and in the gym area, or the use of verbal cueing to increase step length during walking to/from the shower/dining room and in the gym area. For more information, read: Carr JH, Shepherd RB (1991). p34-35. A motor relearning program for stroke (2nd Ed). Butterworth-Heinemann: Oxford.

Delivery of a retraining program must ensure that suitable training parameters are met. During practice sessions, monitoring and adjustment to the training parameters may be required based on the client's performance. See Figure 1: Clinical reasoning decision making tool for undertaking a functional retraining program.

Figure 1 **Clinical reasoning decision making tool for undertaking a functional retraining program**