



CLINICAL GUIDELINES

Physical Therapy (PT) and Occupational Therapy (OT) Services

Version 1.0

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PTOT-1.1: Definitions

PTOT-1.1.1: Care Classification

Habilitation

- Habilitation includes health care services that help an individual to keep, learn, or improve skills and functioning for daily living. Examples include therapy for a child who is not walking or talking at the expected age. These services may include physical and occupational therapy, speech-language pathology, and other services for people with disabilities in a variety of inpatient and/or outpatient settings. Most states have their own definition, but they have adopted some version of the National Association of Insurance Commissioners (NAIC) definition.¹

Palliative Care

- Palliative care is typically performed to manage or alleviate symptoms and does not provide corrective benefit to the condition. An individual receiving palliative care, in most instances, demonstrates varying lapses between treatments as the disease progresses. This type of care may not be skilled in nature and is therefore not medically necessary.²

Preventative Care

- Preventive care includes management of the asymptomatic individual to prevent disability. This type of care is not medically necessary as the treatment does not require the skills of a therapist.³

Rehabilitative Therapy

- Rehabilitative Therapy is care provided to relieve the functional loss associated with an injury or condition and is necessary to return the individual to the functioning level required to perform their activities of daily living, instrumental activities of daily living, and work activities. Rehabilitative care generally occurs within a reasonable period of time and is guided by evidence-based practice of occupational or physical therapy.⁴

Skilled Maintenance Care^{5, 6}

- Skilled Maintenance Care is defined as services that are required to maintain the individual's current condition or to prevent or slow deterioration of the individual's condition.

PTOT-1.1.2: Supplementary Definitions

Activities of Daily Living⁷

- **Activities of Daily Living** are oriented towards taking care of one's own body. ADLs are also referred to as basic activities of daily living (BADLs) and personal activities of daily living (PADLs). These activities include bathing, toileting, dressing, eating, mobility, personal hygiene, and grooming.
- **Instrumental Activities of daily Living (IADLs)** are activities to support daily life within the home and community that often require more complex interactions such as care of others, child rearing, communication and financial management, driving, and home management.

Clinical and Functional Response to Skilled Therapy

- Consideration of the need for skilled care involves determining that an individual is responding appropriately to the care provided. An individual's functional progress, as a result of the skilled care, may present by way of improved: individual reported outcome measures, function based measures, mobility measures, and other ratings of ability with daily tasks.
- A significant response may be demonstrated through:
 - ◆ an improvement at, or greater than, the established Minimal clinically important difference (MCID) for a given standardized outcome measure
 - ◆ an improvement greater than an established Minimal detectable change (MDC) for a given standardized outcome measure
 - ◆ marked improvement in measures of function or mobility
 - ◆ marked improvement in multiple measures and/or goals.
- Due to the complex nature of an individual's diagnosis, complicating factors, and comorbidities (as well as limitations inherent with using standardized measures of change (Minimal Clinical Importance Difference or Minimal detectable change)), all pertinent and applicable clinical information documenting an individual's progress may be considered as part of the review process.⁸⁻¹³
 - ◆ **MCID** is the smallest change in a treatment outcome that an individual would identify as important and which would indicate a change in the individual's management.
 - ◆ **MDC:** A statistical estimate of the smallest amount of change that can be detected by a measure that corresponds to a noticeable change in ability.

Condition Severity Grading⁴

- Conditions can be classified as mild, moderate or severe. The following assessment findings indicate the severity level:
 - ◆ **Mild conditions** result from a variety of causes. The individual may or may not require treatment. Symptoms are low-grade and generally do not affect activity of daily living tasks. The anticipated duration of care is 1-6 weeks.
 - ◆ **Moderate conditions** also result from a variety of causes; pain is usually mid-range (5-6/10). The individual may have work restrictions for 0-2 weeks, and the condition may have a mild to moderate effect on the performance of activities of daily living. The anticipated duration of care is 6-10 weeks.

- ◆ **Severe conditions** mostly result from accidents or injuries. The symptoms are intense. The condition may result in loss of work of 5 days or more, and the individual will have a pronounced (moderate to severe) decrease in the ability to perform activities of daily living. The anticipated duration of care is 10 or more weeks.

Duplicate Therapy Services

- Services provided under two different disciplines' treatment plans or by two providers of the same discipline for the same body-part or diagnosis are considered duplicate care.

Generally Accepted Standards of Practice

- Generally Accepted Standards of Practice are widely accepted clinical concepts and practices based on credible scientific evidence published in the peer-reviewed literature and/or evidence-based guidelines generally recognized by the relevant healthcare community.

Skilled Therapy versus Non-Skilled Therapy

- **Skilled Therapy:** The individual's special medical complications require the skills of a therapist to perform a therapy service, or the needed therapy services are of such complexity that the skills of a therapist are required to perform the procedure.
- **Non-skilled Therapy:** This includes palliative procedures that are repetitive or that reinforce previously learned skills and treatment that does not involve complex and sophisticated therapy procedures, or require the judgment and skill of a qualified therapist for safety and effectiveness. The unavailability of a competent person to provide a non-skilled service, regardless of the importance of the service to the individual, does not make it a skilled service when a therapist furnishes the service.¹⁴

PTOT-1.2: Indications for Treatment^{15, 16}

Physical Therapy and Occupational Therapy Services will be considered medically necessary when current information is submitted to demonstrate that the ALL of the following criteria have been met:

- Physical and Occupational Therapy services are required to address a functional deficit (in the individual's daily activities) resulting from a physical impairment due to illness, disease, injury, or congenital disorder.
- The skills of a therapist are required for the treatment of the functional deficit and/or underlying impairment.
- The services shall be considered under accepted generally accepted standards of practice to be a specific and effective treatment for the individual's condition.
- The services shall be of such a level of complexity and sophistication or the condition of the individual shall be such that the services required can be safely and effectively performed only by a therapist, or under the supervision of a therapist. Services performed by or under the supervision of a qualified therapist do not, alone, support skilled therapy services without the treatment or condition meeting the required complexity level for skilled care as defined in **PTOT-1.1.1 Care Classifications**.

- There must be an expectation that the individual's condition will improve significantly in a reasonable (and generally predictable) period of time.
- The amount, frequency, and duration of the services must be reasonable under generally accepted standards of practice. Criteria to establish treatment frequency and duration are based on the following:
 - ◆ Severity of objective clinical findings
 - ◆ Presence of and number of complicating factors and comorbidities
 - ◆ Natural history and chronicity of condition
 - ◆ Response to treatment provided
 - ◆ Individual's level of independence

Indications for Skilled Maintenance Care

In addition to the criteria above, skilled maintenance care is indicated for ANY of the following:

- To establish or design a maintenance program appropriate to the capacity and tolerance of the individual
- To instruct the individual or caregiver regarding the maintenance program
- For periodic re-evaluations of the maintenance program
- For delivery of maintenance programs:
 - ◆ Skilled therapy service is indicated when a customized assessment of the individual's clinical condition demonstrates that the skills of a qualified therapist are necessary for the performance of a safe and effective service.
 - ◆ The deciding factors are always whether the services are considered reasonable, effective treatments for the individual's condition and require the skills of a therapist, or whether they can be safely and effectively carried out by non-skilled personnel or caregivers.

Additional Indications for Continuation of Treatment

In addition to the requirements listed above, requests for Continuation of Treatment (after the initial request) must include current information that demonstrates ANY of the following criteria have been met:

- Submitted information shows objective measures of function illustrating individual's functional response to treatment such as:
 - ◆ Change in Individual Reported Outcome Measures
 - ◆ Change in Performance Based Outcome Measures
 - ◆ Range of motion and strength deficits
 - ◆ Weakness or sensory changes or radicular symptoms
- Submitted information supports that the skills of a therapist are required because the individual/caregiver is unable to manage the condition independently
 - ◆ The provider must demonstrate that the complexity of the treatment procedures and the individual's condition requires skilled care
 - ◆ The provider must address reasons why the individual or caregiver is unable to manage home program independently
- Submitted information supports the presence of a new injury/disease or exacerbation of current condition caused by a significant re-injury that has not been previously addressed such as:

- ◆ Exacerbation of symptoms
- ◆ Progression of symptoms
- ◆ New injury and date of injury
- ◆ Hospitalization
- ◆ Post-surgical infection
- Skilled care is required in order to prevent/slow deterioration for an individual to reach maximum practical level of function
 - ◆ The provider must demonstrate that the individual's medical complications require services that can be safely and effectively performed only by a therapist.
 - ◆ require services that can be safely and effectively performed only by a therapist.

PTOT-1.3: Non-Indications^{15, 16}

- The individual, alone or with help from a caregiver, can continue management of symptoms with an independent home program.
- The individual, alone or with help from a caregiver, can continue to make functional progress with an independent home program.
- Achievable goals that are related to activities of daily living have been met.
- Therapy services have become routine or repetitive in nature, indicating they are not of a skilled nature.
- No objective clinical improvement is shown for the condition being treated with respect to pain, function, or complexity in a reasonable and generally predictable period of time.
- A skilled therapy service is proven to be ineffective and is unable to maintain or prevent deterioration in function.
- The individual has been non-compliant with the treatment plan.
- Therapy services are for pain mediation alone.
- Services provided are elective and do not meet the minimum thresholds to qualify for continuing care.
- Therapy services are being provided for returning to (or maintaining participation in) a hobby, recreational, or wellness activities only.
- Therapy services are for sports performance enhancement only.
- Visits for the same or similar condition is not medically necessary, as the individual's condition can improve with care provided under one treatment plan and by one provider.

PTOT-1.4: Benefits, Coverage Policies, and Eligibility

Benefits, coverage policies, and eligibility issues pertaining to each health plan and/or jurisdiction may take precedence over eviCore's medical necessity criteria. The final determination of reimbursement for PT and OT Services is the decision of the health plan and is based on the individual's policy or benefit entitlement structure as well as claims processing rules. Providers should reference health plan policies for covered and non-covered PT and OT Services.

Applicable Federal and State Mandates

- The federal government and many state insurance mandates require health insurance companies to pay for medically necessary and evidence-based treatments for certain population groups or conditions. eviCore takes into consideration these applicable federal and state mandates when authorizing care.
 - ◆ **Early and Periodic Screening Diagnostic and Treatment (EPSDT) Mandate¹⁷:**
The goal of this benefit is to ensure that individuals under the age of 21 who are enrolled in Medicaid receive age-appropriate screening, preventive services, and treatment services that are medically necessary to correct or ameliorate any identified conditions – the right care to the right child at the right time in the right setting. (<https://www.medicaid.gov/medicaid/benefits/epsdt/index.html>)
 - ◆ **Autism Mandate¹⁸:** A number of states require health insurance coverage for Autism Spectrum Disorder. These state mandates require certain insurers to provide coverage for either the diagnosis or treatment of the disorder.

Medicare Coverage Policies¹⁹

- For Medicare programs, the coverage policies of Centers for Medicare and Medicaid Services (CMS) take precedence over eviCore's medical necessity criteria. In the absence of an applicable Local Coverage Determination or Local Coverage Article, eviCore policies will apply for the determination of medical necessity for PT and OT services for Medicare programs.
- Services billed "incident to" by MDs/DOs/DPMs must meet the Centers for Medicare & Medicaid Services (CMS) "incident to" guidelines for PT/OT and must be rendered by "qualified providers" as defined by CMS. CMS also allows Optometrists to use the PT/OT benefit for restricted diagnoses.

Physical Therapy (PT) and Occupational Therapy (OT) Benefit²⁰

- The Patient Protection and Affordable Care Act of 2012 allow provider specialties such as chiropractors, massage therapists, acupuncturists, naturopathic practitioners, and physicians to utilize the PT/OT benefit to bill for adjunct therapeutic modalities. PT/OT services are provided according to the individuals' benefit certificates and the health plan's medical policies.

PTOT-1.5: Administrative Rules

The following submission time frames generally apply for health plans that require authorization:

- **Initial Concurrent Requests:** While time frames may change based on jurisdiction and/or health plan rules, initial requests are typically submitted within seven (7) calendar days of the requested date of service.
- **Concurrent Continuation of Care Requests:** While time frames may vary based on jurisdiction and/or health plan rules, any subsequent concurrent request must generally be submitted within seven (7) calendar days of the requested date of service.
- **Retrospective Requests:** While this type of review is dependent upon jurisdiction and/or health plan rules, dates of service greater than seven (7) calendar days in the past are generally considered a retrospective review.

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18. Autism and Insurance Coverage | State Laws, 2018 <https://www.ncsl.org/research/health/autism-and-insurance-coverage-state-laws>.
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This section presents evidence based treatment recommendations for a wide variety of musculoskeletal disorders.

- Musculoskeletal (MSK) conditions are typically characterized by pain, limitations in range of motion, strength, coordination, and balance leading to functional deficits in activities of daily living and/or mobility.
- Also included are general orthopedic conditions which are comprised of conditions that affect muscles, bones, joints and related tissues such as tendons and ligaments. They may range from acute, sub-acute, or chronic states expressed as varying levels of pain and disability.

PTOT-2.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to musculoskeletal conditions that may also be pertinent to establishing the need for skilled care.

In addition to the criteria established in sections **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with musculoskeletal problems:

- Consideration of the need for the skilled care of a musculoskeletal condition necessitates determining that an individual is responding appropriately. Baseline function must be assessed and submitted. An individual's function should improve from the care provided.
- Functional outcome measures are recommended to be used to demonstrate levels of functional deficit and progressive improvement.¹⁻⁶
- There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. The table below provides common measures that are well established through research:

Condition/Diagnosis	Tools	References
Lower Extremity and Mobility	Berg Balance Test	7-10
	Gait speed	8,11
	Six Minute Walk test	11,12
	Timed Up and Go (TUG)	8,11, 13-17
	Tinetti (POMA)	8,18,19
	Lower Extremity Functional Scale (LEFS)	20,21
	Hip Disability and OA Outcome Score (HOOS)	22, 23
	Knee Injury and OA Outcome Score	23
Lumbar	Oswestry Disability Index (ODI)	24
	Roland-Morris Disability Questionnaire	25
Neck	Neck Disability Index (NDI)	26
Upper Extremity	Disabilities of Arm, Shoulder, Hand (DASH and QuickDASH)	27

Condition/Diagnosis	Tools	References
	Shoulder Pain and Disability Index (SPADI)	28
General	Short Form-10 (SF-10)	29
	SF-12 of the SF-36 Health Survey (SF-12)	30

PTOT-2.2: Clinical Considerations

The intent of this section is not to cover every complexity that a condition or individual may present, but to inform on how common complexities may be considered as part of a review.

- Musculoskeletal conditions can present with varied complexities that may or may not affect the need for skilled care. The effect of a complexity must be considered on a case-by-case basis. It is the responsibility of the provider to submit information regarding any complexities to be considered.

Major Medical Considerations:

- There is no specific evidence to show that an individual needs any predetermined amount of skilled care for musculoskeletal problems due to major health conditions alone.
- The health status of an individual may impact their ability to recover and participate in skilled care. It is the responsibility of the requesting provider to submit information regarding any effect that an individual's medical condition may have on the individual's expected course of care.

Chronicity Considerations:

- Chronic musculoskeletal conditions may take longer to improve as compared to acute conditions. However, there is no specific evidence to show that a chronic condition requires more skilled intervention over time.
- It is expected that an individual would regularly complete their assigned home care program over receiving repetitious care from a provider. As recovery may be slowed, there may be longer periods of time between when an individual would need an update to their home program by the provider.
- Despite a condition being chronic, an individual should still objectively respond appropriately to the care provided.
 - ◆ For chronic pain specific conditions, please refer to **PTOT-5.0 Pain Syndromes**.

Neurological (MSK) Considerations:

- Musculoskeletal problems can present in combination with neurological signs, such as radicular symptoms, nerve compression, or myelopathy.
- The presence of neurological complications may not necessitate frequent care. Information about neurological problems, in relation to an individual's MSK problem, must be submitted to be considered along with all other pertinent information for review.
 - ◆ Please refer to the body region specific PTOT policy sections for additional clinical considerations and detail.
 - ◆ For criteria in relation to acquired neurological disorders, such as post-stroke or Parkinson's disease, please refer to **PTOT-4.0 Neurological Conditions**.

Pediatric and Adolescent Considerations:

- There is limited evidence specific to non-developmental musculoskeletal issues in children and adolescents versus adults. However, there is evidence that while the younger population may need more structure, children are capable of effective self-treatment strategies.³¹⁻³⁴
- Conditions related to growth/maturation, overuse injuries, or joint hypermobility do not generally require more treatment or markedly different management than that of an adult.³⁵⁻³⁹

Surgical Considerations:

- There is insufficient evidence to support that rehabilitation of surgical conditions requires additional frequency and duration of treatment. Additionally, post-operative surgical protocols do not establish frequency and duration for an individual's plan of care because they are not evidence based.
- The plan of care should be established based on the individual's level of function and need for skilled intervention.⁴⁰⁻⁴³ Each individual will respond to each procedure differently and their level of function should reflect their response to the procedure and any associated complications following the procedure.
- Information regarding surgical complications must be submitted as part of the overall consideration for the need of skilled care.

Immobilization Considerations:

- There is some evidence to show that prolonged immobilization can slow an individual's return to function.^{1, 44} However, this does not mean everyone that has a prolonged immobilization will have complications or require frequent skilled care.
- An individual's functional presentation, progress, and any complexities will be considered to determine the need for more care.
 - ◆ Please refer to the body region specific PTOT policy sections for additional clinical considerations and detail.

Evidence Considerations:

- Supporting research on skilled care recommendations is presented in appendices **PTOT- 2.3.1 through PTOT-2.3.12**. It is important that skilled care for an MSK condition be supported by best evidence.

PTOT-2.3: Appendices

PTOT-2.3.1 Appendix: Cervical and Upper Thoracic Spine Evidence

- Neck pain has a good natural course with 80-90% of cases diminishing within 4-6 weeks.⁴⁵

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Mobilization and Manipulations	With exercise	Non-Specific, Radicular, Headache	46-67
		At thoracic spine-short-term effect	Non-Specific	68-72
	Exercise	Strengthening, range of motion, endurance	Non-Specific, Radicular, Headache, Whiplash Associated Disorders	66,67,73-87
Moderate for use	Trigger Point Dry Needling	For acute pain	Non-Specific, Headache (tension-type)	88-92
	Manual or Mechanical Traction		Radicular	93-97
	Mobilization and Manipulations	At thoracic spine-short-term effect	Radicular	98-103
Moderate against use	Manual or Mechanical traction		Non-Specific	93, 102-105
Weak for use	Mobilization and Manipulations	At thoracic spine-short-term effect	Headache	106
		Manual soft tissue as an adjunct to other interventions	Non-Specific, Radicular	106-110
	Exercise	Neural gliding	Radicular	111-113
		Directional Exercises	Radicular	114,115
		Strengthening, range of motion, endurance	Post-Surgical	116-118
		Self-directed home program	Post-Surgical	119
	Passive modalities	Low level laser therapy (LLLT), Transcutaneous Electrical Nerve Stimulation (TENS)	Non-Specific	120,121
Insufficient or Inconclusive evidence to support use	Passive modalities	electrical stimulation (ESTIM), electromagnetic therapy, ultrasound (US), iontophoresis	Non-Specific, Radicular	122,123
		Laser or light therapies	Radicular	124,125

PTOT-2.3.2 Appendix: Lumbar and Lower Thoracic Spine Evidence

Lumbar Stenosis

- Current evidence for surgical and non-surgical treatment to improve walking ability is of low and very low quality and thus prohibits strong recommendations to guide clinical practice.^{126, 127}

Lumbar Radiculopathy

- Natural history studies demonstrated that 70% of individuals with lumbar radiculopathy showed improvement within 4 weeks following onset of symptoms.¹²⁸

Lumbar Post-surgical

- Therapy provided should be based on individual presentation. Physician specific protocols will be considered in the context of the health plan's definition of medical necessity.

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Early, progressive return to normal activity		Non-Specific, Radicular, Stenosis	129-134 145-150
	Group programs, back classes		Non-Specific	135-137 145-149
Moderate for use	Mobilization and Manipulation	Adjunct to exercise in acute and sub-acute stages	Non-Specific	133, 138-148 155-167
	Directional preference		Non-Specific, Radicular,	133, 149-155 149, 209-212
	Supervised progressive exercise	Started 6 weeks post-operatively for decompression	Non-Specific, Radicular, Decompression Surgery, Disc Related Surgery	156-182 155-167 213-217
	McKenzie approach	Chronic LBP	Non-Specific	151, 183-186, 218-226
	Dry Needling		Non-Specific	187-190
	Moderate against use		Non-Specific	191-192
Moderate against use	Manual or Mechanical Traction		Non-Specific, Radicular	193-202
	Kinesiotaping		Non-Specific	203-209
	Ultrasound		Non-Specific	210-211
Weak for use	Mobilization and Manipulation		Radicular, Stenosis	133, 212-218
	Flexion based		Stenosis	216, 219-223
	Low Level Laser Therapy (LLLT)		Radicular	224, 225
	Superficial heat for pain		Non-Specific	216, 226
Not recommended	Kinesiotaping		Radicular, Stenosis	227, 228
	Low Level Laser Therapy (LLLT)		Non-Specific	229-231
	US, TENS, thermal modalities		Non-specific, Radicular, Stenosis	220, 221, 232-240

PTOT-2.3.3 Appendix: Shoulder Joint Evidence

Adhesive Capsulitis

- Skilled care during the “freezing” and “frozen” stages is not currently supported by best evidence. A home program can be issued for use until range of motion begins to return. Some skilled care may then be needed to progress exercise and activity prescription.²⁴¹

Arthroscopic Procedures

- Average visits following instability repair was 14-23 for women and 10-16 for men.²⁴²
- Consideration should be given to length of immobilization, tissues involved, and functional presentation.⁴⁴
- Even after surgery for stabilization, dislocation rates remain elevated. A reduced risk of dislocation may not be an appropriate treatment goal.²⁴³

Open Reduction Internal Fixation

- There may be large variation in the fracture being fixated and the methods to do so. Consideration should be given to hardware used, length of immobilization, tissues involved, and functional presentation.¹

Rotator Cuff Repair

- Average visits following RCR is reported at 14-16 with visits 1x a week during the first 6 weeks.^{242, 244}
- Open procedures are more invasive and may have more post-surgical restriction and immobilization.²⁴⁴⁻²⁴⁶

Total / Partial Shoulder Replacement

- Due to the invasive nature of this procedure, consideration should be given to the tissues involved, post-operative restrictions, and likelihood, or not, of return to full functional levels.²⁴⁷

Tendinopathies

- Current best evidence suggests care for tendinopathies should consider transitioning the individual to active care as quickly as possible to improve daily ability. Passive care should be limited.²⁴⁸⁻²⁵⁰

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Regular home program	All conditions	241, 251-254
		Repetitive care at home		
		Activity modification	All conditions	241, 255
		Natural course of condition. Regular care not supported until mobility returns.	Adhesive Capsulitis	241
	Mobilization and Manipulations	Mobilization in the short term period (more effective when combined with exercise)	All conditions	250, 256-260
Moderate for use	Exercise	Function based resistance exercise	All conditions	241, 251, 252, 261-265
	Range of Motion	Early in course of care	Small to moderate rotator cuff repairs, Shoulder arthroplasty	266-269
Weak for use	Exercise	Activity based over manual therapy	Adhesive Capsulitis	241, 253, 259, 264, 270, 271
Insufficient, Inconclusive evidence to support use	Education	Self-directed care through home program only	Shoulder arthroplasty	272
	Iontophoresis	Short term use	Tendinopathy	249
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	Thoracic region	All conditions	273-275
		Aggressive stretching	Rotator cuff repair	269, 276
	Passive modalities (US, TENS, ESTIM, elastic taping, laser, heat, cold)		All conditions	248, 249, 257, 262, 264, 277-279
	Dry Needling	With or without stimulation	All conditions	280, 281

PTOT-2.3.4 Appendix: Elbow Joint Evidence

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Activity modification, home program, appropriate rest, return to work	All conditions	282-287
	Exercise	Function based prescription	All conditions	287-289
	Range of Motion	Following immobilization	Fracture	289
Moderate for use	Mobilization and Manipulations	Short term	Tendinopathy	290-292
	Exercise	Early mobility	ORIF	293-294
		Progressive eccentric	Tendinopathy	291, 292
	Splinting	Static or Dynamic	Contractures	289, 295
	Orthosis	Hand-wrist, strapping	Tendinopathy	289, 296
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	Instrument-assisted soft tissue, cross-friction	All conditions	289, 291, 292, 297-299
	Passive modalities	US, TENS, ESTIM, elastic taping, laser, heat, cold	All conditions	289, 300, 301
	Night Splint		Tendinopathy	287

PTOT-2.3.5 Appendix: Hand and Wrist Joint Evidence

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Mobilization and Manipulations	Active and passive, early	All conditions	293, 294, 302-304,
	Exercise	Function/daily activity based prescription	All conditions	288, 293, 305, 306
	Splinting	Dynamic in “safe position”	All conditions	293, 303, 306
	Compression	Wrapping, gloves for edema	Edema and swelling	303
Moderate for use	Education	Activity modification, ergonomics, rest	All conditions	284, 286, 293, 307
	Mobilization and Manipulations	Documented significant ROM loss	Joints	293
		Desensitization	All conditions	293, 303, 308
		Scar massage prescription	Post-Surgical	293
	Mirror Therapy	For active motion	All conditions	293, 309, 310
Weak for use	Splinting	Less than 6 month duration	Trigger Finger	311
	Iontophoresis	Short trial	Trigger Finger	312
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	Instrument assisted soft tissue mobilization	All conditions	297, 298
	Passive modalities	US, TENS, ESTIM, elastic taping, laser, heat, cold	All conditions	293, 298, 300, 303, 313-317
	Splinting	Pre- or post-surgery	Dupuytren's Contracture	293, 318, 319

PTOT-2.3.6 Appendix: Hip Joint Evidence

All Conditions

- Individuals can make significant progress performing their home program regularly. Repetitive exercise, stretching and activity does not need to be done in the clinic.³²⁰⁻³²⁴

Femoro-acetabular Impingement

- Currently there is limited research to show benefit from extensive non-operative skilled care. There may be some initial functional benefit. Minimal skilled care for activity modification and programming may be considered.³²⁵ Minimal post-surgical visits have been shown as effective to improve outcomes.³²⁶

Hip Fracture

- Recent evidence suggests individuals may improve function better doing a progressive home program over traditional rehabilitation in a facility or intensive care. Consideration of frailty, risk of falling, type of surgery, dementia, and any precautions may indicate need for additional care.³²⁷⁻³³³
- Restorative nursing can reinforce mobility.³²⁷

Hip Replacement

- Consideration of frailty, risk of falling, surgical complication and surgical restrictions may indicate need for additional care.³³⁴⁻³³⁶

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Long term lifestyle and activity modification	OA / joint degeneration	320
		Community based programs	Fracture	329
	Mobilization and Manipulations	Joint mobility, short-term until individual can take over	Joint degeneration	320, 324, 326, 337, 338
	Exercise	Individualized, functional, progressive up to 70-80% 1RM intensity	Joint Degeneration, Fracture, Replacement	320- 324, 327, 328, 339-344
		Gait and balance training	Fracture	327, 345

Recommendation	Intervention	Additional Detail	Conditions Included	References
Moderate for use	Exercise	Progressive stability and mobility	Tendinopathy	346-350
		Early mobility / transfers	Fracture	327
Insufficient, Inconclusive evidence to support use	Aquatic therapy	Does not need to be combined with land based therapy	All conditions	351
	Mobilization and Manipulations	Passive stretching of insertional tendon	Tendinopathy	352
		Sacroiliac manual therapy	Tendinopathy	346
	Passive modalities	US	All conditions	347

PTOT-2.3.7 Appendix: Knee Joint Evidence

Patellofemoral Pain Syndrome (PFPS) Considerations

- PFPS of greater than 2 months duration at baseline is the most consistent predictor of poor outcome and early intervention and use of evidence-based interventions may enhance prognosis.³⁵³

Tendinopathies Considerations

- Until further evidence is available, current practice and widely published rehabilitation protocols cannot either be supported or refuted.³⁵⁴

Total Knee Arthroplasty (TKA)

- Little is known about the optimal amount and composition of rehabilitation services provided to individual following TKA.³⁵⁵

Meniscectomy Considerations

- There is no consensus on which treatment option is the best for individuals following meniscectomy but usually lasts only 4 weeks.³⁵⁶
- There is conflicting evidence as to the need for supervised rehabilitation.^{357,358} However there is evidence that short term, limited physical therapy in addition to a home program may improve outcomes.³⁵⁹

Meniscal Repair Considerations

- No universal rehabilitation protocol for meniscal repair exists.
- There are varied surgical and rehabilitation treatments and the timing of recovery from meniscal injuries after surgery is very different.³⁶⁰
- It has been reported that 11 to 16 postoperative physical therapy visits are expected over the course of 9 to 12 months.³⁶¹

Medial Collateral Ligament (MCL) Repair Considerations

- It is generally accepted that incomplete tears and isolated complete tears of the MCL can be treated non-operatively with early functional rehabilitation.³⁶² MCL repair or reconstruction is often done in conjunction with other repairs or reconstructions such as reconstruction of the ACL and/or posterolateral corner (PLC). Evidence regarding isolated MCL repair or reconstruction is lacking.

Osteochondral Allograft Transplantation (OAT) Considerations

- No universal rehabilitation protocol for OAT procedures exists.

Autologous Chondrocyte Implantation (ACI) Considerations

- No universal rehabilitation protocol for ACI procedures exists.

Microfracture Considerations

- No universal rehabilitation protocol for micro fracture procedures exists.

Anterior Cruciate Ligament Repair (ACLR) Considerations

- There is no consensus or strong evidence to support one treatment protocol over another.³⁶³
- Minimum number of visits recommended: 6 visits
- Recommended number of visits 16-24 visits total³⁶⁴

Combined Injuries

- Medial meniscus repair predicted worse functional outcomes, whereas lateral meniscal repair is associated with better outcomes.³⁶⁵
- Procedures such as micro fracture or osteochondral autograft transfer (OAT) may be performed at the time of ACLR. However, there is little research regarding the treatment and success of rehabilitation with these combined injuries.³⁶⁶

End of Skilled Care Considerations

- It has been suggested that both performance-based measures and individual reported functional outcome measures are needed to fully characterize knee function.³⁶⁷ Quadriceps strength has been identified as the most telling physical marker for full recovery.^{368, 369}
- Specific tests may include:³⁷⁰
 - ◆ Muscle strength tests greater than 90% compared to the strength of the contralateral limb.
 - ◆ Single-leg hop tests greater than 90% compared to the strength of the contralateral limb.
 - ◆ Individual-reported outcome within normative values for that specific questionnaire.
 - ◆ Isokinetic strength test (60 degrees/second; peak torque). Protocols vary and lack consensus.³⁷¹

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education		Knee Pain, OA and Meniscal	372-375
	Exercise	Strengthening, range of motion, endurance exercises	Knee Pain, OA and Meniscal	374, 376-392
Moderate for use	Home Program	Structured, may require periodic contact with therapist	Total Knee Arthroplasty (TKA), Anterior Cruciate Ligament Repair (ACLR)	393-400
	Education	Addressing pain catastrophizing and fear avoidance	OA and Meniscal, Knee Pain	401
	Pre-Surgical therapy	Brief intervention	ACLR	402
	Mobilization and Manipulations	Soft tissue and joint as adjunct to exercise	OA and Meniscal	403-406
	Exercise	Progressive strengthening, Range of motion, Motor control	Knee Pain, TKA, Meniscectomy Meniscal Repair, Tibial Plateau ORIF, ACI, OAT, Microfracture	357, 358, 361, 407-419
		Balance and proprioception training	TKA, ACLR	364, 408, 422
		Water based programs	OA and Meniscal	374
	Biofeedback	To increase strength	TKA, Meniscectomy	423-426
	Neuromuscular electrical stimulation	To increase quadriceps strength	OA and Meniscal, Meniscectomy Meniscal Repair	427-428
Moderate against use	Pre-Surgical therapy		TKA	429-433
	Mobilization and Manipulations	Patellofemoral, knee and lumbar mobilization	Knee Pain	387, 389
	Passive modalities	Thermal, ESTIM, US	OA and Meniscal, Knee Pain	374, 376, 382, 389, 392, 434, 435

Recommendation	Intervention	Additional Detail	Conditions Included	References
	Continuous passive motion (CPM)		TKA, ACLR	422, 436-438
Weak for use	Accelerated rehabilitation		ACLR	422
	Exercise	Stretching quadriceps, Iliotibial band, iliopsoas	Knee Pain	384, 385, 439, 440
	Kinesiotaping	Patellar	OA and Meniscal, Knee Pain	381, 382, 441-444
	Continuous Passive Motion machine (CPM)		Tibial Plateau Fracture ORIF, OAT, ACI	413, 415
	Dry Needling		TKA	445, 446
	Passive modalities	Cryotherapy, TENS for pain	TKA	447-449
		Neuromuscular Electrical Stimulation	TKA, ACLR	408, 422, 450, 451
Insufficient or Inconclusive evidence to support use	Exercise	Aquatic therapy	TKA	408
	Bracing		OA and Meniscal, Knee Pain, ACLR	374, 422, 452, 453
	Kinesiotaping		OA and Meniscal, Knee Pain, ACLR	422, 454-458
	Foot orthosis		OA and Meniscal	374, 453
	Passive modalities	Low level laser, US	OA and Meniscal	459-462

PTOT-2.3.8 Appendix: Foot and Ankle Joint Evidence

Instability

- Progressive skilled care with some supervision at 1-2x a week over 4-8 weeks will improve balance/control.⁴⁶³⁻⁴⁶⁷

Plantar Pain

- When a functional motion restriction is noted, use of manual therapy should be limited (6-8 visits). Otherwise, care should be transitioned to a home program to complete exercise prescription and other programming.⁴⁶⁸⁻⁴⁷⁰

Tendinopathies

- Current best evidence suggests care for tendinopathies should consider transitioning the individual to active care as quickly as possible to improve daily ability. Passive care should be limited.^{471, 472}

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Ankle motion and function can improve with a home program	Instability, Fracture	473-476
	Mobilization and Manipulations	Joint and soft tissue over 4 week time period	Plantar pain	469, 477-480
	Exercise	Graded exercise while in acute stages	Instability, ORIF	464, 481 482
		Progressive loading over 6-8 weeks	Tendinopathy, Plantar pain	471, 483-487
	External bracing	Acute stage or prevent re-injury	Severe, chronic instability	469, 481, 488
		Rigid taping to reduce pronation over 3 weeks	Plantar pain	469, 489
Moderate for use	Education	Home program with limited visits	Tendinopathy	472
	Mobilization and Manipulations	Joint mobilization	Instability (acute)	465, 490-496

Recommendation	Intervention	Additional Detail	Conditions Included	References
	Exercise	Progressive functional activity	Tendinopathy	471, 497, 498
	Iontophoresis	4 applications of dexamethasone	Achilles tendinopathy (<3 months duration)	471, 499
Weak for use	Mobilization and Manipulation	Soft tissue	Tendinopathy	471, 500
		6-8 visits following immobilization	Fracture	501
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	Myofascial release	Plantar pain	502, 503
	Passive modalities	US, TENS, ESTIM, shock-wave, elastic taping, laser, heat, cold	All conditions	471, 486, 499, 500, 504-507
	Dry Needling	With or without stimulation	Plantar Pain, Tendinopathy	469, 471

PTOT-2.3.9 Appendix: Amputation Evidence

- Functional outcome measures are recommended to be used to demonstrate levels of functional deficit and progressive.^{508, 509} There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. In addition to measures identified in **PTOT-2.0 General Musculoskeletal Conditions**, the table below provides well-established common measures for use in individuals following amputation:

Outcome Tool	References
Single-Leg Ergometry correlates with success of ambulation	510
Amputee Mobility Predictor (AMP)	511
4 Square step test	512
Timed up and Go (TUG)	512

- Variables that may be considered when evaluating need for skilled care include the following: reason for amputation; health of surrounding tissue; strength and ability of other limbs; and, likelihood of return of function.⁵⁰⁸
- Due to changing prosthetic needs, an episodic care model may be utilized as the individual progresses in their rehabilitation and prosthetic training.⁵¹³⁻⁵¹⁴
- Focus on mobility and daily task should happen as early in the rehabilitation process as possible.^{508, 515}

Recommendation	Intervention	Additional Detail	References
Strong for use	Exercise	Progressive, individualized programming to improve daily activity	508, 509, 516, 517
Moderate for use	Education	A home program to improve function	518
	Exercise	Fall prevention specific	519
	Gait training	Over ground is superior to treadmill	520, 521
Weak for use	Education	Individuals and caregivers taught about home care, exercise, fall prevention and maintaining health of the residual limb	508, 509
Not recommended	Mirror therapy	As first-line treatment of phantom limb pain	522-524
	Passive modalities	TENS for the use of phantom limb pain	525

PTOT-2.3.10 Appendix General Debility Evidence

- An individual with frailty can still improve their function. The provider should clearly document complications and safety concerns due to debility and frailty.
- Deficits and risks cannot be assumed because of age or general debility. Providers should use valid outcomes and functional measures regularly.^{3, 4,5,6} Refer to **PTOT-2.0 General Musculoskeletal Conditions** for recommended standardized assessments.
- Refer to **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications** regarding skilled maintenance programs.

Intervention Intensity

- Individuals presenting with general debility and frailty can benefit from appropriate exercise prescription. Skilled care should be at an appropriately high intensity to cause progress. This should be tailored for each individual. It should include appropriate home programs with caregivers as needed.

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Individual and caregiver, on returning to activity	General	4, 5, 6, 197, 321
		Repetitive exercise done through home program with or without caregiver		241, 261, 473, 526, 527, 528
	Exercise	High-intensity function based	General	3, 4, 5, 6, 84, 197, 321, 353, 465, 529, 530, 531, 532, 533, 534, 535
		Fall prevention prescription	Those with established fall risk	464, 526, 536, 537, 538, 539
Moderate for use	Mobilization	Short-term combined with exercise	General	71, 72, 197, 250, 491, 494, 540
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	As stand-alone treatment	General	3, 541
	Computerized balance training	Passive joint movement	Spasticity or contracture	542
	Inspiratory muscle training	When exercise plan already in place	General	534
	Passive modalities	US, TENS, ESTIM, elastic taping, laser, light therapy, heat, cold	General	3, 23, 122, 301, 248, 249, 347, 353, 481, 500, 544
	Dry Needling	With or without stimulation	General	3, 6, 280, 281
	Whole body vibration	With or without exercise	General	545

PTOT-2.3.11 Appendix Cancer Evidence

- Skilled care is not provided as a direct treatment for an individual's cancer pathology. Cancer pathology and treatments for cancer may contribute to functional deficits, debility, pain and general well-being for up to 12 months or more after treatment.
- The provider should document complications due to cancer or cancer treatments. The provider should also be familiar with contraindications to skilled care, side effects of cancer process or medications, and appropriate intensities of care. ⁵⁴⁶
- General evidence based considerations for skilled care of those with cancer is presented below:

Recommendation	Intervention	Additional Detail	References
Strong for use	Education	Multidimensional and covering complexities of care associated with cancer or its treatment, including family and caregivers	546-548
	Exercise	Appropriately high intensity appears to be safe	530, 546-549, 553, 554
		Home-based exercise can improve function and fatigue.	555
Moderate for use	Education	Blood count in adults may help to inform intensity of care to reduce risk of bleeding and DVT.	546, 556
	Exercise	Fatigue management	554, 557
Weak for use	Fall prevention	Supervised compared to unsupervised does not appear to be superior in improving QoL	558
Not recommended	Heat, ultrasound (US), electrical stimulation, low level laser	Older adults with cancer	559
	Manual Therapy	Contraindications include: unmanaged tumor, peripheral vascular disease, impaired sensation, radiation dermatitis, and bone fragility	547

PTOT-2.3.12 Appendix Bell's Palsy Evidence

- The risk factors thought to be associated with a poor outcome in individuals with Bell palsy include (1) age greater than 60 years, (2) complete paralysis, and (3) decreased taste or salivary flow on the side of paralysis (usually 10-25% compared with the individual's normal side).
- Because individuals with true Bell palsy generally have an excellent prognosis, and because spontaneous recovery is fairly common, treatment of Bell palsy is still controversial. The goals of treatment are to improve facial nerve (seventh cranial nerve) function.

Outcome tools recommended for Bell's Palsy:

Tool	References
The Sunnybrook Facial Grading System (FGS)	560, 561, 562
The Synkinesis Assessment Questionnaire	563
House-Brackmann Facial Nerve Grading Scale	564

Recommendation	Intervention	Additional Detail	References
Strong for use	Exercise	Proprioceptive neuromuscular facilitation (PNF), Mime therapy and facial exercises	565, 566, 567
Insufficient evidence	Electrical stimulation		568-570

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PTOT-3.0: Lymphedema

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This section presents with evidence to help guide clinical treatment specific to lymphedema reduction.

- Lymphedema (LE) is defined as an abnormal buildup of lymph fluid within the fatty tissue under the skin causing localized edema accumulation and additional integumentary sequelae.

PTOT-3.1: Additional Criteria to Establish Medical Necessity

The criteria established in **PTOT-1.2 Indications for Treatment** are generally applicable across all physical and occupational therapy conditions.

In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with Lymphedema:

- Circumferential and /or volume measurements demonstrating asymmetrical swelling of >2cm or 200ml
- A diagnosis of Lymphedema and not tissue edema due to other etiologies
- Past history of unsuccessful therapies such as elevation, diuresis, and compression garments
- Clinical determination of lymphedema stage and severity^{1,2}

Stage	Description
0	Subclinical: Swelling is not evident, although lymphatic transport is impaired. May exist for months or years before lymphedema becomes evident.
I	Early onset: Swelling subsides with limb elevation. Edema may be pitting.
II	Limb elevation rarely reduces swelling, and pitting is present. Late in stage II fibrosis begins to occur.
III	Tissue is fibrotic, and pitting is absent. Skin changes, including thickening, hyperpigmentation, increased skin folds, fat deposits, and warty overgrowths, develop.

PTOT-3.2: Clinical Considerations

This section functions to establish clinical considerations specific to lymphedema that may also be pertinent to establishing the need of skilled care.²

- The following complicating factors will affect response to treatment:
 - ◆ Fibrosis
 - ◆ Skin breakdown/wounds/ulceration/weeping
 - ◆ Repeated infection
 - ◆ Axillary web syndrome (cording) in upper extremity lymphedema
 - ◆ Individual adherence is significantly associated with treatment outcomes.
- Individuals who report daily accurate performance of their lymphedema home management program were more likely to improve than those who were non-adherent.

PTOT-3.3 Appendix: Lymphedema Evidence

Self-management

- Individuals should be educated on a self-bandaging program. The evidence suggests that it is effective for management of upper and lower extremity lymphedema.³
- Education on the importance of consistently wearing custom or ready to wear compression garments during daytime hours to maintain volume reduction.⁴
- Specifically designed nighttime compression garments can be worn to bed if the individual's limb continues to swell at night.

Skilled Care

- Supporting research on skilled care recommendations is presented below. It is important that skilled care for lymphedema be supported by best evidence.

Recommendation	Intervention	Additional Detail	References
Strong for use	Compression garments/ and or bandaging with or without manual lymph drainage	For reducing volume and for long-term self-management	5, 6, 7
Moderate for use	Complete decongestive therapy (CDT)	stage II and stage III lymphedema	4, 8
	Exercise	-For lymph flow, and functional limitations -Resistive exercise – No increase in risk of or worsening of edema in individuals with breast cancer	9, 10
Conflicting Recommendations	Manual Lymph Drainage (MLD)	- Effectiveness of MLD on LE and head and neck lymphedema as a stand-alone treatment	5, 6
	Low level laser therapy (LLLT) and conventional therapy	Low level laser therapy (LLLT) and conventional therapy	11
Weak for use	Compression bandaging/garments	for head and neck cancer-related Lymphedema	4
	Pneumatic Compression Pump (PCP)	with other components of CDT for reducing lower extremity volume	4
	Kinesiotaping	does not show significant improvements.	12
	Surveillance or Self-Management	Growing evidence that this method is more cost effective than CDT.	3

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PTOT-4.0: Neurological Conditions

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This section presents evidence to help guide clinical interventions for the functional deficits that may accompany a neurological disorder.

- Conditions classified as neurological disorders may have varied etiologies such as acquired from trauma, idiopathic progressive disease processes, congenital malformation and/or consequences of other diseases. Neurological disorders result in chronic dysfunction of central and/or peripheral nervous systems.

PTOT-4.1: Additional Criteria To Establish Medical Necessity

This section functions to establish general clinical considerations specific to neurological conditions that may also be pertinent to establishing the need for skilled care.

- In addition to the criteria established in sections **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with acquired and degenerative neurological problems.
- Consideration of the need for the skilled care necessitates determining that an individual is responding appropriately. Baseline function must be assessed and the information submitted. An individual's function should improve from the care provided.
- Functional outcome measures are recommended to be used to demonstrate levels of functional deficit and progressive improvement.^{1, 2} There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. The table below provides common measures that are well established through research:

Tool	References
Functional Gait Assessment	3-6
Timed Up and Go	5, 7-10
Berg Balance Scale	11, 12
Tinetti Performance Oriented Mobility Assessment	13, 14
Functional Reach Test	15-17
9 Hole Peg Test	18
10 Meter Walk Test	19, 20, 21, 22, 23
Capabilities of Upper Extremity (CUE)	24
Stroke Impact Scale (SIS)	25
Fugl-Meyer Assessment (FMA)	26
Spinal Cord Independence Measure (SCIM)	27
6-Minute Walk Test (6MWT)	28
Dynamic Gait Index	29, 30, 31
Barthel Index	32
Box and Blocks Test	33

American Spinal Injury Association (ASIA) Classification Scale ³⁴

- The ASIA Impairment Scale classifies the completeness of Spinal Cord Injury on a scale from A-E, as follows :
 - ◆ **A:** Complete; no sacral motor or sensory sensation in segments S4-5
 - ◆ **B:** Sensory incomplete; preservation of sensation below the level of injury, extending through sacral segments S4-5
 - ◆ **C:** Motor incomplete; voluntary anal sphincter contraction or sensory sacral sparing, with sparing of motor function distal to 3 levels below the motor level of injury and with the majority of key muscles having a strength grade of less than 3
 - ◆ **D:** Motor incomplete; voluntary anal sphincter contraction or sensory sacral sparing, with sparing of motor function distal to 3 levels below the motor level of injury and with the majority of key muscles having a strength grade of 3 or greater
 - ◆ **E:** Normal; normal motor and sensory recovery (hyper-reflexia may be present)
- Neurological conditions can present with varied complexities that may or may not affect the need for skilled care. The effect of a complexity must be considered on a case-by-case basis. It is the responsibility of the provider to submit information regarding any complexities to be considered

PTOT-4.2: Clinical Considerations

General Considerations:

- Current evidence recommends that skilled care in individuals with neurological disease be function- and task-oriented. Caregivers can be effectively trained to help. Home-based programs can aide continued improvement.^{1,35-40}
- Education should balance optimism and the reality of the disease. This reality should also be considered in establishing the goals of skilled care. Consideration of an individual's potential progress and ability may be considered as part of need for skilled care.^{1, 39}
- Skilled care should not be on-going, but episodic as the individual's needs change.²

Major Medical Considerations:

- There is no specific evidence to show that an individual needs any predetermined amount of skilled care due to major health conditions alone. The health status of an individual may impact their ability to recover and participate in skilled care.
- It is the responsibility of the requesting provider to submit information regarding any effect an individual's medical condition may have on the individual's expected course of care.

Chronicity Considerations:

- Acquired brain injury and neurological disease can have long lasting effects.
- Some conditions may have windows of time in which the greatest progress would be expected. If recovery slows over time, there may be longer periods of time between when an individual would need an update to their program or that caregivers would need additional training.

- Despite a condition being chronic, an individual should objectively respond appropriately to the care provided.

Condition Specific Complications:

- Neurological disease and injury can present along varied spectrums of functional and cognitive deficit. They may be progressive and change over time. They may be degenerative with various levels of decline.
- Compounding issues such as spasticity, tremors, freezing, motor versus sensory loss, and regions of the nervous system affected, and cognitive issues will require that each request be considered on a case-by-case basis. These complications must be submitted by the provider and should reflect the functional ability of the individual.

PTOT-4.3 Appendix: Neurological Disease Evidence

Amyotrophic Lateral Sclerosis

- There is insufficient and conflicting evidence to support the use of exercise to improve function, fatigue, or well-being in individuals with amyotrophic lateral sclerosis.⁴¹⁻⁴⁴
- Supporting research on skilled care recommendations is presented in the below table. It is important that skilled care for a neurological condition be supported by best evidence.

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Home program with caregivers	Multiple Sclerosis (MS), Parkinson's Disease, Amyotrophic Lateral Sclerosis (ALS)	1, 35, 36-39,
	Dual task training	Function based	MS, Parkinson's	40, 41, 42, 43-44
	Exercise	Prescription should follow ACSM guidelines	Parkinson's, Brain Disorders, Huntington's, Myasthenia Gravis	45-47, 48, 49, 50, 51, 52-53
		Movement based (i.e. Tai Chi)	Parkinson's	2, 54, 55
		Resistance training and repetition of functional tasks	SCI	56
	Gait training	Individualize for speed, stride, step, length and freezing	MS, Parkinson's	2, 57-59, 60, 61
		Underwater treadmill training	Incomplete Spinal Cord Injury (SCI)	62
	Contracture	Priority placed on	SCI	63

Recommendation	Intervention	Additional Detail	Conditions Included	References
	Management	positioning programs		
	Activity-based therapy (ABT)	Works for upper extremity only	SCI	64
	Modalities	Functional electrical stimulation (FES) and transcutaneous electrical stimulation equally decreases spasticity, FES – mobility and hand strength	SCI	65, 66
Moderate for use	Balance Training	Rhythmic auditory stimulus training	Parkinson's Disease	67, 68
	Aquatic Therapy	Not shown as superior to land based therapy	MS, Parkinson's	69, 70-72
	Amplitude Oriented Training	LSVT-BIG protocol vs Nordic Walking	Parkinson's Disease	73-75
	Upper extremity circuit resistance training	Increases strength and functional independence	Paraplegia	76
	Aerobic exercise	For exercise capacity only	SCI	77
Weak for use	Spasticity reduction	Care to specifically reduce spasticity	MS, ALS	78, 79
	Neuromuscular Electrical Stimulation	No better than conventional treatment	Incomplete SCI	80
Insufficient, Inconclusive evidence to support use	Whole body vibration		Neurologic Disease	2, 81, 82
	Robot assisted gait training	Land or treadmill Acute versus chronic SCI	MS, Parkinson's SCI	83, 84, 85
	Functional electrical stimulation (FES)	To improve gait	Demyelinating disorders	86, 87
	Fall prevention programs		Alzheimer's, Multiple Sclerosis	88, 89, 90, 91
	Exoskeleton vs. conventional methods	Useful only as a training tool	SCI	92, 93

PTOT 4.4 Appendix: Acquired Brain Injury Evidence

Cerebrovascular Accident (CVA)/Stroke

- Most improvement is noted in the first 3 to 6 months post-brain injury with the greatest progress seen in the first 6 weeks.⁹⁴ Initiation of rehab services within the first 30 days after insult demonstrates the best recovery. Initial deficit severity is related to long-term outcomes. Clinicians are encouraged to educate individuals early on the importance of regular exercise to improve cardiorespiratory fitness which will prevent further deconditioning, reduced socialization and heightened risk of further vascular events, including a second stroke.⁹⁵⁻⁹⁸

Traumatic Brain Injury

- The evidence to support post-acute brain injury rehabilitation is lacking high-quality conclusive research.⁹⁹ The evidence in the literature does not favor one approach or program over any other.¹⁰⁰⁻¹⁰²

Concussion

- There is an emerging consensus that only severe concussions overlap the less severe end of minimal traumatic brain injury (mTBI) spectrum. There is a movement to classify a concussion as a minimal TBI or at least acknowledge that mTBI and concussion are not synonymous. This definition would make concussions only a subset of mTBI.^{103,104}

The following measures are standardized tests are suggested based on the latest evidence:

Structure/Function Test	References
Standard Assessment of Concussion (SAC)	105
Acute Concussion Evaluation (ACE)	106, 107
Post-Concussion Symptom Scale (PCSS)	108
Glasgow Coma Scale (GSC)	109
Activity (Tasks)	References
Balance Error Scoring System	110
SWAY	111
SCAT 5	109,112, 113
Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT)	114
Dizziness Handicap Inventory	115
Vestibular Ocular Motor Screening (VOMS)	116
Participation Measures	References
Patient Specific Functional Scale	117
Neck Disability Index	118

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Task/Activity specific training	For mobility, balance	Cerebrovascular Accident (CVA), Traumatic Brain Injury (TBI)	119-123
	Wheelchair evaluation and fitting		TBI	124
	Neuromuscular Electrical Stimulation (NMES)	for gait training and with upper limb task training	CVA	125-127
	Treadmill training	Non-ambulatory cases	CVA	128-130
	Robotic assisted devices	For upper extremity function	CVA	131
	Balance training	Individual and groups	CVA	132-135
	Education		Concussion	136, 137
	Exercise	Including aerobic	Concussion	138-143
	Manual therapy	cervical	Concussion	142, 144-146
Strong against use	Overnight splinting for range of motion (ROM)		TBI	121
Moderate for use	Exercise- aerobic, resistance, aquatic		TBI, CVA	120, 147-152
	Serial casting for ROM		TBI	121
	NMES and Botox for shoulder subluxation.		CVA	154-157
	Eye exercise, prism glasses and cognitive rehabilitation	For visual field cuts/loss or neglect.	CVA	158-160
	Constraint Induced Therapy or Modified version	In conjunction with traditional therapy.	CVA	161-164
	Biofeedback and virtual therapy		CVA	165, 166
	Vestibular therapy		Concussion	142, 144, 145, 167-169
Moderate against use	Pulleys/ taping/ splinting for treatment of shoulder		CVA	170-173
Weak for use	Robotic assisted devices	For gait	CVA	174-177
	Task oriented therapy and		CVA	178-180

Recommendation	Intervention	Additional Detail	Conditions Included	References
	strategy for use with ataxia/apraxia of limbs.			
	Taping/ strapping/ scapular nerve blocks for hemiparesis/ subluxed shoulder		CVA	181-184
Insufficient, Inconclusive evidence to support use	Balance and Gait training	Mild to moderate cases	TBI	185, 186
	Multidisciplinary Rehabilitation		TBI	99, 100, 102

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PTOT-5.0: Pain Syndromes

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This section presents the syndromes with enough evidence to help guide clinical treatment and is not addressed in body region specific guidelines elsewhere. Conditions included are fibromyalgia, myofascial pain syndrome (MPS), and complex regional pain syndrome (CRPS).

- Conditions classified as pain syndromes may have varied etiologies and clinical treatments. The presentation of these syndromes may vary, but they are marked by chronic pain found in joints, muscles, connective tissues, and nerves.

PTOT-5.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to Pain Syndromes that may also be pertinent to establishing the need of skilled care.

- In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with pain syndromes.
- There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. The tables below provide common measures that are well established through research:

Functional Outcome Tools for children with CRPS:

Tools	References
Pediatric Quality of Life Inventory (Peds-QL)	1
Functional Disability Index (FDI)	2
6-minute walk for distance test (6MWT)	3
Short Form-10 (SF-10) Health Survey	4

Functional Outcome Tools for Adults with Pain Syndromes:

Tools	References
Disabilities of the Arm, Shoulder and Hand (DASH)	5
Lower Extremity Functional Scale (LEFS)	6
Fear Avoidance Belief Questionnaire (FABQ)	7
Fibromyalgia Impact Questionnaire (FIQ) ⁴	8

PTOT-5.2: Clinical Considerations

Complex Regional Pain Syndrome (CRPS) Considerations:

- Evidence-based literature regarding treatment interventions to manage CRPS for both adults and children is limited and larger clinical trials need to be conducted.⁹
 - ◆ Both Physical and Occupational Therapy have proven effective in treatment of CRPS.¹⁰

Myofascial Pain Syndrome (MPS) Considerations:

- Physical inactivity was associated with a higher prevalence of chronic musculoskeletal problems, regular exercise should be encouraged.¹¹
- Multiple studies of chronic pain syndromes confirm the importance psychosocial factors including but not limited to distress, depression, or pain-related fear needs to be addressed in treatment.¹²

PTOT-5.3 Appendix: Pain Syndrome Evidence

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Multi-modal, multi-disciplinary program		CRPS, Fibromyalgia	13-16
	Exercise		Fibromyalgia	16
Strong against use	Aggressive exercise		CRPS	15
Moderate for use	Exercise	Intensive programs of 5x/week for up to 6 hrs./day for up to 3 weeks have been suggested- largely based on 2 studies of a pediatric population.	CRPS	17, 18
		Gradual progression, functional exercises	CRPS, MPS, Fibromyalgia	15, 19, 20
		Graded Motor Imagery and Mirror Visual Feedback early in intervention.	CRPS	21
		Shared decision making and guided treatment for self – management.	CRPS	22
		Aerobic exercise	Fibromyalgia	23-25
Moderate against use				
Weak for use	Exercise	including aerobic, with desensitization techniques and modalities tapered as pain reduces.	CRPS	15
	Cognitive Behavioral Therapy (CBT)		CRPS	26
	Transcutaneous Electrical Stimulation (TENS)	Short-term	CRPS	27
	Dry Needling	Short-term pain relief	MPS	28-31
	Pain education	As an adjunct to therapy only	MPS	32
	Trigger point therapy		MPS	33-35
	Ultrasound		MPS	36
Not recommended or lacking evidence	Laser therapy		CRPS	21
	Myofascial Release		MPS	28, 38
	TENS		Fibromyalgia	39, 40

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PTOT-6.0: Pelvic Dysfunction

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This section presents evidence to help guide clinical treatment specific to pelvic disorders and is not addressed in body specific region guidelines elsewhere.

- Conditions classified as pelvic disorders present when the pelvic muscles, tendons, ligaments and bone that support the pelvic floor and organs become dysfunctional from various etiologies. The primary types of pelvic disorders are incontinence (urinary, fecal, both), pelvic organ prolapse, sexual organ dysfunction and pelvic pain syndromes.

PTOT-6.1: Additional criteria to establish medical necessity

This section functions to establish general clinical considerations specific to pelvic health conditions that may also be pertinent to establishing the need for skilled care.

- In addition to the criteria established in **PTOT-1.2 Indications for Treatment**, **PTOT-1.3 Non-Indications for Treatment**, and **PTOT-2.0 General Musculoskeletal Conditions**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with pelvic health conditions.
- Consideration of the need for the skilled care of a pelvic health condition necessitates determining that an individual is responding appropriately. Baseline function must be assessed and the information submitted. An individual's function should improve from the care provided.
- Functional outcome measures are recommended to be used to demonstrate levels of functional deficit and progressive improvement.¹ Standardized outcome and performance-based measures can demonstrate a functional deficit and improvement over time. The table below provides common measures that are well established for use in those with pelvic health conditions:

Tool	References
Pelvic Floor Impact Questionnaire (PFIQ-7)	2
Pelvic Floor Distress Inventory (PFDI-20)	2
Prostatitis Symptom Index (NIH-CPSI)	3

PTOT-6.2: Clinical Considerations

The intent of this section is not to cover every complexity that a condition or individual may present with but to inform on common complexities that may be considered as part of a review.

- Pelvic health conditions can present with varied complexities that may or may not affect the need for skilled care. The effect of a complexity must be considered on a case-by-case basis. It is the responsibility of the provider to submit information regarding any complexities to be considered.

PTOT-6.3 Appendix: Pelvic Dysfunction Evidence

Supporting research on skilled care recommendations is presented below. It is important that skilled care for a pelvic health condition be supported by best evidence.

Pelvic Organ Prolapse (POP)

- Pelvic floor muscle training of 5-6 session over 16 weeks for stage 1-2 POP.^{1, 4, 5, 6, 7}
The routine use of pelvic floor training in the perioperative period around POP surgery is not recommended, but should be determined case-by-case.⁸

Urinary Incontinence (UI)

- Pelvic floor muscle training of 8-12 weekly sessions along with a regular home program for females or males.^{1, 4, 5, 9, 10, 11, 12}

Recommendation	Intervention	Additional Detail	Conditions Included	References
Strong for use	Education	Voiding Diary	Incontinence	13
		Bladder training over 6 weeks	Urinary Incontinence (UI)	1, 14
	Exercise	Pelvic floor muscle training	All conditions	4, 15-20
Moderate for use	Education	Weight reduction and exercise	UI / obesity	1, 14
	Manual Therapy	In clinic or through home program	Dyspareunia	16, 21-23
	Exercise	Pelvic floor muscle training	Post-Partum	24, 25
	Electrical Stimulation	For those with no active contraction	UI	1, 26
Weak for use	Mobilization	Internal if stable malposition	Coccygodynia	27
	Visceral Manipulation		Constipation	28-30
Insufficient, Inconclusive evidence to support use	Mobilization and Manipulations	Visceral mobilization	All conditions	1, 31, 32
		Osteopathic technique		
		Prostatic massage	Prostatitis	33
	Biofeedback		Incontinence	34

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PTOT-7.0: Vestibular Conditions

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This section presents evidence based treatment recommendations for common vestibular disorders.

- Vestibular disorders are conditions that affect the normal function of the inner ear, brain and/or brainstem that may be marked by dizziness, imbalance, vertigo, tinnitus, hearing loss, vision impairment and/or cognitive changes.

PTOT-7.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to Vestibular Conditions that may also be pertinent to establishing the need for skilled care.

- In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with musculoskeletal (MSK) problems.
- Consideration of the need for the skilled care for Vestibular Conditions necessitates determining that an individual is responding appropriately. Baseline function must be assessed and documented. An individual's function should improve from the care provided.
- There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. The table below provides common measures that are well established through research:

Tool	References
Dynamic Gait Index (DGI)	1
Timed Up and Go (TUG)	2
Berg Balance Test	3
Dizziness Handicap Inventory	4
Activities Specific Balance Confidence Scale	5
Vertigo Symptom Scale-short form	6

PTOT-7.2: Clinical Considerations

Vestibular Hypofunction Considerations

- Vestibular rehabilitation is recommended for both unilateral and bilateral vestibular hypofunction based on Level 1 evidence studies.⁷
- Vestibular rehabilitation exercises are designed to facilitate central nervous system plasticity by generating substitution, habituation, and adaptation mechanisms.⁸
- Vestibular rehabilitation should be implemented in the absence of active pathology (such as active Meniere's or neuritis).

PTOT-7.3 Appendix: Vestibular Conditions Evidence

- Supporting research on skilled care recommendations is presented below. It is important that skilled care for a pelvic health condition be supported by best evidence.

Recommendation	Intervention	Additional Detail	Conditions	References
Strong for use	Canalith repositioning procedures	Epley Maneuver, Brand-Daroff Exercises, Appiani Maneuver, Lempert Roll and Liberatory	Benign Paroxysmal Positional Vertigo (BPPV)	9,10,11
Strong against use	Posture	Posture restrictions	BPPV	9
	Exercise	Isolated saccadic and smooth pursuit exercises without head movements	Unilateral Vestibular Hypofunction (UVH)	7
Moderate for use	Exercise	Gaze stabilization and habituation exercises for UVH Substitution and habituation exercise for CVH	UVH, Central Vestibular Hypofunction (CVH)	7, 13, 14, 15
	Home program and education		UVH	12
Moderate against use	Vestibular testing	For individuals who meet diagnostic criteria without additional signs	BPPV	9

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PTOT-8.0: Wounds, Burns and Skin Conditions

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This section presents evidence based treatment recommendations for common wounds, burns, and skin conditions.

- The integumentary system is susceptible to a variety of diseases, disorders, and injuries. This section covers chronic wounds, burns and skin conditions such as eczema and psoriasis.
- Chronic non-healing wounds are wounds that have failed to progress through a timely sequence of repair, or one that proceeds through the wound healing process without restoring anatomic and functional results. The Wound Healing Society classifies chronic wounds into 4 major categories: pressure ulcers, diabetic foot ulcers, venous ulcers, and arterial insufficiency ulcers.
- Burns are classified by their degree of severity: 1st degree, 2nd degree, 3rd degree and 4th degree.
- Skin conditions such as atopic dermatitis and psoriasis occurs when a person's immune system triggers skin cells to grow faster than they usually should.

PTOT-8.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to wounds, burns, and skin conditions that may also be pertinent to establishing the need for skilled care.

In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with wounds, burns, and skin conditions.

- Consideration of the need for the skilled care necessitates determining that an individual is responding appropriately. Baseline function must be assessed and documented. An individual's function should improve from the care provided.
 - ◆ Size of wound/stage
 - ◆ Amount (%) of necrotic tissue and drainage
 - ◆ Performance based outcomes using tests such as the following:
 - 30 second sit to stand test¹
 - Five times sit to stand test²
 - ◆ Complicating factors such as lymphedema
 - ◆ Individual's ability to independently dress wounds, apply compression garments/wrapping

Recommended wound assessment tools for Pressure Wounds:

- The Bates Jensen Wound Assessment Tool (BWAT)³
- Pressure Ulcer Scale for Healing (PUSH)⁴

Recommended Individual report outcome tool:

- Psoriasis Area and Severity Index (PASI-75)⁵

PTOT-8.2: Clinical Considerations

Venous Ulcers

- Treatment of venous ulcers includes compression therapy, providing a moist wound environment, and debridement of necrotic tissue. Most venous ulcers heal with these measures alone. Some require split-thickness skin grafting or application of bioengineered skin (e.g., Apligraf).⁶

Pressure Ulcers

- Treatment of decubitus ulcers requires prolonged surgical and nursing care. During the extended period of treatment required, the individual remains at risk for the development of new pressure ulcers at other sites. Treatment is based on appropriate staging of the pressure ulcer.^{7,8}

Diabetic Foot Ulcers

- The treatment of diabetic foot ulcers requires the following: (1) appropriate therapeutic footwear, (2) daily saline or similar dressings to provide a moist wound environment, (3) debridement when necessary, and (4) negative pressure wound therapy, electrical stimulation (e-stim), and hyperbaric oxygen treatments may also be beneficial.^{7,8}

Skin Conditions

- UVB phototherapy is a safe and effective treatment option for individuals with psoriasis, eczema, vitiligo, and other photo-responsive disorders.^{9, 10}

PTOT-8.3 Appendix: Wounds, Burns, and Skin Conditions Evidence

- Supporting research on skilled care recommendations is presented below. It is important that skilled care for a pelvic health condition be supported by best evidence.

Recommendation	Intervention	Additional Detail	References
Strong for use	Passive modalities	Electrical stimulation in acute wound healing	11-19
	Wound debridement	Biological Selective/sharp	20-30
	Pulsed lavage		15, 27, 31-34
	Wet to dry dressing		16
Moderate for use	Passive Modalities	Laser, ultrasound and electrotherapy to chronic wounds	35-40
	Negative pressure	for burns and wounds	24-26, 41-44
Low for use	Non selective debridement	All wound types	45
Not Recommended	Heating modality, Infrared energy	All wound types	16, 25

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PTOT-9.0: Pediatric Neurodevelopmental Disorders

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This section presents evidence to help guide clinical interventions for the functional deficits that may accompany a pediatric neurodevelopmental disorder.

- Pediatric neurodevelopmental disorders is an expansive category of disorders that may be expressed as cognitive developmental disabilities, metabolic and genetic conditions, common nervous system conditions, nerve and muscle disorders, or any combination of these conditions.

PTOT-9.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to pediatric neurodevelopmental disorders that may also be pertinent to establishing the need for skilled care.

In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT-1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with pediatric neurodevelopmental disorders.

- Consideration of the need for the skilled care of a pediatric neurodevelopmental condition necessitates determining that an individual is responding appropriately. Baseline function must be assessed and documented. An individual's function should improve from the care provided.
- There are many standardized outcome and performance based measures that can demonstrate a functional deficit and improvement over time. The table below provides common measures that are well established through research:

PTOT-9.1.1: Standardized Tests

Standardized Test	References
Alberta Infant Motor Scale (AIMS) (0-18 months)	1, 2, 3
Battelle Developmental Inventory (BDI) (Birth-8 years)	4
Bayley Scales of Infant and Toddler Development (Age 1-42 months)	5
Beery-Buktenica Developmental Test of Visual-Motor Integration (Beery VMI) (2-18 years)	5
Bruininks Oseretsky Test of Motor Proficiency (BOT-2) (4-21 years)	6, 7
Developmental Assessment of Young Children-2 (DAYC-2)	8
Developmental Profile 3 (DP-3) (Birth to 12.11 years)	9
Developmental Test of Visual Perception-2 (DTVP-2) (4-10 years)	10
Miller Function and Participation (M-FUN) (2-7.11 years)	11
Movement Assessment Battery (3-16.11 years)	12
Peabody Developmental Motor Scales-2 (PDMS-2) (Birth to 6 years)	13, 14
Pediatric Evaluation of Disability Inventory -Computerized Adaptive Testing (PEDI-CAT) (birth to 20 years)	15
Sensory Processing Measure (5-12 years)	16
Sensory Profile (birth to 14.11 years)	17-18
Test of Visual Motor Skills (TVMS-3) (ages 3-90 years)	19
Test of Visual Perceptual Skills (TVPS) (5-21 years)	20
Wide Range Assessment of Visual Motor Ability (WRAVMA) (3-17 years)	21

PTOT-9.1.2: Criterion-Referenced Tests/Tools

- Motor abilities of children with disabilities are often compared to those of children with normal motor development. Evidence recognizes that children with severe and multiple disabilities should have criterion-referenced instruments of motor abilities since norm-based tests are unsuitable.²²
- The table below contains commonly used criterion-referenced tests/tools:

Criterion-Referenced Tests/Tools	References
Gross Motor Function Measure (GMFM)	23
Goal Attainment Scaling – 2 nd edition (GAS)	24, 25
Canadian Occupational Performance Measure (COPM)	26
North Star Ambulatory Assessment (NSAA)	27
Children Hospital of Philadelphia Infant Test of Neuromuscular Disorders (CHOP INTEND)	28
10-Meter Walk Test (10MWT)	29
6-Minute Walk Test (6MWT)	30, 31, 32
CMT Neuropathy Score (CMTNS)	33, 34
9-Hole Peg Test	35, 36
Cervical Active and Passive ROM with Arthrodial goniometer	37
Muscle Function Scale	38
Timed Up and Go (TUG)	39, 40

PTOT-9.1.3: Classification Scales

- Classification scales are useful for making clinical decisions, setting realistic goals, maintaining realistic expectations, and improving communication between clinicians.⁴¹

Scale	Purpose	References
Gross Motor Function Classification System-Expanded and Revised (GMFCS) (6-18 years)	Classification of Cerebral Palsy utilized for prognosis, goal setting, and research. ^{44,45,46} It is most accurate after age 2 years. ⁴⁷	42, 43
Manual Ability Classification System (MACS) (4-18 years)	MACS is used with children with Cerebral Palsy to classify their ability to use one or both hands to handle objects in daily activities. ⁴⁸	49

PTOT-9.2: Clinical Considerations

PTOT-9.2.1: Episodic Care⁵⁰

- Episodic care is recommended for pediatric rehabilitation.
- Children with chronic conditions may benefit from multiple episodes of care across their childhood.
- Episodic care will have the following characteristics:
- Has a definitive start and stop date to focus on a specific problem or condition.

- Is directly associated with child/family's goals and not a continuation of therapy goal setting.
- Is family-centered care with Specific, Measurable, Achievable, Realistic, and Time-relevant (SMART) goals focused on functional skills that are important to current needs and impact quality of life.
- Is for a set period of time for some conditions/protocols, but is not one ideal length of time.
- Is concluded when goals have been achieved, when progress has waned, or when therapy is no longer beneficial.
- May improve overall attendance and compliance with home program due to the clearly defined duration of the episode, which is established at the start of care.

New Episode of Care Indications:

- A growth spurt or new problem
- Acquisition of skills that the individual has worked on and is now ready to move to the next level of skills, but cannot do so without therapist support
- Regression in skills (new episode of care is to problem-solve and update the home program to address the regression)
- Need to recover from a short-term illness or injury

Episodic Model Timing Considerations:

- **Critical period:** This period is when biologic or physiological conditions make the individual especially sensitive to certain environmental stimuli and when development of a new or lost skill is most likely.
- **Acquisition Phase:** This phase is when the child is in a critical period, is learning how to perform a new skill and requires direct skilled therapeutic services, and is making continuous progress. The visits use the provider's assessment skills to establish and change the therapy plan/home program. Those skills cannot be taught to the family. In this phase, weekly (or more frequent) services would be appropriate.
- **Fluency Phase:** This phase requires practice and repetition for fluency in the natural environment, the child is not in a critical period, and there is a slower rate of progress. The care should transition to indirect services for updating the home program. This would lead to a break in care, with the expectation of the family carrying over the home program.
- **Maintenance Phase:** This phase is supported by consultative services, if needed, to monitor and identify potential problems before the child's functional skill level and participation are adversely affected.

PTOT-9.2.2: Downs Syndrome (DS)

Development of motor skills

- Children with DS *will* attain developmental milestones, but it takes them nearly twice as much time.⁵¹ During infancy, motor skills that require midline behaviours and vertical posture are delayed.⁵² These early skills contribute to ongoing delay of more complex motor skills.⁸

Ambulation and Balance skills

- Mobility skills improve most rapidly at younger ages and then level off as the child approaches the upper limit of function.⁵³
- Children with Down Syndrome do not develop balance strategies before age 6 years old and postural stability does not reach maximum potential until age 13-14 years of age in typically developing children.⁵⁴

Fine Motor and Activities of Daily Living Skills

- Children with DS experience delays in fine motor skills, which lead to delays in activities of daily living (ADLs) and independence.^{54, 55, 56}
- In addition, children with DS have sensory processing problems that negatively impact ADLs.⁵⁷

PTOT-9.2.3: Congenital Muscular Torticollis (CMT)

- Treatment of the infant with CMT is guided by the age of the infant, the severity of the torticollis, the abilities of the parents to perform the exercises and repositioning procedures, the diagnosis of plagiocephaly, and the presence of associated neuromuscular or orthopedic impairments. Passive stretching has been most effective in correcting the cervical range of motion deficits.
- The earlier physical therapy treatment begins the better the results.⁵⁸⁻⁶³ If a child is referred to physical therapy services at less than one month of age, by the time the infant is 2.5 months old, the CMT has been shown to be 98% resolved.⁶⁰
- The more severe the torticollis and the longer the delay in initiation of physical/occupational therapy treatment results in increased time in-therapy and increases the likelihood of the need for surgery.^{58, 60, 61, 62}
- Those who undergo surgery to correct the CMT will need intensive physical therapy intervention for 3-4 months following the procedure.⁶⁴

PTOT-9.2.4: Autism

- The body of evidence for the use of standardized tests with children who have a diagnosis of ASD is low.
- A standardized testing process does not play to the strengths of individuals with autism and, consequently, the testing process often is not well tolerated, nor does it result in an accurate reflection of the individual's abilities.⁶⁵

PTOT-9.2.5: Duchenne Muscular Dystrophy (DMD) ⁶⁶⁻⁶⁸

- **Stage 1:** At diagnosis- may show delays in attaining developmental milestones but no gait disturbance.
- **Stage 2:** Early ambulatory - Gower's sign, waddling gait, possible toe walking, able to climb stairs
- **Stage 3:** Late ambulatory - increased difficulty and energy required to walk, losing ability to transition from floor and ascend stairs
- **Stage 4:** Early non-ambulatory - may be able to self-propel a wheelchair, able to maintain posture, may develop scoliosis
- **Stage 5:** Late non-ambulatory - upper limb function and postural maintenance is increasingly limited

PTOT-9.2.6: Spinal Muscular Atrophy

- Regular PT sessions may influence progression of motor skills and/or strength, although minimal functional progression was seen in early studies in sitters and walker receiving nusinersen. Some showed a decrease in function due to joint contractures, scoliosis or weight gain.⁶⁹
- Motor function has shown improvement in individuals who are treated with nusinersen, as demonstrated by improvement by a 3-point change in the disability score on the Hammersmith Function Motor Scale Expanded (HF MSE) score.⁷⁰ Muscle strength was not noted to improve.

PTOT-9.2.7: Charcot-Marie Toth Disease

- No recommended dosing for skilled physical or occupational therapy is described. A study by Chetlin et al. reports significant improvement in muscle strength and activities of daily living with resistance training at home.⁷¹ Wallace et al. demonstrated improvement of aerobic capacity with a community-based program using recumbent exercise bicycles.⁷²

PTOT-9.3 Appendix: Pediatric Neurodevelopmental Evidence

- Supporting research on skilled care recommendations is presented below. It is important that skilled care for pediatric neurodevelopmental disorders be supported by best evidence.

Recommendation	Intervention	Additional Details	Conditions	References
Strong for use	Constraint-induced movement therapy	Casting, functional training, Bimanual Arm Training	Cerebral Palsy	73
	Early intervention services	Early referral, parent coaching for short-term motor development	Plagiocephaly and Developmental delay	74, 75
	Neuromuscular and movement related function	Includes range of motion, muscle tone, postural control, parent delivered intervention, developmental program with parent engagement	All conditions	76, 77, 78
	Physical exercise	Beneficial in different ways depending on the exercise/activity and age of child	Autism Spectrum Disorder	79-82
	Cognitive training	Age 0-5 years: family centered care, incorporate active movement to increase attention and engagement Cognitive interventions and engagement in self-care routines Cognitive, neuromotor task training, and biomechanical approaches Parent education and coaching	All conditions	83, 84-87

Recommendation	Intervention	Additional Details	Conditions	References
	Ayres Sensory Integration (ASI)	For function, using Goal Attainment Scale (GAS) to measure progress effective for ages 4-12 with ASD and an IQ of 65 or greater	Autism Spectrum Disorders (ASD) Delays in development	88, 89-91
Moderate for use	Task specific training	Functional training, goal directed training, use of adaptive equipment	Cerebral Palsy Down Syndrome	73-92
	Home Program/ Parent Education	Home programs with intervention carried out by parents/caregivers with instruction and supervision by a PT/OT Parent outcome: parent education	All conditions	93-94
	Standing Devices	Positively affects bone mineral density Positively affects neurologic and musculoskeletal and movement related function	Cerebral Palsy	78
	Functions of bone related to hip stability	includes hip stability, acetabular index, femoral head angle, migration percentage, hip subluxation, and hip dislocation	All conditions	78
	Cognitive Training	Executive functions and participation. Cognitive strategies for self-regulation.	Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder	89, 95, 96, 97-98

Recommendation	Intervention	Additional Details	Conditions	References
	Video Prompts/Web based	Modeling for ADL & IADLs	Intellectual and developmental disabilities, Cerebral Palsy	99, 100
	Sensory	ASI decreases caregiver assistance for social and self-care skills. Sensory integration (SI) for sensorimotor skills, motor planning, socialization, attention, behavioral regulation, reading, and individual goals.	Autism Spectrum Disorder	101, 102
	Motor Planning/physical activity	-Visual motor and school therapy -Treadmill training -Assistive devices -Physical activity improves manipulative skills, social emotional functioning and decrease stereotypic behaviors	Downs Syndrome, Cerebral Palsy, Developmental Delay, Autism Spectrum Disorders	92, 93, 102
Weak for use	Spinal manual therapy infants, children and adolescents	- High velocity low amplitude manipulations could lead to severe harms in infants and young children -Low velocity appears safe in children	All conditions	103
	Neuro-developmental treatment/ Task oriented	-improve gross motor performance	Cerebral Palsy	73, 104

Recommendation	Intervention	Additional Details	Conditions	References
	Simulated task training	For feeding and meal preparation	Cerebral Palsy	105
	Sensory	- for toileting concerns -Behavioral, sensory and environmental adaptation -Short-term intensive OT using D-I-R Floor rime model and Integrative Listening systems Clinic-based, structured group physical activities	Autism Spectrum Disorder, Developmental Coordination Disorder	89, 106, 107-111
Insufficient evidence	Sensory	Ayres Sensory Integration (ASI) Wilbarger protocol, slow linear swinging, therapy ball, weighted vests, multisensory environment (Snoezelen), specific sensory techniques for classroom routines	Autism Spectrum Disorder, Developmental Coordination Disorder	89, 106, 107-111
	Comparison of high and low dosage therapy on motor function	inconsistent results that manipulating time and/or frequency may result in better motor function	Cerebral Palsy	73
Not Recommended	Sensory Treatment	Unimodal sensory strategies Sensory handwriting approach and SI		89, 93

Recommendation	Intervention	Additional Details	Conditions	References
	Motor Treatment	Isolated component-skill training for handwriting legibility. Conductive education Stretching Neuro-developmental (NDT) SI for motor and cognition Thera-suit for function Weighted blankets for sleep	Cerebral Palsy, developmental Coordination Disorder, Autism Spectrum Disorder	77, 93

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PTOT-10.0: Pediatric Feeding Disorder

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This section presents with evidence to help guide clinical treatment specific to functional deficits associated with pediatric feeding disorder.

- Pediatric Feeding Disorder has been defined as impaired oral intake that is not age-appropriate, and is associated with medical, nutritional, feeding skill, and/or psychosocial dysfunction.¹

PTOT-10.1: Additional Criteria to Establish Medical Necessity

This section functions to establish general clinical considerations specific to pediatric feeding disorder that may also be pertinent to establishing the need of skilled care.

- In addition to the criteria established in **PTOT-1.2 Indications for Treatment** and **PTOT 1.3 Non-Indications**, the following considerations may also be applicable to help establish medical necessity for the care of individuals with pediatric feeding disorder.
 - ◆ Not consuming foods from each of the five food groups (fruit, vegetables, grains, proteins, and dairy) according to choosemyplate.gov, as demonstrated over a period of time.
 - ◆ Clinical documentation indicating inadequate caloric intake, insufficient growth over time, or weaning off supplemental/enteral nutrition.
 - ◆ Oral motor weakness or abnormal feeding patterns: difficulty coordinating suck-swallow-breathe, tongue thrust, swallowing difficulties, poor tongue lateralization, poor jaw/tongue/lip strength, etc.
- The following criteria may also establish medical necessity for ongoing care:
 - ◆ Documentation should note current food and drink types/textures/quantities consumed, feeding patterns, and caloric intake.
- In addition to **PTOT-1.3 Non-Indications**, the following criteria may also establish medical necessity for discontinuation of therapy:
 - ◆ The individual has acquired age-appropriate feeding patterns.
 - ◆ The individual is consuming adequate amount and variety of food groups to support developmentally appropriate growth.

PTOT-10.2: Clinical Considerations

Feeding Aversion:

- A proactive, family-centered approach (particularly in the first three years) could prevent many feeding disorders because parents, caregivers, and professionals will know what skills to encourage, when to encourage them, when a child is going “off track,” and when to refer a child to a feeding specialist.¹
- Research indicates that the optimal time for feeding aversion intervention is by age six.²
- Treatment should be:
 - ◆ A multi-disciplinary approach. The Speech Therapy and OT treatment plans must focus on different aspects of care.
 - ◆ Episodic & periodic in nature.
 - ◆ Showing progress that is reported at least every 3 months.

- ◆ A typical duration of up to 1 year.
 - If the individual has a G-tube status with no prior oral intake the duration may take up to 2 years.
- ◆ Requiring ongoing parent involvement
 - Of a frequency and intensity of skilled services that varies, along with care moving from direct to indirect services over the continuum of care.

Dysphagia Management

- Rehabilitative exercises changes and improves the swallowing physiology in force, speed or timing, with the goal being to produce a long-term effect, as compared to compensatory interventions used for a short-term effect.
- Rehabilitative exercises also involve retraining the neuromuscular systems to bring about neuroplasticity, since pushing any muscular system in an intense and persistent way will bring about changes in neural innervation and patterns of movement.

PTOT-10.3 Appendix: Pediatric Feeding Disorder Evidence

- Supporting research on skilled care recommendations is presented below. It is important that skilled care for Pediatric Feeding Disorder be supported by best evidence.

Recommendation	Intervention	Additional detail	References
Strong for use	Feeding Aversion: Treatment	- Non-nutritive suck (NNS) and oral stimulation paired with mother's voice in preterm infants. - Parent behavioral training decreases stress and mealtime behaviors.	3-5
	Oral Motor Feeding: Treatment	Positioning, oral/ olfactory stimulation, oral support, pacing, and modifying feeding equipment.	5
	Tube Weaning: Treatment	Hunger provocation and behavioral programs.	3
Moderate for Use	Feeding Aversion: Treatment	- Behavioral interventions to increase number of new foods. - Awareness of hunger cues and appetite stimulants (in severe cases of selective feeding) - Environment/ tool changes, "twilight feeding" for infants, and counseling for older children (in fear of feeding cases). - Parent education: Neophobia as a normal stage, realistic expectations on diet for age	6-13

Recommendation	Intervention	Additional detail	References
	Oral Motor Feeding: Treatment	• Infant positioning for tongue and jaw control. • Oral stimulation for preterm infants and for drooling/ feeding in spastic CP. • Functional Chewing Training (in CP) • Task-specific motor learning is preferred to isolated oral motor exercise (in CP). • Biofeedback and palatal training appliances for drooling.	14-15, 16-22
Weak for use	Feeding Aversion: Treatment	• Behavior and sensory approaches for ASD. If ineffective, use Sequential Oral Sensory (SOS) approach. • Real fruit/ vegetable sensory play and visual exposure. • Sensitivity to taste/smell predicts food selectivity and preference for vegetables. • Peer modeling and adult modeling. • Repeated exposure and reward. • Building parents' distress tolerance skills to children's temperament. • Parental use of direct commands • Acknowledge family mealtime goals (in ASD).	23-29
	Oral Motor: Treatment	• Infant Feeder Trainer for infants following cardiac surgery • Use real food for chewing instruction • Combined oral-motor and behavioral interventions for tongue thrust • NMES for acquired dysphagia • Orbicularis oris muscles Kinesiotaping.	21, 30-33
	Tube Feeding: Treatment	• Consider the parent-child interaction and parental stress • NNS and early oral stimulation to reduce transition time to full oral feeding in preterm infants	34-36
	Overall Feeding: Treatment	• Parents complete the intervention in their home environment • Swaddling decreases stress during bottle feeding in preterm infants	37-41
Insufficient evidence	Feeding Aversion: Treatment	• Oral sensory intervention for promoting feeding efficiency (not pre-term) • Environmental interventions for increasing diet variety • High controlling parental practices	2, 6, 9
	Oral Motor: Treatment	• Oral-motor exercises and sensory stimulation outside of a functional context • NMES for developmental swallowing	2, 14, 21, 42
	Tube Feeding: Treatment	• Exposure to smell and taste of milk with tube feedings in preterm infants	43

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