NPTE REVIEW · STUDY GUIDE

Study Guide 1

This guide goes with Practice Exam 1 and covers the first two chapters. Chapter 1 is about the exam itself: how it is scored, how its questions are written and the clinical models its writers think in. Chapter 2 lays the musculoskeletal groundwork: how tissue heals, how joints move, and how to examine the neck and back without missing something dangerous. Work one chapter at a time. Read the "what to know" paragraphs, study the diagram, copy the tables out by hand, then try each worked case with the steps covered. Finish each chapter with its ten board-style items. The cram sheet at the end puts the whole guide on one page.

WHAT THIS GUIDE COVERS

- Chapter 1 · exam format and scaled scoring, the content outline, reading a stem, keywords and distractors, the priority ladder, the patient and client management model, the ICF, screening for referral, clinical prediction rules, practice settings, supervision and a study plan.
- Chapter 2 · healing phases and loading, the stress strain curve, Wolff and Davis laws, planes and axes, open and closed chain, the convex concave rule, length tension and levers, cervical and lumbar screening and examination, treatment based classification, mobilization grades and motor control training.

CHAPTER 1

How the NPTE Works and How to Think Like the Exam

Read it in full: **Chapter 1 in the textbook**. Practice it: **Practice Exam 1** and the **flashcards**.

What to know

The NPTE is the entry level licensing exam for physical therapists in the United States. It is built by the Federation of State Boards of Physical Therapy, and its job is **public protection**: can a new graduate practice safely and effectively? That purpose shapes every item. Questions favor safety, common conditions, sound reasoning and the core of practice over rare trivia.

It is a long, computer based exam of four option, **single best answer** items, split into timed sections with a scheduled break. There is no penalty for guessing, so never leave an item blank. You can flag items and return to them inside a section, but once a section closes you cannot go back. Most items are scenario items; some add media such as an ECG strip, a radiograph or a short gait video.

Scores are reported on a scale of **200 to 800**, and the passing standard is a scaled score of **600**. Forms differ slightly in difficulty, so raw scores are equated; that is why no one can promise a fixed percent correct. The standard is criterion referenced, so you are not competing with other candidates. Some items are unscored **pretest items** that look exactly like scored items. A strange question may not count at all: make a reasoned choice, flag it and move on.

The content outline crosses two dimensions. One is content: the body systems (musculoskeletal, neuromuscular, cardiovascular and pulmonary, lymphatic, integumentary, metabolic and endocrine, GI and GU, system interactions) and the **nonsystems** areas (equipment and devices, modalities, safety, professional responsibilities, research). The other is the clinical task: examination; evaluation, diagnosis and prognosis; intervention; and the foundational sciences. Musculoskeletal and neuromuscular content make up about half of the exam.

Read every stem for three things: the **patient**, the **setting** and the **task**. Reading the last sentence first tells you the task. Predict an answer before you look at the options. Keywords change the answer: "first" asks for sequence, "best" asks for the most specific and functional option, "most likely" asks for the common explanation that fits everything, and "except" or "contraindicated" asks for the one that does not belong.

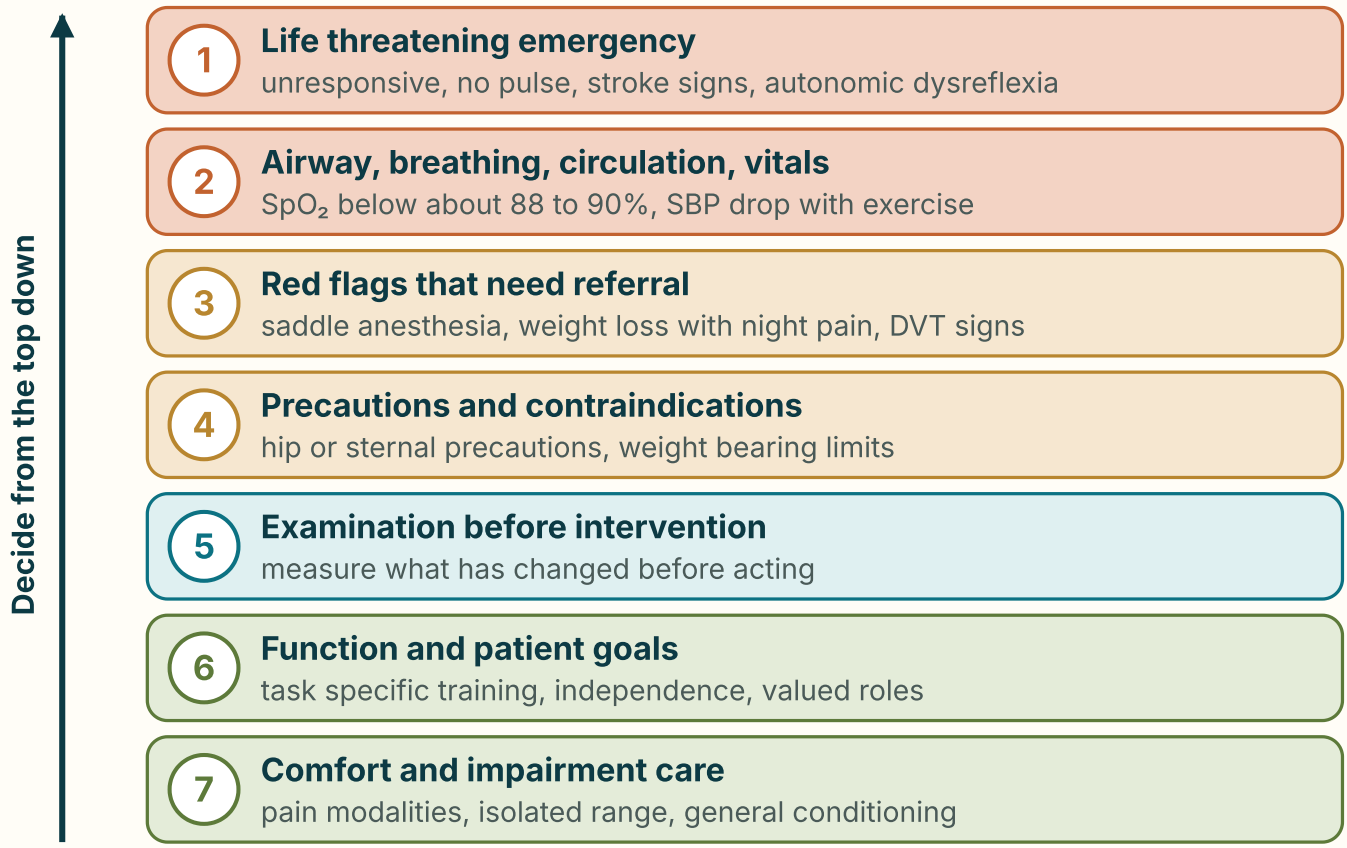
Distractors are built to catch predictable mistakes: true but irrelevant, right action at the wrong time, right idea for the wrong patient, overreach beyond scope, absolutes such as "always" or "complete bed rest," and passive modality choices when active work is needed. The **priority ladder** breaks ties: life threatening emergency, then airway, breathing, circulation and abnormal vital signs, then red flags, then precautions, then examination before intervention, then function, then comfort.

Care follows the **patient and client management model**: examination (history, systems review, tests and measures), evaluation, diagnosis, prognosis and plan of care, intervention and outcomes, with reexamination throughout. Many items are really asking which step you are in. The **ICF** describes function as an interaction of a health condition with body functions and structures (impairments), activity (doing a task) and participation (filling a life role), shaped by environmental and personal factors.

Every examination ends in one of three decisions: treat, treat and refer, or refer, with emergency action when needed. Red flags include a history of cancer, unexplained weight loss, constant night pain, fever, progressive neurologic deficit, bowel or bladder change and saddle anesthesia. Yellow flags are psychosocial factors that slow recovery; they change how you treat but do not by themselves call for referral.

Settings shape the answer. Inpatient rehabilitation requires a patient who can tolerate intensive interdisciplinary therapy, commonly about 3 hours a day at least 5 days a week. Home health requires **homebound** status. School services under an IEP must be educationally relevant; early intervention (birth to 3) uses a family centered IFSP in natural settings. The PT alone examines, evaluates, sets or changes the plan of care, reexamines and discharges. The PTA delivers and progresses interventions within the plan.

Study with the spacing effect, retrieval practice and interleaving. Start with a timed baseline exam, build content by weight and weakness, shift to mixed timed blocks, and take a final full length exam about a week before test day. Keep a **miss log** that classifies each error: knowledge gap, misread stem, reasoning error, second guessing, time pressure or fatigue.



The priority ladder. When several actions look right, the higher rung wins. New symptoms or abnormal numbers always push you up toward stop, assess and report.

LOCK THESE IN

- Scale 200 to 800; passing standard is a scaled score of 600. No penalty for guessing.
- Pretest items are unscored and invisible: reasoned guess, flag, move on.
- Patient, setting, task. Read the last sentence first and predict before you look.
- Priority ladder: emergency, vital signs, red flags, precautions, examination, function, comfort.
- A change in status or an abnormal number means stop, assess and report.
- ICF: activity is doing a task; participation is filling a life role; strength and range are body functions.
- Only the PT examines, evaluates, changes the plan of care, reexamines and discharges.
- Wells DVT (two level): 2 or more is likely, 1 or less unlikely. Homans sign is not reliable.

Keywords and the priority ladder

Item	What it tells you
First, initial, immediately	Sequence: choose the step that must come before the others, usually assessment or safety
Best, most appropriate	Several are reasonable: pick the most specific, evidence based and functional
Most likely	The common explanation that fits all the findings
Except, not, contraindicated	Negative item: find the one false or unsafe option
Ladder rung 1	Life threatening emergency: stop, call for help, start the protocol
Ladder rung 2	Airway, breathing, circulation, abnormal vitals (SpO_2 below about 88 to 90%)
Ladder rungs 3 to 4	Red flags needing referral; then precautions and contraindications
Ladder rungs 5 to 7	Examine before intervening; then function and goals; then comfort

Settings and supervision

Setting or role	Feature the exam tests
Acute care	Chart and labs first; early mobility; lines and tubes; discharge recommendation
Inpatient rehab	Tolerates about 3 hours a day, 5 days a week; two or more disciplines, one PT or OT
Skilled nursing	Lower intensity skilled care for patients who cannot tolerate inpatient rehab
Home health	Homebound: leaving home takes considerable and taxing effort
Early intervention	Birth to 3, Part C, IFSP, natural environment, family centered
School	Ages 3 to 21, Part B, IEP, educationally relevant, least restrictive environment
PTA	Delivers and progresses interventions within the plan; no evaluation, plan change or discharge
Aide	Nonskilled tasks only, under direct supervision

Worked cases

WORKED CASE 1 · A CHANGE IN STATUS DURING GAIT TRAINING

A 72 year old man on postoperative day 2 after total knee arthroplasty develops sudden shortness of breath and sharp pain on inspiration while walking. Heart rate is 118 and SpO_2 is 89 percent on room air. What should the therapist do first?

STEP 1 · FIND THE RISK WINDOW

Two days after a lower limb joint replacement is a classic window for venous thromboembolism.

STEP 2 · READ THE NUMBERS

Tachycardia, desaturation and pleuritic chest pain together point to possible pulmonary embolism, a medical emergency.

STEP 3 · APPLY THE LADDER

Abnormal vital signs and a possible emergency outrank finishing the gait session.

STEP 4 · CHOOSE THE ACTION

Stop, keep him seated and supported, stay with him, monitor vitals and notify the medical team at once; activate the emergency response if he worsens.

WHY NOT THE OTHERS

"Rest and resume" treats this as fatigue. "Return to bed" alone delays medical evaluation.

WORKED CASE 2 · WHICH ICF LEVEL IS THIS GOAL?

A 66 year old retired carpenter with Parkinson disease wants to get back to building furniture with his grandson. Gait speed is 0.8 m/s, Berg score 44/56, and trunk rotation is reduced. Which long term goal fits best?

STEP 1 · SORT THE FINDINGS

Trunk rotation is an impairment (body function). Gait speed and the Berg score are activity level measures.

STEP 2 · NAME HIS PRIORITY

Building furniture with his grandson is a life role: participation.

STEP 3 · WRITE THE GOAL THERE

Long term goals belong at the activity and participation levels; impairment goals support them.

STEP 4 · ADD SAFETY

Safely stand and work at a workbench for 30 minutes without loss of balance while finishing a woodworking task, within a stated time. The workshop has tools and obstacles, so balance belongs in the goal.

WORKED CASE 3 · RED FLAGS UNDER DIRECT ACCESS

A 58 year old man treated for prostate cancer three years ago self refers with a month of gradual low back pain that is worse at night, unchanged by position, with unintended weight loss. What is the best action?

STEP 1 · LIST THE FLAGS

History of cancer (the strongest single red flag for malignancy in back pain), age over 50, weight loss, constant night pain unaffected by position.

STEP 2 · DECIDE

This cluster suggests possible spinal metastasis. The decision is **refer to a physician before treatment**, communicating the findings.

WHY NOT A TRIAL OF CARE

Back pain is usually mechanical, but a two week trial delays diagnosis. New leg weakness or bladder change would make the referral urgent.

WORKED CASE 4 · USING A MISS LOG

A graduate fails her first full practice exam. Her log shows strong musculoskeletal scores, weak cardiopulmonary and integumentary scores, and many "misread the stem" errors in the last third of each section. What change will help most?

STEP 1 · READ THE PROFILE

Two problems: knowledge gaps in two systems, and a reading and stamina problem late in sections.

STEP 2 · FIX BOTH

Targeted, spaced review of cardiopulmonary and integumentary topics, plus timed full length practice and a deliberate stem reading routine.

WHY NOT REREAD HER NOTES

Rereading her musculoskeletal notes feels productive but targets a strength. Untimed questions do not fix late section misreads.

TRAPS PEOPLE FALL INTO

- **Chasing a fixed percent.** Equating means the raw score needed for 600 varies slightly by form.
- **Letting one odd item eat the clock.** Every item is worth the same and some odd items do not count.
- **Always choosing "assess" for "first."** If the danger is already clear (no breathing, a patient sliding to the floor), act first. If the stem already gave the assessment data, repeating it is a distractor.
- **Calling a life role an activity.** Walking, dressing and transfers are activities; worker, parent, student and league golfer are participation.
- **Delegating the wrong task.** A PTA may progress within the plan but may not reevaluate, change goals or discharge.
- **Using Homans sign.** It is not reliable. Use the Wells criteria and medical clearance.

Chapter 1 self-test · ten items

1. A candidate asks how many questions she must answer correctly to pass. Which reply is accurate?

A. It is set by each state board for its own candidates
B. It is a fixed 70 percent of all scored items
C. The number varies slightly because forms are equated
D. It depends on how other candidates score that day

C. The number varies slightly because forms are equated Scores are equated to a 200 to 800 scale with 600 as the standard, so the raw number needed shifts a little from form to form. The standard is criterion referenced, not a curve.

2. A stem asks for the FIRST action. Three options are all things the therapist will eventually do. How should the candidate choose?

A. Pick the option that names a specific test
B. Pick the step that must come before the others
C. Pick the most functional, goal centered option
D. Pick the option with the most evidence behind it

B. Pick the step that must come before the others "First" signals sequence. Several options may be correct eventually; the answer is the one that has to happen before the rest, usually safety or assessment.

3. During outpatient balance training a patient with heart failure becomes newly short of breath and SpO_2 falls to 86 percent. Which rung of the priority ladder governs the decision?

A. Airway, breathing, circulation and vital signs
B. Precautions and contraindications to treatment
C. Examination before any intervention begins
D. Function and the patient's own goals

A. Airway, breathing, circulation and vital signs A falling SpO_2 and new dyspnea sit on the second rung, just under a frank emergency. Stop, assess and report.

4. A patient after stroke "cannot return to her job as a school bus driver." In the ICF this is a:

A. Activity limitation only
B. Personal factor of the patient
C. Body structure impairment
D. Participation restriction

D. Participation restriction A job is a life role, so losing it is a participation restriction. Walking or transferring would be activity.

5. Which finding is an environmental factor that acts as a facilitator?

A. Reduced hip abductor strength
B. High fear avoidance beliefs about work
C. A spouse willing to help at home
D. A gait speed of 0.9 m/s on a 10MWT

C. A spouse willing to help at home Social support is part of the environment and can help or hinder. Fear avoidance is a personal factor; gait speed is activity; strength is a body function.

6. In which step of the patient and client management model does the therapist decide whether the problem belongs in physical therapy at all?

A. Evaluation
B. History
C. Prognosis
D. Outcomes

A. Evaluation Evaluation is the judgment step that interprets the examination data, reaches a diagnosis and decides whether referral is needed.

7. A PTA notices a patient has met every short term goal and asks to discharge him. What is correct?

A. The PTA may discharge with the aide as a witness
B. Only the supervising PT may perform the discharge
C. The PTA may discharge once the physician agrees
D. The PTA may discharge if the goals are documented

B. Only the supervising PT may perform the discharge Discharge, reexamination and changes to the plan of care belong to the PT and cannot be delegated.

8. A 7 year old has an IEP. Which service most clearly belongs in it?

A. Clinic based treadmill training for fitness
B. Hamstring stretching to improve flexibility
C. Strength testing for a sports physical
D. Gait training to reach class and the cafeteria

D. Gait training to reach class and the cafeteria School based services must help the child access and benefit from education. Getting around school is educationally relevant.

9. A patient has a Wells DVT score of 3 on a two level scale. What is the safest plan?

A. Hold exercise to that limb pending medical clearance
B. Use Homans sign to confirm before deciding
C. Begin gentle massage to the calf to ease pain
D. Proceed with treatment and recheck next visit

A. Hold exercise to that limb pending medical clearance A score of 2 or more is "DVT likely." The limb should not be exercised or treated manually until the physician has ruled DVT out.

10. Which change to a study plan best applies the testing effect?

A. Studying one system for a full week
B. Highlighting each chapter a second time
C. Copying the glossary tables word for word
D. Practice questions instead of rereading

D. Practice questions instead of rereading Retrieval practice strengthens memory more than rereading, which builds a false sense of familiarity.

CHAPTER 2

Musculoskeletal Foundations: Tissue, Kinesiology and the Spine

Read it in full: **Chapter 2 in the textbook**. Practice it: **Practice Exam 1** and the **flashcards**.

What to know

Soft tissue heals in three overlapping phases. The **inflammatory phase** runs about the first 3 to 7 days: clotting, then vasodilation, neutrophils first and then macrophages. Goals are protection, edema and pain control and motion of neighboring regions; complete rest is not the goal. The **proliferative phase** runs from about day 3 to week 3 to 6: fibroblasts lay down weak, random

type III collagen and granulation tissue. Controlled low load stress orients the fibers. The **remodeling phase** begins about week 3 and lasts months to more than a year, as type III is replaced by stronger, aligned **type I collagen**.

Connective tissue is viscoelastic. On the stress strain curve the toe region straightens crimped collagen, the elastic region is fully recoverable, the plastic region past the yield point is permanent deformation, and the failure point is rupture. **Creep** is lengthening under a constant load over time, the reason low load, long duration stretch works. **Stress relaxation** is falling internal force at a constant length, the basis of serial casting. Warm tissue deforms more easily than cold tissue.

Wolff law: bone remodels to the loads placed on it. **Davis law**: soft tissue remodels to the demands placed on it. The SAID principle generalizes both. Intra-articular ligaments such as the ACL heal poorly; extra-articular ones such as the MCL heal well. Articular cartilage is avascular and fed by cyclic loading. The outer third of the meniscus (red zone) is vascular and repairable. Protected early motion beats immobilization; pain that settles quickly and is not worse the next morning is acceptable.

Each plane has a perpendicular axis: sagittal plane with a mediolateral axis (flexion and extension), frontal plane with an anteroposterior axis (abduction and adduction), transverse plane with a vertical axis (rotation). In an **open chain** exercise the distal segment moves freely and shear dominates; in a **closed chain** exercise it is fixed, compression and cocontraction dominate. Open chain knee extension pulls the tibia forward in the last 30 to 40 degrees, which strains the ACL.

The **convex concave rule**: a convex surface moving on a fixed concave surface glides opposite to the bone movement; a concave surface moving on a convex one glides the same way. So the humeral head glides anteriorly for external rotation, inferiorly for abduction and posteriorly for internal rotation; the talus glides posteriorly for dorsiflexion; the tibia glides posteriorly for knee flexion. Mobilize in the loose packed (resting) position; joints are most stable in the close packed position. A capsular pattern means the whole capsule is involved.

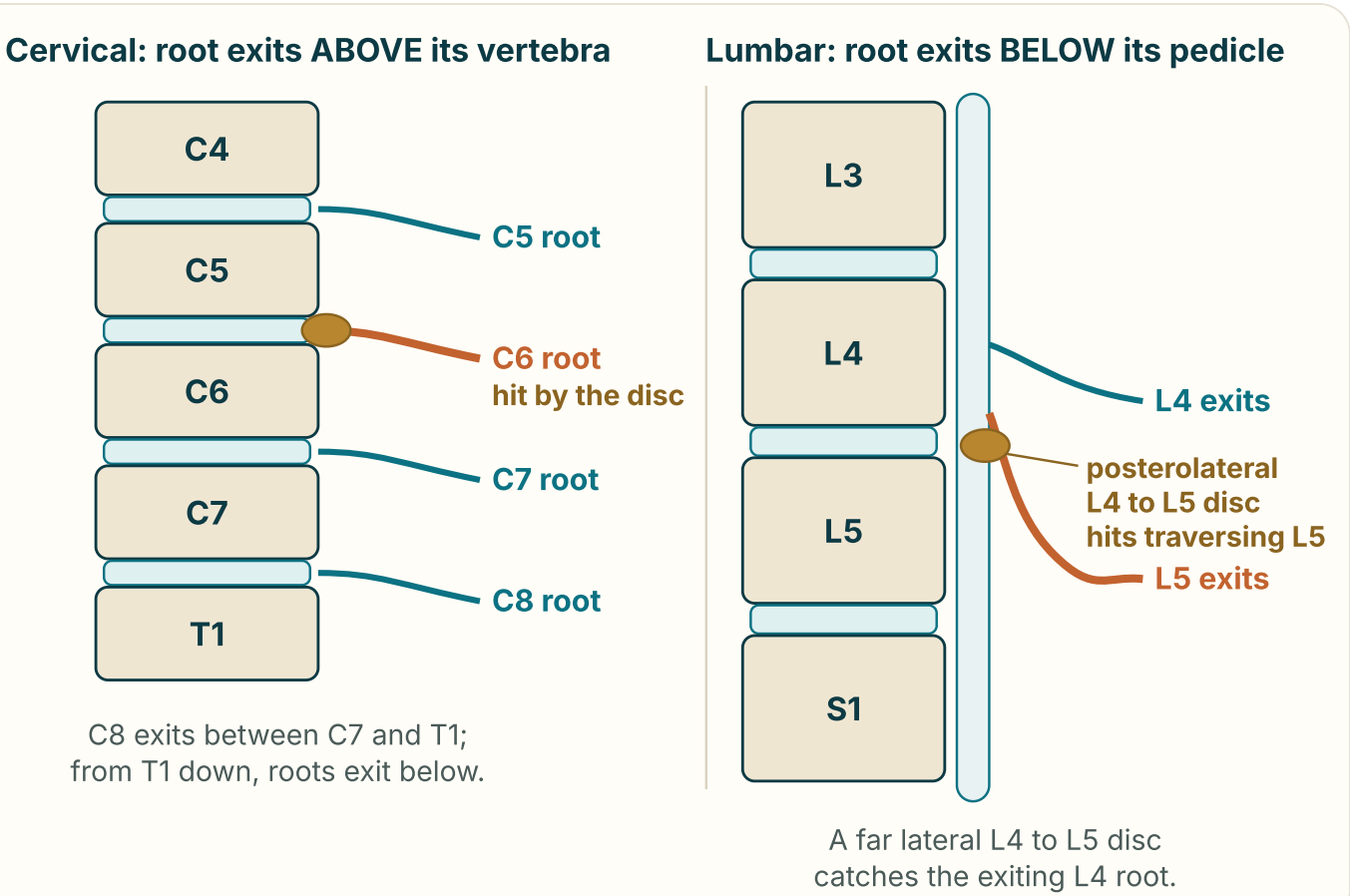
Active tension peaks near resting length. A two joint muscle shows **active insufficiency** when shortened across both joints and **passive insufficiency** when lengthened across both. Tenodesis in

C6 tetraplegia uses passive insufficiency for grasp, so finger flexors are not stretched over an extended wrist. Eccentric force exceeds isometric, which exceeds concentric. Torque is force times moment arm; most muscles are third class levers (ARE 1 2 3: axis, resistance, effort in the middle).

Before loading the neck, screen for fracture, upper cervical instability, **cervical arterial dysfunction** (the 5 Ds and 3 Ns: dizziness, diplopia, dysarthria, dysphagia, drop attacks; nystagmus, nausea, numbness), myelopathy and nonmusculoskeletal sources. Cervical roots exit above the vertebra of the same number, so a C5 to C6 disc affects C6. **Radiculopathy** gives unilateral lower motor neuron signs; the Wainner cluster is Spurling, distraction, ULTT A and rotation under 60 degrees. **Myelopathy** gives bilateral upper motor neuron signs (Hoffmann, Babinski, clonus, wide based gait) and needs referral.

In low back pain, exclude cauda equina syndrome, malignancy, fracture, infection and abdominal aortic aneurysm first. Lumbar roots exit below the pedicle of the same number, so a posterolateral L4 to L5 herniation hits L5. The straight leg raise is sensitive (a negative helps rule out); the crossed straight leg raise is specific (a positive helps rule in). **Treatment based classification** sorts patients into manipulation, stabilization, specific exercise and traction. **Centralization** is a good sign; peripheralization means stop that direction.

Stenosis causes **neurogenic claudication**, eased by sitting or flexion, with normal pulses and good tolerance of uphill walking or cycling. Spondylolisthesis is graded by **Meyerding** (I up to 25 percent, II 26 to 50, III 51 to 75, IV 76 to 100, V beyond 100). Sacroiliac pain uses the Laslett cluster: two of the first four tests, or three or more of all five, positive. Maitland grades I and II treat pain, III and IV treat stiffness, and V is a thrust. Motor control training targets the transversus abdominis, multifidus and deep neck flexors.



Which root does the disc hit? Cervical roots exit above the vertebra of the same number. Lumbar roots exit below their pedicle, so the common posterolateral L4 to L5 disc catches the root passing down to the next level, L5.

LOCK THESE IN

- Type III collagen in proliferation (about day 3 to week 3 to 6); type I in remodeling (week 3 to over a year).
- Creep = constant load over time; stress relaxation = constant length, falling force.
- Convex moves on concave: glide opposite. Concave moves on convex: glide same.
- Cervical roots exit above their vertebra (C5 to C6 disc hits C6); lumbar roots below (L4 to L5 disc hits L5).
- Radiculopathy: one side, LMN signs. Myelopathy: both sides, UMN signs, refer, no manipulation.
- Manipulation rule: under 16 days, no symptoms below knee, FABQ work under 19, hypomobility, hip IR over 35 degrees; 4 of 5 predicts success.
- Stenosis likes flexion; vascular claudication eases with standing still and has poor pulses.
- Maitland I and II for pain, III and IV for stiffness, V is a thrust.

Mobilization glides by the convex concave rule

Joint and motion	Moving surface	Glide the moving bone
Shoulder abduction	Convex humerus	Inferior
Shoulder external rotation	Convex humerus	Anterior
Shoulder internal rotation	Convex humerus	Posterior
Hip flexion and IR	Convex femur	Posterior
Knee flexion (open chain)	Concave tibia	Posterior
Ankle dorsiflexion	Convex talus	Posterior
Wrist flexion	Convex carpals	Dorsal
MCP and IP flexion	Concave phalanx	Volar

Nerve roots that the exam tests

Root	Dermatome	Myotome	Reflex
C5	Lateral upper arm over deltoid	Shoulder abduction, elbow flexion	Biceps
C6	Lateral forearm, thumb, index	Wrist extension	Brachioradialis
C7	Middle finger	Elbow extension, wrist flexion	Triceps
C8	Ring and little fingers	Finger flexion, thumb extension	None common
L4	Medial leg, medial malleolus	Ankle dorsiflexion	Patellar
L5	Lateral leg, dorsum of foot, great toe	Great toe extension, hip abduction	Medial hamstring (inconsistent)
S1	Lateral foot, little toe, sole	Plantarflexion, eversion	Achilles

Worked cases

WORKED CASE 1 · MATCHING THE LOAD TO THE PHASE

A 34 year old soccer player is 10 days after a grade II MCL sprain. Swelling is down and pain occurs only at end range valgus stress. Which plan fits?

STEP 1 · PLACE HER IN TIME

Day 10 is the proliferative phase: fragile type III collagen that benefits from controlled stress.

STEP 2 · THINK ABOUT THE TISSUE

The MCL is extra-articular and heals well with protected motion.

STEP 3 · CHOOSE

Controlled range of motion and progressive closed chain strengthening in a hinged brace that blocks valgus.

WHY NOT THE OTHERS

Locked immobilization weakens ligament insertions; cutting drills overload immature collagen; ultrasound alone is passive.

WORKED CASE 2 · CHOOSING A GLIDE

A 52 year old with adhesive capsulitis has 80 degrees of abduction and very limited external rotation. Which glide improves external rotation?

STEP 1 · NAME THE SURFACES

The convex humeral head moves on the concave glenoid, so glide is opposite to roll.

STEP 2 · FIND THE ROLL

External rotation rolls the head posteriorly.

STEP 3 · REVERSE IT

So the head must glide **anteriorly**. Inferior glide would target abduction; posterior glide targets internal rotation.

SAFETY

Avoid aggressive high grade work while the shoulder is highly irritable.

WORKED CASE 3 · ROOT OR CORD?

A 61 year old has six months of numbness in both hands, drops coins, struggles with buttons and walks with a wider base. Reflexes are brisk in all four limbs and Hoffmann is positive bilaterally. What next?

STEP 1 · SORT THE SIGNS

Bilateral hand clumsiness, wide based gait, hyperreflexia and Hoffmann are upper motor neuron signs.

STEP 2 · NAME IT

Cervical spondylotic myelopathy, not radiculopathy (one side, LMN) and not carpal tunnel (no gait or reflex change).

STEP 3 · ACT

Refer to a physician for imaging and a surgical opinion and document the findings. Manipulation is contraindicated.

WORKED CASE 4 · APPLYING THE MANIPULATION RULE

A 28 year old has had low back pain for 8 days after lifting. Pain stays above the knee, FABQ work score is 12, spring testing shows hypomobility, and right hip IR is 40 degrees. No red flags. Which intervention fits?

STEP 1 · COUNT THE CRITERIA

Under 16 days: yes. No symptoms below the knee: yes. FABQ work under 19: yes. Hypomobility: yes. Hip IR over 35 degrees: yes. That is 5 of 5.

STEP 2 · APPLY THE RULE

Four or more of five strongly predicts rapid response to **lumbopelvic thrust manipulation followed by range of motion exercise**.

SAFETY

Red flag screening must come first; here it was negative.

TRAPS PEOPLE FALL INTO

- **Resting a healing ligament completely.** Protected motion aligns collagen; immobilization weakens insertions.
- **Gliding a convex bone the way it moves.** Convex on concave glides opposite to the motion.
- **Picking the wrong root.** A posterolateral L4 to L5 disc hits L5, and a C5 to C6 disc hits C6.
- **Stopping extension because back pain rose.** If leg symptoms centralize, back pain may rise. That is still a good response.
- **Treating stenosis with repeated standing extension.** Extension narrows the canal; flexion based work is the answer.
- **Trusting one sacroiliac test.** Single SI tests are unreliable; use the provocation cluster.

Chapter 2 self-test · ten items

1. Three weeks after a hamstring strain, which collagen type dominates the new tissue?

A. Type IV, the collagen of basement membranes
B. Type I, thick and aligned with stress
C. Type III, thin and randomly arranged
D. Type II, the main collagen of cartilage

C. Type III, thin and randomly arranged The proliferative phase lays down weak, random type III collagen; type I replaces it during remodeling.

2. A therapist uses serial casting to gain elbow extension. Which tissue property is being used?

A. Stiffening from rapid loading
B. Stress relaxation at a fixed length
C. Creep under a brief, high load
D. Plastic failure past the yield point

B. Stress relaxation at a fixed length Holding tissue at a constant length lets internal force fall over time: stress relaxation.

3. Which statement about tissue healing is accurate?

A. The inner meniscus is the vascular red zone
B. Bone heals mainly with dense scar tissue
C. Articular cartilage heals with type I bone
D. The ACL heals poorly; the MCL heals well

D. The ACL heals poorly; the MCL heals well The intra-articular ACL is bathed in synovial fluid and heals poorly; the extra-articular MCL heals well.

4. Early after ACL reconstruction, which exercise limits strain on the graft?

A. Leg press from 0 to about 60 degrees
B. Resisted open chain terminal knee extension
C. Seated knee extension from 30 to 0 degrees
D. Full arc isokinetic extension at slow speed

A. Leg press from 0 to about 60 degrees Closed chain work in a limited arc keeps graft strain low. Open chain extension in the last 30 to 40 degrees pulls the tibia forward.

5. To increase ankle dorsiflexion, which glide of the talus is used?

A. Distal distraction of the tibia
B. Lateral glide of the calcaneus
C. Posterior glide of the talus
D. Anterior glide of the talus

C. Posterior glide of the talus The talus is convex moving on the concave mortise, so it glides opposite to the roll: posterior for dorsiflexion.

6. A person with C6 tetraplegia extends the wrist and the fingers close. What explains this?

A. A reflex from the brachioradialis tendon
B. Active insufficiency of the wrist extensors
C. Spasticity of the intrinsic hand muscles
D. Passive insufficiency of the finger flexors

D. Passive insufficiency of the finger flexors Tenodesis: wrist extension stretches the two joint finger flexors across both joints so they pull the fingers closed.

7. A woman has right arm pain to the middle finger, a weak triceps and a reduced triceps reflex. Which disc level is most likely involved?

A. C6 to C7, affecting the C7 root
B. C7 to T1, affecting the C7 root
C. C4 to C5, affecting the C6 root
D. C5 to C6, affecting the C5 root

A. C6 to C7, affecting the C7 root C7 serves the middle finger, triceps and triceps reflex. Cervical roots exit above their vertebra, so C7 exits at C6 to C7.

8. After a fall a 40 year old cannot actively rotate the neck 45 degrees each way and has no high risk factors. Under the Canadian C-spine rule, what follows?

A. Begin gentle cervical traction today
B. Radiographs are needed before going on
C. He may be cleared without any imaging
D. Test the alar ligament before imaging

B. Radiographs are needed before going on Clearing requires a low risk factor that allows testing and active rotation of 45 degrees each way. Failing rotation means imaging.

9. During repeated extension in lying, calf pain retreats to the buttock while central back pain rises slightly. What is best?

A. Stop, because back pain has increased
B. Switch to repeated flexion to compare
C. Add a lumbar corset and limit movement
D. Continue; the symptoms are centralizing

D. Continue; the symptoms are centralizing Centralization wins over local back pain. Stop only if symptoms move farther down the leg.

10. A Maitland grade IV mobilization is described as:

A. Small amplitude at the start of the range
B. High velocity thrust past the limit of range
C. Small amplitude at the limit of the range
D. Large amplitude up to the limit of range

C. Small amplitude at the limit of the range Grade III is large amplitude to the limit, IV small amplitude at the limit; both treat stiffness.

ONE PAGE

Cram sheet

One page for Study Guide 1. Cover the right column and say the answer before you look.

Exam and reasoning

Topic	Rule
Score	200 to 800 scale; passing is 600; equated across forms
Pretest items	Unscored and unmarked; guess, flag, move on
Every stem	Patient, setting, task; predict before reading options
Priority ladder	Emergency, vitals, red flags, precautions, examination, function, comfort
Management model	Examination, evaluation, diagnosis, prognosis, intervention, outcomes
ICF	Impairment (body), activity (task), participation (role), environment, personal
Three decisions	Treat; treat and refer; refer (or emergency)
PT only	Exam, evaluation, plan of care changes, reexamination, discharge
Settings	IRF about 3 h/day, 5 days/week; home health homebound; IEP educationally relevant
Study	Spaced, retrieved, interleaved; miss log by error type

Spine and tissue

Topic	Rule
Healing	Inflammation 3 to 7 days; proliferation to week 3 to 6 (type III); remodeling months (type I)
Laws	Wolff for bone, Davis for soft tissue, SAID for both
Glides	Convex moves: opposite. Concave moves: same
CAD screen	5 Ds and 3 Ns; no manual therapy; urgent referral
Wainner cluster	Spurling, distraction, ULTT A, rotation under 60 degrees
Myelopathy cluster	Gait, Hoffmann, inverted supinator, Babinski, age over 45
Lumbar red flags	Cauda equina (emergency), cancer, fracture, infection, AAA
TBC	Manipulation, stabilization, specific exercise, traction
Meyerding	I to 25%, II to 50%, III to 75%, IV to 100%, V beyond
Laslett	2 of first 4, or 3 or more of 5 positive

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