

Clinical Task Instruction

Skill Shared Task

S-MT11: Prescribe and administer bridging intervention: functional retraining for sit to stand

Scope and objectives of clinical task

This CTI will enable the health professional to:

- prescribe, implement and review a functional rehabilitation program for sit to stand that the client will practice, with or without assistance, between therapy sessions.

VERSION CONTROL

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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.

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- provide education to the client and/or carers (nursing staff/carer) regarding the rehabilitation program including specific program details, monitoring requirements, training thresholds and practice requirements.
- contribute to the client's care plan based on observation of the client's functional performance and progress.

Note: This CTI is designed for health professionals with a qualification that includes relevant musculoskeletal anatomy, movement analysis and functional training and rehabilitation principles.

The purpose of a bridging task is to provide timely intervention as part of the management plan to address functional deficits identified on the skill shared assessment. It is intended to support a comprehensive rehabilitation program prescribed by the lead health professional which may be part of a collaborative practice service delivery model i.e. CTI S-MT10: Review and progress a transfer and/or walking training program.

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
- environments e.g. rehabilitation ward, client's home, community settings
- client groups e.g. chronic disease, 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 training requirements, complete training in patient manual handling techniques, including lying to sitting techniques, the use of walk belts and sit to stand transfers.
- A university qualification that includes relevant musculoskeletal anatomy (particularly appendicular skeleton), movement analysis and functional retraining of physical tasks and rehabilitation programming for mobility and physical function tasks. This includes task observation and analysis skills, training progression, training threshold and functional retraining skills including feedback.
- Completion of the following CTIs or equivalent professional competence:
 - S-MT05: Assess standing balance
 - S-MT07: Assess standing transfer
 - S-MT08: Assess and manage falls risk and risk reduction strategies for older persons in community settings using the FROP-Com.

Clinical knowledge

- To deliver this clinical task, a health professional is required to possess the following theoretical knowledge:
 - expected progression and local service procedures, protocols and guidelines for mobility and transfers for conditions requiring rehabilitation that are relevant to the CTI implementation. This may include rehabilitation pathways and programs for sub-acute total hip replacement, total knee replacement, fractured neck of the femur, cardiac surgery or event, stroke, arthritis, Parkinson's disease, falls and balance.
 - common strategies used to retrain sitting balance, sit to stand and standing alignment including adjustment of the practice environment (seating height), positioning and manual guidance, part practice, cueing strategies and use of feedback e.g. scales, mirrors, verbal.
 - procedures for use and maintenance of equipment as relevant to the local implementation.
- The knowledge requirements will be met by the following activities:
 - complete the training programs listed above
 - review of the Learning resource
 - receive instruction from the lead health professional in the training phase
 - read and discuss references and resources relevant for the local implementation with the lead health professional in the training phase e.g. local service protocols, procedures, guidelines for mobility and transfer programs, care pathways and maintenance of equipment requirements.

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 or ability to acquire competence in monitoring requirements and equipment for the client group/s relevant to the local implementation e.g. oxygen saturation (O₂Sat), heart rate, blood pressure, pain and/or exertion. Monitoring tools may include specific equipment, rating scales and outcomes measures e.g. five times sit to stand test (FTSTS), 1-minute sit-to-stand test and 30-second chair stand test. These should be listed in the Performance Criteria Checklist local implementation comments section for the assessment of standing transfers i.e. CTI S-MT07: Assess standing transfer.
 - demonstrated skills in prescribing, implementing and evaluating/reviewing a client-centred rehabilitation program, including developing and negotiating goals and engaging the client and carers in their program to improve function.
 - **relevant but not mandatory** for a health professional to possess in order to deliver this task:
 - demonstrated competence in related functional retraining tasks for sit to stand, transfers and/or walking e.g. CTI S-MT10: Review and progress a transfer and/or walking training program and/or CTI S-MT12: Prescribe and administer bridging intervention: functional retraining for walking.

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 they will deliver this clinical task. 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 balance, standing transfers and/or standing alignment. This may have been identified by the skill share-trained health professional when implementing CTI S-MT07: Assess standing transfer or CTI S-MT05: Assess standing balance.
- The client is able to participate in a functional retraining program i.e. is medically stable, has been cleared to participate in a functional retraining program, or is living in the community and is not acutely unwell.

Limitations

- Limitations listed in CTI S-MT05, CTI S-MT07 and CTI S-MT08 apply.
- Additional limitations include:
 - the client requires more than light assistance with sit to stand.
 - the client has significantly limited or restricted activity levels due to cardiopulmonary function e.g. heart failure, COPD or oxygen dependency. The client may present with shortness of breath and an inability to perform a therapeutic number of repetitions without repeated rest periods. Discuss with the physiotherapist and the medical team the parameters for exercise prescription, monitoring requirements and methods prior to prescribing a program.
 - the client has medical or surgical restrictions that preclude participation in a sit to stand retraining program, or restrictions are outside the scope of the skill share-trained health professional e.g. weight bearing status, rest in bed orders, care pathway restrictions.
 - the client has experienced a new fall since last reviewed. The client will require a falls risk assessment prior to re-engagement in the functional retraining program i.e. adherence to local falls protocols and pathways, implementation of S-MT08: Assess and manage falls risk and risk reduction strategies for older persons in community settings using the FROP-Com.
 - the client does not meet local service eligibility criteria e.g. on assessment there is no functional decline since the last episode of care, or the age or diagnosis criteria are not met. Discuss eligibility requirements with the client and alternative service options e.g. private therapy, community groups and/or programs.

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 training program and appropriate safety measures considered including floor surface texture and temperature.

Equipment, aids and appliances

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

Environment

- The environment set-up should support the rehabilitation goals. This may include removal or inclusion of distractions, placement of equipment (mirror/cones/block/chair) and determining the appropriate setting for the practice session e.g. bedside, gym, parallel bars, outside.
- If the task is being undertaken in the client's home, a visual inspection of the practice environment should be conducted for safety, including the removal of clutter, checking for loose floor coverings or rails. If a fault is present, the client and/or carer should be informed regarding the required maintenance and an alternative practice location chosen.

Performance of clinical task

1. Preparation

- Determine any equipment required for the prescribed functional retraining program e.g. height adjustable seat, blocks or cones, and feedback tools such as a mirror, tape measure or stopwatch. Perform an equipment safety check.
- Check the client's shoes are on and appropriate.

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:
 - initially sitting, with feet on the floor.

- 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 observe performance and provide feedback and if necessary, assistance for safety including verbal cueing and manual guidance.

4. Task procedure

- The task comprises the following steps:
 1. Use information collected from the medical chart and subjective assessments to determine the client's suitability to participate in a functional retraining program. Refer to the Indications and limitations section. If not suitable, cease the task and discuss with the medical team (if indicated) and a health professional with expertise in the task.
 2. Use information from the standing transfer assessment (CTI S-MT05) and balance assessment (CTI S-MT07) and compare performance to normal movement patterns. Note any deviations from the normal movement pattern and compensatory strategies used.
 3. Develop a list of functional goals in partnership with the client. As the focus of this CTI is implementing bridging interventions following the skill shared assessment, the goal/s will focus on observed problems with sit to stand that are amenable to short term intervention and client practice. More substantial or longer-term functional rehabilitation of sit to stand will involve goal setting and intervention planning in collaboration with a health professional with expertise in the task. For stepping retraining for transfers, see CTI S-MT12.
 4. Design a functional retraining program for sit to stand including training parameters, performance measures and monitoring requirements, environmental set up requirements, carer assistance and/or client compensatory strategies. This will include the number of sets and repetitions, height of seat, practice environment, cueing/manual guidance requirements, monitoring requirements e.g. observation, pain scale, rates of perceived exertion.
 5. Practice the planned program with the client and/or carer, observing performance and adjusting training parameters to meet the training threshold.
 6. Adjust the functional retraining program to be at a training threshold suitable for the client. If receiving carer assistance/support for practice, this must not exceed the capacity of the carer.
 7. In consultation with the client and any relevant team members, determine the need and timeframe for review of the program and progress arrangements as required.

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 planned activity. Check the activity set-up e.g. seat height, number of repetitions, and 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 duration, repetitions or frequency. If no immediate improvement in performance is observed, cease the task and liaise with a health professional with expertise in the task.
 - the client performs the task but compensatory strategies are noted, see CTI S-MT05 and CTI S-MT07 for details. Adjust the task to reduce the use of compensatory strategies i.e. by altering the environment, using verbal cueing or manual guidance. Determine if the client is able to

perform the task within the training parameters. If compensatory strategies continue, cease the task and liaise with a health professional with expertise in the task.

- the client performs the task appropriately within the required rehabilitation program parameters. Consider progressing the program to challenge the client to work within a new training threshold. See section 6. Progression below.
 - the client reports pain during or after task performance. Monitor the client using a pain rating scale during task performance and if indicated, 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, equipment or assistance provided e.g. higher seat, re-introduce manual guidance and support. 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 a health professional with expertise in the task.
- Monitor for adverse reactions and implement appropriate mitigation strategies as outlined in the Safety and quality section above.

6. Progression

- The scope of this CTI relates to a bridging intervention following a skill share assessment for sit to stand. For implementing the progression of sit to stand retraining program under a collaborative practice model see CTI S-MT10.
- Strategies to develop an appropriate training threshold for the prescribed bridging intervention include:
 - changing the training environment e.g. altering the number of distractions such as moving from a quiet gym to an open gym area.
 - reducing the level of support provided. This may include the amount of cueing, manual guidance or support provided e.g. beside the wall progressed to an open area, light assistance progressed to standby assistance.
 - increasing the training parameters (resistance, duration, sets, frequency, repetitions) e.g. for sit to stand increase resistance by lowering the seat height.
 - incorporating the training activity into functional tasks task e.g. mini-squats progressed to sit to stand, standing up from different seat heights or chair types.

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 relevant documentation standards and local procedures and commenting on the client's ability to complete the training task including the following specifics of performance:
 - practice environment/s including available hand support e.g. wall, bed, plinth, or rail in front of or beside the client
 - the height of the seating surface
 - equipment requirements e.g. scales, mirror, cone or markers
 - the planned feedback for performance e.g. self-monitoring, mirror, pain rating scale or manual guidance
 - assistance requirements including cueing (internal/external) and/or manual guidance

- prescription parameters i.e. number of repetitions and sets and the frequency of performance.
- The skill shared task should be identified in the documentation as “delivered by skill share-trained (*insert profession*) implementing CTI S-MT11: Prescribe and administer bridging intervention: functional retraining for sit to stand” or similar wording.

References and supporting documents

- Carr JH, Shepherd RB, Gordon J, Gentile AM, Held JM (1987). A motor relearning programme for stroke (2nd Ed). Butterworth-Heinemann Ltd: Oxford.
- Janssen WG, Bussmann HB, Stam HJ (2002). Determinants of the sit-to-stand movement: a review. *Physical Therapy* 82(9):866-79.
- Mak MKY, Hui-Chan CWY (2005). The speed of sit-to-stand can be modulated in Parkinson's disease. *Clinical Neurophysiology* 116(4):780-789.
- Pai Y-C, Rogers MW (1991). Speed variations and resultant joint torques during sit-to-stand. *Archives of Physical Medicine Rehabilitation* 72:881-5.
- 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

Assessment: performance criteria checklist

S-MT11: Prescribe and administer bridging intervention: functional retraining for sit to stand

Name:

Position:

Work Unit:

Performance criteria	Knowledge acquired	Supervised task practice	Competency assessment
	<i>Date and initials of supervising AHP</i>	<i>Date and initials of supervising AHP</i>	<i>Date and initials of supervising AHP</i>
Demonstrates knowledge of fundamental concepts required to undertake the task through observed performance and the clinical reasoning record.			
Identifies indications and safety considerations for the task and makes appropriate decisions to implement the task, including any risk mitigation strategies, in accordance with the clinical reasoning record.			
Completes preparation for the task including determining and collecting the required equipment, conducting an equipment safety check, setting up the environment, and confirming the client is wearing suitable footwear.			
Describes the task and seeks informed consent.			
Prepares the environment and positions self and client appropriately to ensure safety and effectiveness of the task, including reflecting on risks and improvements in the clinical reasoning record where relevant.			
Delivers the task effectively and safely as per the CTI procedure in accordance with the Learning Resource. <ul style="list-style-type: none"> a) Clearly explains and demonstrates the task, checking the client's understanding. b) Uses information collected from subjective assessment and the clinical record to determine the client's suitability to participate in a functional retraining program for sit to stand. c) Uses information from the assessment and accurately identifies functional deficits and appropriate clinical monitoring requirements for the planned program. d) Develops goals relevant to the bridging intervention program. e) Appropriately prescribes a functional retraining program including an independent practice program. f) Reviews the prescribed program and adjusts to match training thresholds for the client. g) Determines the need, timeframe and process for review. h) During the task, maintains a safe clinical environment and manages risks appropriately. 			

Monitors for performance errors and provides appropriate correction, feedback and/or adapts the task to improve effectiveness, in accordance with the clinical reasoning record.			
Documents in the clinical notes including a reference to the task being delivered by the skill share-trained health professional and the CTI used.			
If relevant, incorporates outcomes from the task into an 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 the 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, environments, client groups. Information on and competence in any local service protocol requirements e.g. five times sit to stand test.

Comments:

Record of assessment competence:

Assessor name:	Assessor position:	Competence achieved: / /
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Scheduled review:

Review date: / /	
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S-MT11: Prescribe and administer bridging intervention: functional retraining for sit to stand

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

Name:

Position:

Date this case was discussed in supervision:

Outcome of supervision discussion:

Lead health professional (trainer)

Name:

Position:

/ /

e.g. further training, progress to final competency assessment

Prescribe and administer bridging intervention: functional retraining for sit to stand: Learning resource

This CTI assumes the skill share-trained health professional possesses a tertiary qualification and current eligibility to practice in a profession that possesses knowledge of musculoskeletal anatomy, movement analysis and functional retraining of physical tasks and rehabilitation programming for functional tasks. This includes task analysis, training progression, training threshold and functional retraining techniques including feedback. This information is not included in this Learning resource.

Required reading

- Bull F, Al-Ansari S, Biddle S, et al (2020). World Health Organisation 2020 guidelines on physical activity and sedentary behaviour. *British Journal Sports Medicine* 54(24): 1451-1462. DOI: 10.0036/bjsports-2020-102955. Available at: <https://bjsm.bmj.com/content/54/24/1451>
- De Sousa DG, Harvey LA, Dorsch S, Varetas B, Jamieson S, Murphy A, Giaccari S (2019). Two weeks of intensive sit-to-stand training in addition to usual care improves sit-to-stand ability in people who are unable to stand up independently after stroke: a randomised trial. *Journal of Physiotherapy* 65(3): 152-158. <https://doi.org/10.1016/j.jphys.2019.05.007> Available at: <https://www.sciencedirect.com/science/article/pii/S1836955319300542>
- 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. Available at: http://journals.lww.com/jnpt/Fulltext/2004/03000/Progressing_Therapeutic_Intervention_in_Patients.5.aspx
- Lee PG, Jackson EA, Richardson CR (2017). Exercise prescription in older adults. *American Family Physician* April 1; 97(7): 425-432. Available at: <https://www.aafp.org/afp/2017/0401/p425.html>

Optional reading

- Boukadida A, Piotte F, Dehail P, Nadeau S (2015). Determinants of sit-to-stand tasks in individuals with hemiparesis post stroke: a review. *Annals of Physical and Rehabilitation Medicine* 58(3): 167-712. <https://doi.org/10.1016/j.rehab.2015.04.007> Available at: <https://www.sciencedirect.com/science/article/pii/S187706571500055X>

Required viewing

- National Stroke Association (2015). Sit to stand. Available at: <https://www.bing.com/videos/search?q=sit+to+stand+stroke+&&view=detail&mid=DC07669158781AEC0E67DC07669158781AEC0E67&&FORM=VDRVRV>
- NHS Oxford University Hospitals NHS Foundation Trust (2020). Manual handling - sit to stand (version 2). Available at: <https://www.youtube.com/watch?app=desktop&v=V1PVkR0Hcjo>

Optional viewing

- Julia Krahm (2013). Movement analysis, sit to stand. Available at: <https://www.bing.com/videos/search?q=sit+to+stand+stroke+&&view=detail&mid=CC447A85471E68F6A57CCC447A85471E68F6A57C&&FORM=VDRVRV>
- Prich3 (2011). CVA motion analysis sit to stand.m4v. Available at: <https://www.youtube.com/watch?app=desktop&v=IhmNyqSvlhg>

Local resources

- Local service protocols, procedures, guidelines for mobility and transfer programs, care pathways and 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.

Exercise thresholds, monitoring and tolerances

The skill share-trained health professional will need to determine the parameters for exercise. This will include the type of exercise, duration, frequency, repetitions, and sets. This CTI will focus on the type of activities to include for a functional retraining program for sit to stand. Information on the duration, frequency, number of repetitions and number of sets will not be covered. If required, review this information from undergraduate training. As part of training in this CTI, discuss the application of these concepts to sit to stand functional retraining with the lead health professional.

Prescribing a functional retraining program for sit to stand

Carr and Shepherd (1987) have proposed that in order to achieve optimal improvement in performance of functional tasks like walking and sit-to-stand, clients need to practice exercises which approximate these tasks. The goal of functional retraining is to improve task performance by supporting the practice of normal movement patterns. The assessment process determines the client's usual movement pattern and variances from normal, firstly in sitting, then during the movement of sit to stand and finally in standing. Poor movement patterns can result in changes in neuroplasticity affecting motor co-ordination/recruitment patterns and control, and can impact on muscle length and strength, and other musculoskeletal adaptive change. Timely prescription of a functional retraining program aims to reduce and/or prevent pathological changes. The main purpose of functional retraining for the skill share-trained health professional is to facilitate a more "normal" movement pattern for sit to stand by adjusting the environment, providing feedback and/or assistance to improve performance and practice sitting down and standing up as part of retraining. Basic strategies to retrain sit to stand are described in Table 1 below.

Exercises to address specific problems with lower limb strength, length and co-ordination can be beneficial and should be included as part of a collaborative service model using CTI S-MT10.

Setting up the environment

Practice environment (general)

With the client and carer (if relevant), determine where the functional retraining program will occur. The area should be free of clutter. Practicing next to a wall, rail or bench can improve safety and it can also give the client a sense of security. The practice environment should be recorded as part of the prescription process including support available to the client for safety such as a wall, bed, plinth, or rail in front of or beside the client.

Hand support

If the client requires hand support, it must be stable. Use of chairs with arm rests should be avoided during retraining as arm rests do not encourage the normal forward shoulder trajectory during standing up and sitting down. Undertaking the program near a window sill, veranda, deck railing, kitchen bench or grab/hand rail may be appropriate for safety. It is important to note that the goal of sit to stand practice is to reduce the “pulling” or “pushing” of the upper limbs and encourage the lower limbs to strengthen. The seat height should be adjusted to facilitate this. Having the client cross their arms during practice reduces unnecessary reliance on upper limbs if the client is safe to adopt this posture for the training program. It should be noted that for safety, the client may require hand support at all other times and this should be discussed with the client and carer (if relevant) as part of the prescription process.

Seating surface

The seating surface height should be recorded as part of the prescription process. The height of the seating surface is directly related to the force generation requirements of the lower limb (Janssen, Bussmann and Stam 2002). In the hospital or rehabilitation gym environment, height adjustable plinths, beds and/or a range of chairs of varying heights are available. In the home environment, the number of seating options may be more limited. Options to alter seating height include using dining room or kitchen chairs or by placing the chair or bed on raising blocks. For examples see Independent Living Centres Australia. Available at: <http://ilcaustralia.org.au/products/15045>.

Alternatively, to reduce seating heights, placing a large and stable block under the client’s feet can be beneficial.

Speed of movement

It is a common clinical observation that individuals with movement dysfunction tend to perform sit to stand at a slower-than-average speed (Pai and Rogers, 1991). Clinically, the speed of sit to stand movement can be a meaningful indicator of progression in performance e.g. five times sit to stand test (FTSTS), 30 second chair stand test or 1-minute sit-to-stand test. People with Parkinson’s disease have been shown to be able to increase the movement speed of sit to stand at a similar rate as healthy subjects (Mak and Hui-Chan 2005). Functional retraining should therefore include facilitating a more “normal” speed of movement. Additional training strategies to improve muscle strength and endurance include slowing the speed of movement, or having the client stop/start during the movement i.e. lower part way then stand back up without sitting; this may also be described as a squat.

Feedback

As part of practice, the client requires feedback on performance. This ensures that the more “normal” movement pattern is practiced. Feedback may include a combination of immediate feedback to enhance performance and monitoring for longer term goals. Feedback for sit to stand includes:

- the use of a mirror to assist the client to self-assess and correct body alignment prior to or after the movement
- placing a line, cone or marker to guide foot placement, or to encourage the centre of mass forward over the base of support e.g. the client must place feet behind or between the line/s in preparation for the movement or reaches/moves forward to the marker as part of moving the centre of gravity forward
- scales under feet to encourage even weight bearing
- use of a tape measure to measure seat height or the distance the feet are apart
- use of a timer or stopwatch to time the movement or encourage speed of movement
- counting the number of repetitions and sets.

Assistance

Cueing

Clients and carers are able to use cueing. Internal cueing may include the client reminding themselves to place feet back, bring shoulders forward. The carer may verbally or manually cue the client each time assistance is provided. Other cueing methods include signage or placement of a line, cone or marker to provide a visual reminder.

Manual guidance

Due to neuromuscular control problems, the client may require manual guidance to improve movement patterns. If the client requires more than one light assist for walking and standing transfers, refer to the Indications and limitations section of this CTI. Guidance may be required to assist:

- foot placement, including weight bearing during movement.
- knee movement forward during the initial phase of standing up, or into extension once standing, or forward control during sitting down. Generally, knee flexion can be achieved through eccentric control and guidance requirements are for the forward translation. A carer may have been encouraged to “block the knees” as part of supporting client transfers. Normal movement requires translation of the knee forward. Blocking this movement maintains the centre of gravity backward. By removing this “block”, sit to stand performance can be improved. If the client requires more than one assist with sit to stand, check the Limitations section of this CTI and liaise with a health professional with expertise in the task.
- weight transfer forward is enhanced by encouraging the shoulders forward over the knees, prior to commencing extension. A carer positioned in front of the client may “block the shoulders” as part of supporting client transfers. Normal movement requires the translation of the shoulders in a forward direction over the knees to move the centre of gravity forward. Blocking this movement maintains the centre of gravity backwards. By removing this “block”, sit to stand performance can be improved. If the client requires more than one assist with sit to stand, check the Limitations section of this CTI and liaise with a health professional with expertise in the task.

Prescription

A program should encourage independence in task practice as much as it is safe and feasible. A general hierarchy for selecting intervention strategies is depicted in Figure 1.

Prescription should specify:

- the environment in which the practice should occur including location, available hand support and safety requirements
- the height of the seating surface for practice
- any additional equipment required for the practice session e.g. scales, mirror or cone
- the planned feedback for performance e.g. self-monitoring, mirror or pain rating scale
- assistance requirements including set-up, cueing (internal/external) and/or manual guidance
- the number of repetitions and sets that can be attained with normal movement pattern. The environmental set up and assistance should generally allow 6-15 repetitions, 3 sets. If the client cannot attain 6 repetitions or exceeds 15 repetitions, adjust the environment and/or assistance to attain a training threshold.

Figure 1: Prescribing an exercise program for sit to stand

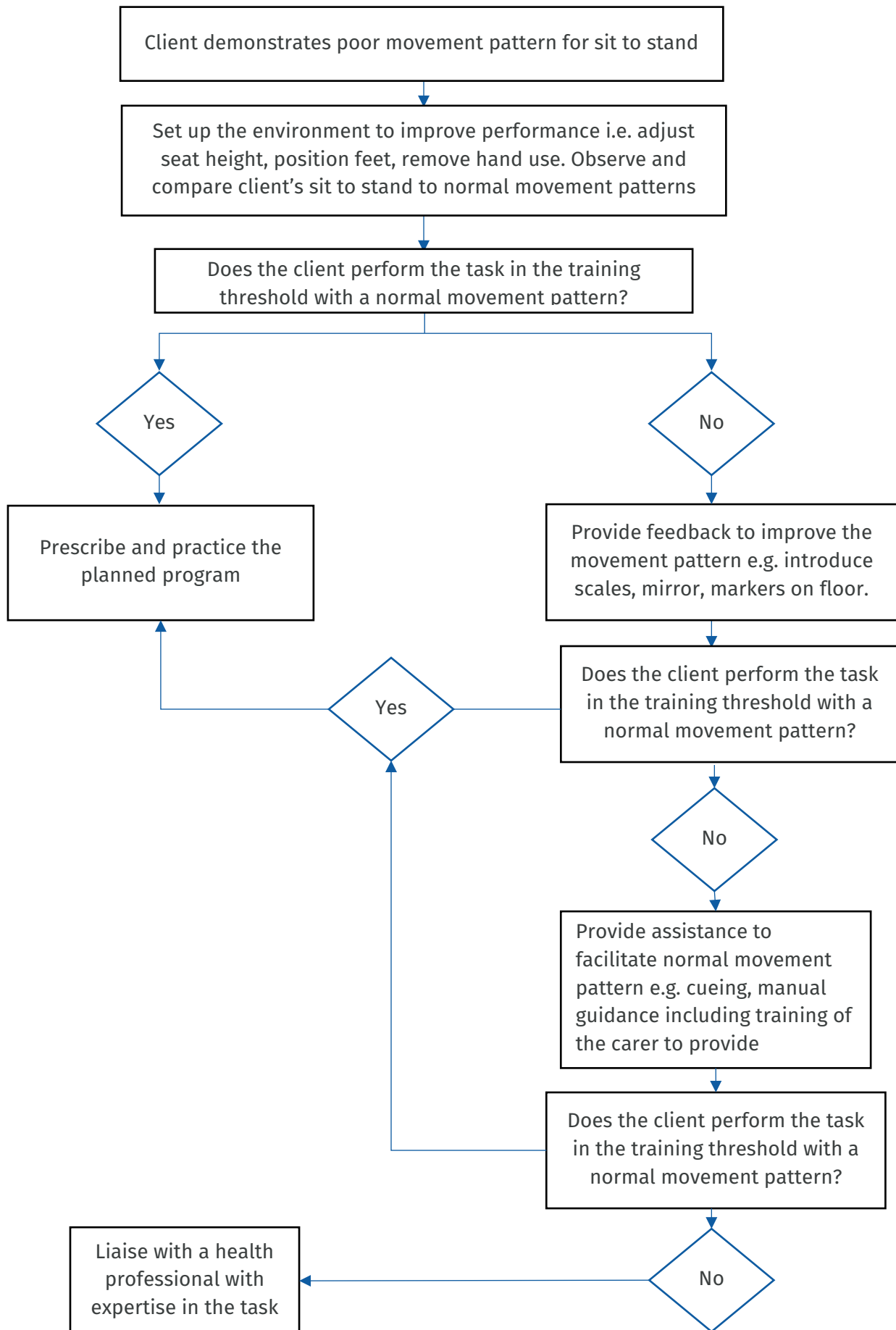


Table 1: Basic strategies to retrain sit to stand

Observation	Contributing Factors	Training strategy
<p>Poor sitting balance including reluctance to move, listing or mild loss of balance when reaching outside the base of support.</p>	<p>Poor foot placement on the floor. Uneven seating surface. Trunk alignment including listing, rotation and/or reduced extension.</p>	<ul style="list-style-type: none"> • Adjust the seating surface to improve weight bearing through the feet, or place feet on a block/platform i.e. place feet “on the floor”. • Provide cueing and/or manual guidance for body posture and alignment including feet to be positioned on the floor, feet and knees shoulder width apart, shoulders over hips, head balanced on level shoulders. Use of lines on the floor, mirror or scales for feedback may be beneficial. • Train in dynamic balance training including reaching outside the base of support and returning to normal body alignment. Note: if clients are unable to demonstrate dynamic sitting balance when placed in a normal body alignment for sitting, check limitations for CTI S-MT05.
<p>Difficulty standing up from sitting down. This may include pulling on equipment (walking aid, table, chair), rocking for momentum, or unsuccessful attempts with sit to stand.</p>	<p>Poor foot placement on the floor.</p>	<ul style="list-style-type: none"> • Adjust the seating surface to improve weight bearing through the feet, or place feet on a block/platform i.e. place feet “on the floor”. • Provide cueing and/or manual guidance for feet to be positioned.
	<p>Lower limb weakness</p>	<ul style="list-style-type: none"> • Increase the seat height to reduce the force generation required. • Train in part practice of sit to stand including stop/start through range i.e. squats with a high stool.
	<p>Centre of gravity not aligned well over base of support</p>	<ul style="list-style-type: none"> • Check the client’s knee trajectory is not ‘blocked’ either by the carer, equipment or environment. Provide cueing and/or manual guidance for knees over toes. • Check the client’s shoulder trajectory is not ‘blocked’ either by the carer, equipment or environment, including the use of chair arm rests to “push up” on. Remove hands from arm rests. Provide cueing and/or manual guidance for shoulder trajectory. This may include visual cueing (placing a cone or line on the floor/wall to assist in initiating the movement) or providing cueing and/or manual guidance for the “shoulders to move over the toes”.

Observation	Contributing Factors	Training strategy
Poor standing alignment	Trunk, hips and/or knees flexed – bilateral or unilateral	<ul style="list-style-type: none"> • If the client is using a walking aid, check type and height of equipment is matched to the client's requirements. • Provide visual and/or verbal cueing re: alignment, including even weight bearing and centre of mass over base of support i.e. instruct client to bring hip forward. Use of a mirror or scales for feedback may be beneficial.
	Listing of trunk	<ul style="list-style-type: none"> • Provide cueing for even weight bearing and/or extension of the lower limbs.
	Knee hyper-extended due to poor knee control	<ul style="list-style-type: none"> • Provide feedback using manual guidance and/or mirror feedback.
	Feet wide apart	<ul style="list-style-type: none"> • Provide cueing/manual guidance for foot position prior to commencing the movement. The use of lines on the floor or a mirror for feedback may be beneficial.
Poor standing balance	Poor standing alignment	<ul style="list-style-type: none"> • See standing alignment above.
	Poor movement co-ordination	<ul style="list-style-type: none"> • Part practice as per elements of a standing balance assessment, see learning resources CTI S-MT05: Standing balance assessment.
Sitting down heavily/adjusting self once seated	Lower limb weakness/strength	<ul style="list-style-type: none"> • Bed/plinth height increased to reduce the force generation required. • Cue/manual guidance of weight through the affected limb.