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BUSINESS ENGLISH FOR THERAPY AND REHABILITATION STUDENTS

LEARNING GUIDE FOR BACHELOR'S DEGREE STUDENTS

Навчально-методичний посібник

«Ділова англійська мова»
для студентів-бакалаврів
спеціальності Терапія та реабілітація
(Фізична терапія, ерготерапія)

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Цей навчально-методичний посібник знайомить з особливостями наукової та ділової мови, допомагає набути навичок та вмінь, необхідних у спілкуванні.

ПЕРЕДМОВА

Програма вищої медичної освіти передбачає, зокрема, опанування діловою англійською мовою професійного спрямування. Сучасний спеціаліст має бути обізнаним із найсучаснішою літературою у професійній галузі та регулярно ознайомлюватися з оригінальними англомовними фаховими джерелами інформації світового рівня. Навички читання іноземною мовою мають велике значення для професійного вдосконалення. За наявності численних сучасних публікацій набувають особливої важливості вміння пошукового (знайти потрібну інформацію) та ознайомлювального (зрозуміти основні відомості тексту) читання.

Актуальність даного видання зумовлюється нагальною потребою в навчальних матеріалах для занять з ділової англійської мови професійного спрямування для здобувачів освіти спеціальності Терапія та реабілітація (Фізична терапія, ерготерапія), які використовують автентичну літературу, дібрану за потребами даного контингенту у складанні іспиту з англійської мови, а також для застосування у подальшій фаховій діяльності.

Метою навчально-методичного посібника є формування у здобувачів освіти спеціальності Терапія та реабілітація (Фізична терапія, ерготерапія) навичок роботи зі спеціальною діловою англомовною літературою спеціальності Терапія та реабілітація (Фізична терапія, ерготерапія).

Навчально-методичний посібник складається з 10 розділів, у яких представлено матеріал, спрямований на розвиток усіх видів іншомовної мовленнєвої діяльності в галузі фізичної терапії. Видання містить різноманітні вправи, виконання яких сприятиме формуванню ділової англомовної професійної компетентності здобувачів освіти спеціальності Терапія та реабілітація (Фізична терапія, ерготерапія).

Тексти для читання і вправи розраховані на роботу із формування навичок пошуку та опрацювання необхідної інформації, дискутування з певних фахових питань, а також практичної роботи фізіотерапевта. Мовний матеріал було дібрано з оригінальної довідкової, навчальної та фахової англомовної літератури з урахуванням вимог методики викладання ділової іноземної мови.

Навчально-методичний посібник рекомендований для аудиторної роботи в групах здобувачів освіти бакалаврату четвертого року навчання спеціальності Терапія та реабілітація (Фізична терапія, ерготерапія).

Джерела, застосовані у навчально-методичному посібнику:

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UNIT 1. Work of Physiotherapist

What do you know about the recovery of patients?
What do physiotherapists do?
What are the current job prospects for physiotherapists? Is physiotherapy the right career for you? Explain why.

Basic terminology

Match the words and definitions:

physical therapist	physical harm or damage
impairment	a method for determining quantity, capacity, or dimension
spinal cord	a particular way or manner of moving on foot
injury	a sphere of activity, influence, or knowledge
evaluation	a thick cord of nerves inside your spine which connects your brain to nerves in all parts of your body.
ultrasound technique	the property of being bent easily without breaking
treatment	the state or quality of being strong; physical power or capacity
flexibility	a person whose job is using physiotherapy to treat people.
measurement	the use of an agent, procedure, or regimens, such as a drug, surgery, or exercise, in an attempt to cure or mitigate a disease, condition, or injury
strength	the thigh bone, extending from the pelvis to the knee
gait	a diagnosis or diagnostic study of a physical or mental condition
domain	the use of ultrasonic waves for diagnostic or therapeutic purposes, specifically to image an internal body structure, monitor a developing fetus, or generate localized deep heat to the tissues
femur	the condition of being unable to perform as a consequence of physical or mental unfitness; "reading disability"; "hearing impairment"

1. Read the text and underline any new information you haven't known before. Tell the class about it.

PHYSICAL THERAPY IS MY PROFESSION

Physical therapy is a growing profession with four areas of practice: an examination of individuals with impairment, functional limitation, and disability; treatment of impairment and functional limitation through therapeutic intervention, which includes exercise, patient education, and application of modalities; consultation; and research. Physical therapists evaluate ill or injured persons to determine what functional limitations are present. For example, a young man who suffers from spinal cord injury will have strength and flexibility limitations in various muscle groups depending on the level of injury. A young woman with multiple sclerosis may have functional limitations in balance and coordination.

Initial evaluations performed by the physical therapist include measurements on a wide battery of abilities. Physical therapists measure an individual's capability in domains including strength, endurance, flexibility, coordination, balance, gait, skin integrity, and ability to perform simple activities of daily living. After the initial evaluation of a patient, the physical therapist will identify a set of problems with physical function and assess how these problems may best be approached through exercise, massage, or a modality (treatment applications other than exercises, such as hot/cold packs, ultrasound - healing through deep sound technique - or electrical stimulation).

Physical therapists today also act as consultants through their knowledge of exercise, and those in clinical and academic settings are also involved in research projects to determine whether the treatment interventions they are currently using are grounded in theory and to determine how best to improve upon interventions. In today's health care arena, physical therapists must be patient advocates—that is, balance the dual roles of providing expert information to patients on all types of disease and injuries, allowing the patient to play an active role in choosing options for treatment.

2. Use the text to answer the questions:

1. What is physical therapy?
2. How many practical fields do modern physiotherapists work in?
3. What are the duties of a physical therapist?
4. What patient's findings are assessed by a physical therapist?
5. What is the primary task of a physical therapist during the examination?
6. What secondary tasks are performed by a physiotherapist during patients' examination?
7. Who chooses the type of treatment for a patient?
8. Why should a physiotherapist be involved in research

3. Mark the following statements as true or false:

1. Physical therapy is a profession, popular in the past, and is not widespread today.
2. There are five main fields in which physiotherapist work nowadays.
3. Physical therapists are engaged only in the treatment of the patients.
4. A physical therapist should be a good diagnostician.
5. Modality treatment involves only the physical activity of the patient.
6. An electric current to affect a tissue is often used in physiotherapy.
7. A person with multiple sclerosis can be restricted in movements.
8. Patient education is a part of a physiotherapist's work.

4. Study the combining forms and prefixes:

vertebra — vertebra
tendino — tendon
antero — front
carpo — carpus or carpal bones
nat — birth
femoro — related to the femur

5. Read the presentation about the services provided in physical therapy and supply possible disease conditions/recovery programsfor them from the list below:

Depending on the clinical setting, the physical therapist or physical therapist assistant may provide treatment for:

back conditions -
knee problems -
shoulder/arm conditions -
neck conditions -
sprains and muscle strains -
ankle/foot problems -
carpal tunnel syndrome, hand/wrist problems -
hip fracture -
postsurgical rehabilitation -
stroke rehabilitation -
problems with balance -
disabilities in newborns -
bum rehabilitation -
pre-/postnatal programs -
incontinence -
women's health -

Congenital dislocated hip, fracture of the femoral neck, rheumatism, anterior achilles tendon bursitis, vertebral fracture, tendinitis, swollen lymph nodes, trigger finger or trigger thumb, chronic knee pain, disequilibrium, pelvic girdle pain during pregnancy, paralysis and cognition problems, involuntary excretion of urine, recovery after joint replacement, prenatal yoga/aqua, pains after burning.

6. What are the benefits of post-surgical rehabilitation? Choose the proper option:

Effective management of your pain
Help you to get excellent marks
Advise on effective positioning to increase comfort and reduce the risk of pressure sores
Help you to return to activities of daily living
Increasing everyday meal frequency
Strengthening of weak muscles
Allowing not to see everyday problems
Stretching of muscles that may have become stiff
Elevation of the body temperature
Help to get you back to the level you were previously
Development of multiple diseases
Opportunity to be vaccinated every month
Improving your posture
Swelling of lymph nodes
Help to clear any secretions, improve lung volumes and prevent chest infections

7. Write a summary about your future profession. ex.6.

8. Read the dialogue and take the test:

Physician: Good morning, Mr. Freeman. How are you today?
Freeman: Not very well, doctor.
Physician: Well come and sit down and tell me what's worrying you.
Freeman: I've got a terrible stomach ache, Doctor.
Physician: How long have you had this pain?
Freeman: Well, it started yesterday afternoon and I was terribly sick during the night.
Physician: Take your clothes off, please, Mr. Freeman, and lie on the couch. No, don't take your trousers off. Just your jacket and shirt. Now, tell me

where your stomach hurts you. Up here, or here in the middle, or down here?
Freeman: It hurts all over.
Physician: I see. It's probably nothing important, but I want you to have an X-ray. Freeman: You don't think it's serious, do you?
Physician: I'll decide when I see the X-ray, so get dressed now and follow the nurse.

TEST

1. What's the trouble with Mr. Freeman?
   a. He has pain in his stomach.
   b. He had pain in his back yesterday.
   c. He is referred to X-ray.

2. What happened to him during the night?
   a. He couldn't sleep.
   b. He vomited.
   c. He woke up early.

3. Where does his stomach hurt?
   a. On the left.
   b. On the right.
   c. All over.

4. Which one is correct?
   a. He takes all his clothes off.
   b. He takes his jacket and shirt off.
   c. He takes his trousers off.

5. What does the doctor think?
   a. He thinks it's appendicitis.
   b. He thinks it's serious.
   c. He doesn't know yet.

9. Unscramble the letters to write correct words and word combinations used in the Unit:

CSYAPLHI
RASIPETTH
RIITMMAPEN
SALPIN ORCD
NYJIRU
VITANEOAUL
TOUSAUNLRD CUHENITEQ
TMERTAENT
TEIBYIFXLLI
TEAMENMREUS
TIGA

Unit 2. Physiotherapy Basic terminology

Find equivalents for all terms:

routine	requiring much effort or attention
adolescent (adj)	of or relating to a job or position that requires little experience
stretching	to expose or make liable to danger, suspicion, or disrepute
demanding	short-term medical treatment, usually in a hospital, for patients having an acute illness or injury or recovering from surgery
pursue (v)	a regularly performed behavioral sequence
mastectomy	a young person who has undergone puberty but who has not reached full maturity
niche	a health plan or system that seeks to control medical costs by contracting with a network of providers and by requiring preauthorization for visits to specialists
time frame	to apply or dedicate (oneself, time, money, etc.) to some pursuit, cause, etc.
compromise (v)	a massage technique that consists of pulling a body region or extremity away from its most anatomically neutral position. Stretching may occur with (active) or without (passive) the patient's help
devote (v)	to follow in an effort to overtake or capture; chase
managed care	a period during which something takes place or is projected to occur
entry-level (adj)	surgical removal of all or part of a breast, sometimes including excision of the underlying pectoral muscles, associated skin, and regional lymph nodes, usually performed as a treatment for cancer
acute care	a position particularly suitable for the person occupying it

1. What are the working conditions required by employers ?

2. Read the text and supply a title for it.

_____

Generally speaking, there is no 'typical day' for a physical therapist, since career paths and daily routines vary so widely. After two or three years of general practice, a physical therapist may find a special area of interest and devote energy and training to a specific patient population or specific treatment technique. For example, a physical therapist in Reno, Nevada, may find that his special area of interest is prevention of injuries in high school students involved in team sports and he may set up a private practice teaching adolescents and

adults stretching and strengthening techniques and conditioning routines. A physical therapist living in New York City may have found her niche in evaluating and treating women living with breast cancer after total mastectomy procedures.

A day in the life of an entry-level physical therapist at an acute care hospital in a city will consist of seeing an assigned patient load that can range from eight to 12 patients a day in a quality facility. Too many patients a day equals an understaffed facility and compromises on care. Treatment times range from 20 minutes to 40 minutes, a much shorter time frame compared to the days before managed care, when typical treatment lasted 40 minutes to an hour. A physical therapist conducts her evaluations, treats her patients, documents all treatments (often written documentation can take 20 to 30 percent of the workday), attends in-services, which are educational training sessions for physical therapists by in-house and outside experts, and participates in interdisciplinary meetings.

Physical therapy work is physically demanding, as therapists must use their own strength to transfer, gait train and exercise patients, and the new physical therapist will have to learn how to economize her own physical energy by scheduling time to document notes or other nonphysically demanding activity in between exercise sessions. It is important for an individual pursuing the field of physical therapy to understand how wide the opportunities for practice in the field are. There is always more to learn.

3. What do these numbers refer to?

2 or 3, 8-12, 20-40, 40-60, 20-30.

4. Answer the questions:

1. Why do physiotherapists have a variable working day?
2. What does the specialization of a physiotherapist depend on?
3. How many patients a day may a physical therapist admit at a big hospital?
4. How much time does it take to treat a patient?
5. What are the duties of a typical physiotherapist?
6. What qualities should a physical therapist have?
7. How much time does it take to manage paperwork?
8. What is the difference between the work of physiotherapists in Reno and New York?
9. Why is it unacceptable to have a hospital department overloaded with patients?

5. Write out all daily activities of a physical therapist from the text in ex.2:

6. Where do physical therapists work? Underline the correct options:

Health club, circus, hospital, mine, skilled nursing / extended care / subacute facility, home healthcare services industry, post office, rehabilitation center, airport, outpatient clinics or offices, subway, schools, including pre-schools and special schools, research center, police station, farm, railway station, industrial / workplace / or other occupational environments, theatre, nursing home, hospice, restaurant, fitness club, market, spa, building site, sports training facility, garage, senior citizen center.

7. In the history of present illness, you will be asking questions that are related to the specific problem of your patient. Make the questions using proper tense and form of a verb:

What _____ (to make) you come here?
What _____ you feel? Please _____ (to describe) to me (Location/Intensity/Duration). What other symptoms _____ you feel? Please _____ (to describe) them.
What ___ (to be) your activity at the time your symptoms _____ (to occur)?
What ____ you_____ (to do) when your symptoms _____ (to occur)?
What ____ (to make) your symptoms worse? What_____ (to make) it better?
What _____ (to do) you about your symptoms? (Medications / Consultations and treatments provided including relevant lab works and results if available)
What other concerns _____ (to have) you _____?

8. Fill out a medical questionnaire to obtain the following information:

a) Mrs A, 35 year old female, a medical receptionist, presented to our practice with severe pain in the right forearm. She also had pins and needles in her fingers all the time. Mrs A could not do some of her work duties, she found it difficult to do filing and use a mouse at work.

b) Mr J, a professional horse rider presented to our practice with right side pain over the top of the shoulder, after training several horses. This pain was burning and quite disabling.

c) Mrs D, 56 year old female, retail assistant, presented to our practice with slight incontinence (leakage of urine) and urgency (leaking when you think you need to go to the toilet) particularly when she finished work. Mrs D found she always had to rush to the bathroom and sometimes didn't make it in time.

9. Write a resume for a recruitment agency regarding employment as a physiotherapist.

10. Compile a terminology bulletin on the topic of physical rehabilitation.

( ) balance	a patient who attends a hospital for treatment without staying there overnight
( ) inpatient	in a skillful or expert manner
( ) mobility	restore (someone) to health or normal life by training and therapy after illness
( ) outpatient	the ability to remain steady when you are standing up
( ) expertly	return (someone or something) to a former condition, place, or position
( ) rehabilitate	the therapeutic use of physical agents or means, such as massage, exercises, etc.
( ) physiotherapy	the act of making longer
( ) restore	a patient who lives in hospital while under treatment
( ) stretching	the ability to move freely and easily

11. Compose 5 sentences using the words from the previous exercise.

12. Unscramble the letters to write correct words and word combinations used in the Unit:

NEORIUT
EENSODCTLA
GNSTTCIREH
ATESTMYOCM
EIHCN
TMEI ARMFE
MPSICREMOO
GMEDANA
CRAE
RELVYTELEN
TAECU NIAP

Unit 3. Nervous system disorders
Basic terminology

Match the words and the definitions:

nervous (adj)	the condition of being unable to perform as a consequence of physical or mental unfitness; "reading disability"; "hearing impairment"

manifest (v)	deep vein thrombosis
stroke	a tool for disabled or elderly people who need additional support to maintain balance or stability while walking
impairment	the ability to sustain activity over a period of time
splinting	transient ischemic attack, or 'mini-stroke'
DVT (abbr.)	cerebrovascular accident, or 'brain stroke'
walking frame	to show plainly; reveal or display
discharge	stabilization, immobilization, and/or protection of an injured body part with a supportive appliance
endurance	release from a hospital or other course of care
CVA (abbr.)	of or relating to the nerves or nervous system;
TIA (abbr.)	a sudden loss of brain function caused by a blockage or rupture of a blood vessel to the brain, characterized by loss of muscular control, diminution or loss of sensation or consciousness, dizziness, slurred speech

What organs may be affected if a patient has a neurological disorder?

1. Prepare medical information based on materials from websites Neurological physiotherapy

Neurological physiotherapy involves the treatment of people with movement and function disorders that have originated from problems within the body's nervous and neuromuscular system.

These conditions often manifest themselves as muscle weakness, poor balance and coordination, uncontrolled muscle spasm and tremors, loss of function and decreased sensation. Common neurological conditions include:

- Functional Neurological Disorders
- Stroke, CVA or TIA
- Spinal cord and traumatic brain injuries
- Multiple sclerosis
- Parkinson's disease

In Hospital Physiotherapy

Acute neurological conditions, such as a stroke, spinal injury or traumatic brain injury, often present to the hospital for immediate treatment. Depending on your symptoms and condition, your doctor may request physiotherapy treatment while you are in hospital. Your Physiotherapist will undertake a comprehensive assessment of your strength, coordination and balance and will then tailor a treatment program to your unique needs. Depending on the

impairment, your physiotherapy treatment may include:

• Passive Limb Exercises: if you are unable to move your arms and legs yourself

• Positioning / Splinting: correct limb positioning, or splint prescription, to ensure that your joints don't tighten

• Bed Exercises: to stretch and strengthen your muscles

• Breathing and Circulation Exercises: to prevent respiratory and vascular complications such as chest infection and DVTs

• Mobilisation: assistance to move safely in bed, sit up, stand and walk

• Mobility Aids: prescription, advice and instruction on how to safely use a walking frame, or other walking aids as required

• Discharge Planning: information regarding any necessary equipment that you may require at home after discharge

• Tailored Exercise: exercises to build strength, endurance, coordination and balance

After Hospital

Following your discharge from the hospital, you can visit a clinic where a physiotherapist will continue to support your rehabilitation. Neurological physiotherapy treatment may include hands-on therapies, specific exercise prescription and a home exercise program. Some people with neurological conditions require additional support, high levels of care and specialized equipment - your physiotherapist can guide you and your family to the most appropriate services and organisations, so that you can receive the support you need."

2. Answer the questions:

- What diseases are treated by the methods of neurological physiotherapy?
- What neurological disorders were mentioned in the text?
- Which diseases require emergency treatment?
- What methods of physiotherapy treatment may be used by a physician?
- What walking aids are mentioned in the text? Supply your own variants if you know some.
- Why should bed exercises be done?
- What therapy methods can be used at home after treatment at the hospital?

3.Read the vocabulary and guess what is the Unit about? Translate the words.

Ballistic stretching, contracture, cyclic stretching, duration, hypomobility, intensity, manual stretching, mechanical stretching, PNF stretching, self-stretching, static stretching.

4. Unscramble the letters to write correct words and word combinations used in the Unit:

BDE XSSIEERCE
STOIIGPNONI
ONVERSU
TSMESY KTSOER
IMRIATPNME
PLSGNITNI
WAIKLNG RMAEF
ZSZINESDI
MTULPIEL ISOSCESRL
SIEAPVS MIBL SXESCREIE

Unit 4. Spine disorders
Basic terminology

Match the words and the definitions:

compression	disabled or does not function properly
CPRS I	the state of being deprived of the power of physical sensation
CPRS II	a painful condition caused by inflammation of the exterior tendons of the elbow due to overuse of the lower arm muscles, also called lateral epicondylitis
impaired	the ulnar canal (tunnel) is a space at the wrist between hand flexors and ligaments in the palm through which the ulnar artery and ulnar nerve move through the hand
laceration	the end parts of your body, especially your hands and feet
numbness	next to or adjoining something else
Tennis elbow	any of several processes on the upper part of the vertebrate femur, to which muscles are attached
extremity	the act of pressing or squeezing to reduce the size of the volume
trochanter	a wound that results from tearing
adjacent	Complex Pain Regional Syndrom II - a painful condition that includes all of the symptoms associated with CPRS I, though it is always caused by a nerve injury
Guyon's canal	Complex Pain Regional Syndrom I - a painful condition that is usually a result of a problem in the central nervous system or a peripheral system. Symptoms include changes in skin color over the affected region, burning pain, skin

	sensitivity, sweating, and swelling. CPRS is usually caused by tissue injury but no underlying nerve injury

1. Study the following suffixes and explain the following terms:

Pre- - before, in front of, **-itis** - inflammation, **latero-** - side, **de-** - lack of, **hyper-** - above, excessive; **antero-** - front

Tendinitis, bursitis, boutonniere deformity, trochanteric bursitis, lateral epicondylitis, medial epicondylitis, swan-neck deformity, prepatellar bursitis.

2. You are going to learn about nerve disorders. Discuss the questions in small groups and answer them:

What is the function of nerves in the body?
How can nerve disorders affect a patient's daily life?
What are the symptoms of nerve disorders?
How are nerve disorders diagnosed?
What is the difference between a nerve injury and a nerve disorder?
What type of nerve injury requires surgery?

3. Prepare a letter of inquiry to the neurology department regarding the treatment of patients with spinal diseases

4. Unscramble the letters to write correct words and word combinations used in the Unit:

EXMRTEYTI
CDEJANAT
MLIDAE ICOETDISIPNYL
ANRRHCEOTT
EIRRODSD
JYUNIR
ELNAOITRAC
SBEMUNSN
RTEPRLPEALA BSTSRIIU
TUOINRNBOEE REIMFYTDO

5. Read the text and define the anatomical structure mentioned in the text:

Physical Therapy for _____Conditions

Physical therapy can be an effective treatment for a range of_____ conditions. By increasing strength, endurance and flexibility, you can reduce pain and improve function.

The physical therapists at the OHSU _____ Center can tailor a

program to meet your specific needs. When you're ready, they also help you transition to exercising on your own.

Treatment

Physical therapy includes passive treatments such as ultrasound, ice and hot packs, massage and manipulation (the therapist moving parts of your body). These can reduce pain in the short term, but research shows they are no more effective than placebos after that.

Active physical therapy, however, can reduce pain and improve function and quality of life in the long term. Your physical therapist measures your strength and how well your back or other body part can move. The therapist compares these with what healthy people your age and at ideal body weight can do.

Your therapist then designs an exercise program to increase your strength, flexibility and endurance. Research shows that improving these abilities in the back, hip and shoulder muscles reduces back pain over time. Depending on your condition and needs, therapy may include:

Strengthening exercises for your back, abdominal muscles and hips
Training in exercises (swimming, cycling, walking) that place less stress on your _____
Training in lifting correctly
Learning to manage pain
Pool therapy
Education and training about good posture
Improving your balance and learning to avoid falls
Endurance training

It might take several months before you notice less pain. By the time you're ready to begin exercising on your own, however, you are more likely to notice that your back pain is less frequent and severe.

As your pain decreases, you will probably notice an improvement in your ability to do daily activities such as walking, grocery shopping or yard work. If you're involved in sports, our athletic trainers can help with sport-specific strengthening and agility drills.

<u>Conditions this treats:</u>
Back and neck pain
Disc degeneration
Herniated disc
Kyphosis
Myelopathy
Radiculopathy
Sciatica
Spinal arthritis
Spinal fractures
Spinal stenosis
Spondylolisthesis

Spondylosis

6. Put TRUE or FALSE for the statements:

1) Pain management is a part of physiotherapy treatment.
2) Age-related changes in spinal bones (vertebrae), cartilage and discs in any part of the spine can be treated by physiotherapy.
3) The patient may develop a rehabilitation treatment program himself after proper measurements.
4) Spinal conditions management includes only passive ways of treatment.
5) When spinal bones (vertebrae) become weak, collapse and break, physiotherapists may help.
6) After 3 months you may feel pain relief after starting specialized treatment.
7) Aquatic therapy is physical therapy that takes place in an aquatic environment under the supervision of a trained healthcare professional.
8) A herniated disk, which can occur in any part of the bowel, can irritate a nearby nerve.
9) Spinal stenosis is the widening of the spaces within the spine, which eventually results in pressure on it or nerve roots.

Unit 5. Pain

1. Find the definitions for the words in the box

To stab, duration, hunger, to lean, to clench, to remain, fatigue, burning, exertion, fist, light-headedness, to press, weakness, to tear, to gnaw

- painful in a way that feels hot;
- to hold together tightly;
- the length of time that something continues;
- the use of a lot of mental or physical effort;
- very great tiredness;
- the hand when the fingers are curled in towards the palm;
- to move or bend your body in a particular direction;
- inability to think clearly or move steadily;
- to push smth firmly against something else
- to stay in the same place without moving away;
- to push a knife into someone or something;
- to damage something such as paper or cloth by pulling it too hard;

- lack of power;
- the feeling of weakness or discomfort that you get when you need something to eat.
- to press something firmly, especially from all sides in order to change its shape, reduce its size, or remove liquid from it;
- to bite or chew something repeatedly;

2. Which of the following are heart disorders:

Angina, pneumonia, tonsillitis, cardiomyopathy, myocardial infarction, ulcer, cor pulmonale, arrhythmia, insomnia, tachycardia, endocarditis, splenomegaly, otitis.

3. What do the patients complain of in case of a heart problem?

4. Study the chart describing cardiac pain. Do you agree that:

- every type of cardiac pain has its specific character;
- Nitroglycerin is a good remedy for cardiac pain in any case;
- when you feel pain in the heart you should try to change the position;
- cardiac pain always radiates to the shoulder or down the arm;
- cardiac pain is not always accompanied by nausea;
- cardiac pain always begins on exertion;
- cardiac pain is of various duration depending on its origin.

	Myocardial ischemic pain	Pericardial pain	Atypical chest pain	Pain from dissection of the aorta
Character	Pressing, squeezing, weight-like	Stabbing, burning, cutting	Stabbing or burning	Very severe, tearing
Nitroglycerin	Yes	No	No	
The patient feels better		Leaning forward, remaining still		
The pain increases		Coughing, swallowing, deep breathing, lying down		
Location	Central precordium			Center of the chest
Radiation	Neck, lower jaw, or either shoulder or arm (most commonly the left shoulder and left arm)			Back, neck
Accompanying conditions	Nausea or vomiting, sweating			
Onset	On exertion (in arteriosclerosis) sudden (in MI); at rest, nocturnal (in arterial spasms)			
Duration	Minutes	Hours or days	Several seconds or several hours or days	Recurs with the enlargement of the dissection

5. Read the text and fill in the gaps using the information from the chart:

CARDIAC PAIN

Major cardiac diseases have relatively few symptoms, including pain, dyspnea, weakness and fatigue, palpitations, light-headedness, presyncope, and syncope.

Cardiac pain can be categorized as ischemic, pericardial, or atypical.

Myocardial ischemic pain is usually described as_____ , _, or ___. The pain is
usually greatest in the __ , the patient may place a clenched fist over the center of the sternum. The pain may frequently be felt in the ____ . Myocardial ischemic
pain often induces __. Myocardial ischemic pain due to coronary arterio-sclerosis is usually ___-related. However, the pain of acute myocardial infarction may occur __ when the patient is at rest. Pain due to arterial spasm tends to occur at rest or at __. Myocardial ischemic pain usually lasts for ___.

Pericardial pain, which is due to inflammation involving the pericardium, feels like __, __, or __ and is made worse by __, __, __, or _ . It is less variable in character and position than myocardial ischemic pain. It is diminished by __ and __ . Pericardial pain can last for __. It is __ by nitroglycerin.

Atypical chest pain tends to be __ or _ and is often quite variable in position and intensity from one episode to another. It tends to be unrelated to physical exertion and unresponsive to ____ . Its duration may be measured in _____ or it
persists over __ . There is no objective evidence that it indicates serious heart disease, except when due to disease of the great vessels or to pulmonary embolism.

Pain from dissection of the aorta (or rarely the pulmonary artery) is usually __ and of a __ character. Pain usually begins with the start of dissection, followed by a quiescent period of hours or days, then recurs with extension of the dissection. It is __ in the chest, radiates to the ___ or __, and is unaffected by position.

6. Choose the most suitable phrase to continue the statement:

1. **The symptoms of the commonest heart diseases**
   a) are numerous
   b) vary from case to case
   c) are not numerous
2. **Myocardial ischemic pain ...**
   a) occurs on pressing
   b) may be of a pressing character
   c) is variable in character but not pressing

3. **Myocardial pain ...**
   a) may cause nausea, vomiting, sweating
   b) may cause clenching of fists
   c) may be caused by clenching of fistsPericardial pain ...
4. **The place of atypical chest pain ...**
   a) changes during the attack
   b) is difficult to describe
   c) is different with every attack
5. **Atypical chest pain ...**
   a) changes in intensity on exertion
   b) is associated with exercise
   c) is not usually associated with exercise
6. **Pain from dissection of the aorta ...**
   a) may last hours and days
   b) begins some hours or days after dissection
   c) comes back some hours or days after dissection
7. **Pain from dissection of the aorta.**
   a) varies with the position of the patient
   b) is not changed by the position of the patient
   c) is diminished when the patient is lying on the back

7. Work in pairs. Discuss different types of cardiac pain.
Ask about:

- ***the character of the pain***
- ***the onset of the pain***
- ***the place of pain***
- ***the pain duration***
- ***if nitroglycerin helps***
- ***when the patient feels better***
- ***where the pain radiates***
- ***what conditions accompany the pain***

8. Where does the patient feel this kind of pain:
abdominal pain, cardiac pain, epigastric pain, generalized pain, ocular pain, pelvic pain, pericardial pain, periumbilical pain, substernal pain, suprapubic pain.

9. Provide consultation to a patient regarding a cardiological problem using electronic means of communication.

10. Study the chart describing pain in different diseases. Describe the pains which patients may have.

E.g. In peptic ulcer the pain is felt in the epigastrium.

Words that can go with pain

Accentuate, aggravate, experience, feel, have, suffer from, induce, cause, increase, make worsen, reduce, relieve + **pain**

Pain + begin, come, develop, increase, go stronger, stop, disappear, persist, return, come back, subside

Disease	Character of pain	Location	Onset	Duration	Accompanying conditions	Relieving factors	Aggravatin g factors
Peptic ulcer	Gnawing, burning, hunger	Epigastrium				Food	
Appendicitis		Epigastrtric, Periumbilical	Sudden		Nausea, vomiting, low- grade fever		
Pancreatitis	Severe, steady	Abdominal	Sudden	Hours, days	Nausea, vomiting	Sitting up, leaning forward,	Cough, deep breathing
Angina pectoris	Severe, intense	Substernal, radiates to the shoulder and down the arm		A few minutes	Elevated blood pressure	Rest	Exertion, cold weather
Arthritis	Moderate to severe	Joint	Sudden		Swelling, warmth, restricted motion		

11. Match a combining form (A) and its meaning (B).

A) -megaly, -dynia, brady-, tachy-, algo, -sclerosis, -algia, uni-, bi-, tri-

B) slow, one, enlargement, two, rapid, hardening, pain, three

12. Analyze the words:

Arthralgia, gastralgia, cephalalgia, cardiodynia, neuralgia, hyperalgia, nephralgia, neurodynia, odontodynia, otalgia, analgesia, algogenic, algospasm, bilateral, bicapsular, bidactyly, bilobular, uniocular, uninuclear, unilateral, uniseptal, trilateral.

13. Build medical words:

Enlargement of the heart, slow heartbeat, rapid heartbeat, hardening of arteries, inflammation of the endocardium, high pressure, pertaining to the myocardium.

14. What questions were asked to receive the answer?

1) It's burning pain.
2) It gets worse when I am coughing.
3) Just in the middle of the chest.
4) I also feel it in the neck and lower jaw.
5) I also feel sick
6) It appeared at night.
7) I was working in the garden when it came.
8) I feel better when I stay still.
9) It lasted only some minutes.
10) No, Nitroglycerin did not help.
11) No, it does not change when I change the position.
12) Since midnight.
13) No, it has not changed since then.
14) I don't think that I often have chest pain but it is not the first episode.

15. Work as a physiotherapist and a patient.
Your patient complains ofpain in the heart, ask him about the pain.

16. Unscramble the letters to write correct words and word combinations used in the Unit:

COYLGRINIETNR
OSENT
FTGUIEA
SHAGEHEDDNILTSE
WNASKSEE
RNIXOTEE
MYLROCADAI CNIINAROFT
CYRCITAHADA
GNAIAN
AHYARHMITR

Basic terminology

Dissection - the act of dissecting

Dyspnea - shortness of breath, a subjective difficulty in breathing, usually associated with disease of the heart or lungs

Fatigue - the state, following a period of mental or bodily activity, characterized by a lessened capacity for work usually accompanied by a feeling of weariness, sleepiness, or irritability

Infarction - sudden insufficiency of arterial or venous blood supply due to emboli, thrombi, vascular torsion, or pressure that produces a macroscopic area of necrosis

Ischemia - local anemia due to mechanical obstruction (mainly arterial narrowing) of the blood supply

Ischemic - relating to or affected by ischemia

Palpitation - forcible or irregular pulsation of the heart, perceptible to the patient, usually with an increase in frequency or force, with or without irregularity in rhythm

Radiate - to spread out from a central point

Restrict - to limit the movements or actions of someone

Swelling - a raised, curved shape on the surface of your body that appears as a result of an injury or an illness

Syncope - loss of consciousness and postural tone caused by diminished cerebral blood flow

Unit 6. Dealing with pain
DESCRIBING PAIN

1. Get ready to describe the pain.

Before you read the passage, talk about these questions.

1. What are some words to describe pain that is not strong? Pain that is very strong?
2. Why is it important for doctors to understand a patient's pain?

Reading

2. Read the pain assessment form. Is it true that:

1. The patient's pain began recently.
2. The patient's job is the cause of the pain.
3. The patient sits for several hours a day to relieve the pain.

Pain Assessment Form

Patient Name: Luke Carlton Age: 49 Form Completed By: Dr. Joe Wilson

1. What is the location of the pain? Lower back

2. According to the scale of 1-10, how does the patient rate the **intensity** of the pain? (Note: 1-2 = **mild** pain, 3-5 = **moderate** pain, 6-8= **excruciating** pain, 9-10 = **unbearable** pain)
At best: 1 2 (3) 4 5 6 7 8 9 10
At worst: 1 2 3 4 5 6 7 (8) 9
10 Right now: 1 2 3 4 5 (6) 7
8 9 10

3. How often does the pain occur? Patient reports that the pain started out as **intermittent** several years ago. However, recently the pain became **constant.**

4. What is the nature/quality of the pain? (e.g. **burning, throbbing,** etc.). The patient reports constant throbbing throughout the day. In addition, when the patient stands up he feels a **sharp, shooting** pain travel up his back.

5. What causes the pain? The patient works as a mechanic. He says that he spends six to eight hours a day bent over cars.

6. What does the patient do to relieve the pain? The patient uses a heating pad for several hours each day. He also takes at least four aspirin pills a day.

7. Other comments: Patient was in some **distress** today when he came in. He says that the pain is negatively affecting his performance at work, as some days he is barely able to stand.

Vocabulary

3. Fill in the blanks with the correct words from the word bank

WORD BANK:

Constant, unbearable, intermittent, shooting, acute.

1. The pain in my foot is _____. It comes and goes throughout the day.
2. A(n)_____pain starts and ends very quickly.
3. He screamed because the pain was absolutely _____ .
4. The pain in her stomach was_____ . It hurt from morning to night.

4. Read the sentence pair. Choose where the words best fit the blanks.

1. **intensity / distress**

A. The woman's _____ was clear when she called an ambulance in a panic.

B. The wound didn't hurt at first, but the _____ of the pain increased as time went on.

2. **mild / excruciating**

A. I have a_____headache, but otherwise I feel just fine.

B. The pain was so _____that she began to cry.

3. **burning / sharp**

A. There's a_____ pain in my lower back. It feels like
it's on fire.

B. He felt a _____ , sudden pain in his arm, but it quickly went away.

4. **throbbing / moderate**

A. Is the pain_____ or does it hurt very badly?

B. His toe was_____ after he hit it against the leg of the table.

Writing

5. Conduct a business phone call with a patient about their pain symptoms and write notes about the patient's pain

Unit 7. Patient management

1. Learn about the patient management and clinical decision-making. Study the vocabulary. Look at the pictures; discuss what is in each picture and how it relates to the patient management.

2. Work with the following material to get ready discuss the positioning a patient for examination or treatment.

Put the instructions in the order they are said by a doctor.

1) Extend your legs.
2) If desired, you can raise your arms above the head.
3) Would you like to lie on the back please?
4) Take off your jacket please.
5) Good morning, Mrs. Morrison. I'm Jane Warwick.
6) Would you like to get onto the ciach please?

Match the following words with proper definitions:

abdomen	a surgical cloth or hanging that covers something
uterus	a sample of tissue, blood, urine, etc, taken for diagnostic examination or evaluation
drain	the part of your arm where the upper and lower halves of the arm are joined
drape	the part of your body below your chest where your stomach and intestines are
elbow	womb
specimen	a device, such as a tube, for insertion into a wound, incision, or bodily cavity to drain off pus, etc

3. Read the text and match the pictures after the text with different positions.

POSITIONING A PATIENT FOR EXAMINATION OR TREATMENT

Patients are put in special positions for examination, for treatment or test, and to obtain specimens. You should know the positions used, how to assist the patient, and how to adjust the drapes.

Horizontal Recumbent Position. Used for most physical examinations. The patient is on his back with legs extended. Arms may be above the head, alongside the body, or folded on the chest.

Dorsal Recumbent Position. The patient is on his back with knees flexed

and soles of feet flat on the bed. Fold sheet once across the chest. Fold a second sheet crosswise over the thighs and legs so that the genital area is easily exposed.

Fowler's Position. Used to promote drainage or ease breathing. The headrest is adjusted to the desired height and the bed is raised slightly under the patient's knees.

Dorsal Lithotomy Position. Used for examination of pelvic organs. Similar to dorsal recumbent position, except that the patient's legs are well separated and thighs are acutely flexed. Feet are usually placed in stirrups. Fold sheet or bath blanket crosswise over thighs and legs so that the genital area is easily exposed. Keep the patient covered as much as possible.

Prone Position. Used to examine spine and back. The patient lies on the abdomen with his/her head turned to one side for comfort. Arms may be above the head or alongside the body. Cover with sheet or bath blanket.

Knee-Chest Position. Used for rectal and vaginal examinations and as a treatment to bring the uterus into normal position. The patient is on knees with chest resting on bed and elbows resting on bed or arms above head. The head is turned to one side. Thighs are straight and lower legs are flat on the bed.

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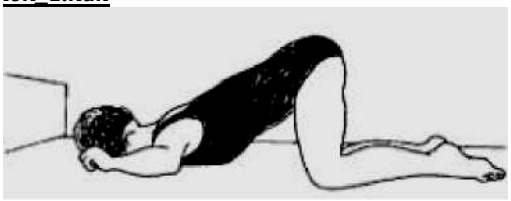


Figure 1

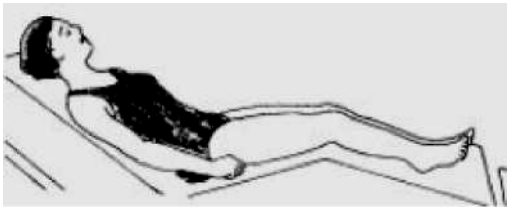
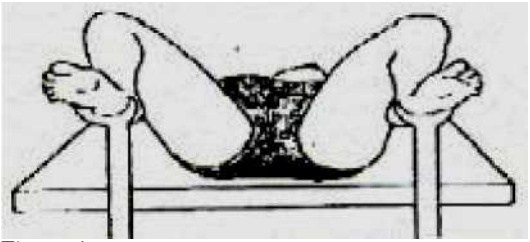


Figure 2

Figure 3



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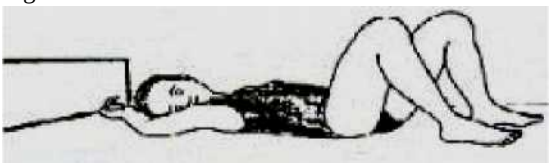

Figure 5

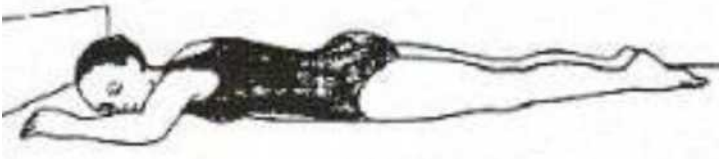

Figure 6

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4. Read the text again and say if you agree with the following statements:

1) . The obstetrician can use the Knee-Chest position to examine the womb.
2) . Patients are placed in various positions only during treatment.
3) . The dorsal lithotomy position is applied to examine the organs of urinary system.
4) . To help a patient to breathe, we put him in a Fowler's position.
5) . The supine position shows the condition of the back.
6) . A patient is in the knee-chest position is usually covered with a drape.
7) . The patient is placed horizontally on his belly in a recumbent position.

5. Give full answers to the questions:

A. How many times should the cloth be folded while lying in the Dorsal Recumbent position?
B. What is reason for putting the patients in various positions?
C. What organs are examined when the patient is in the Prone's position?

D. Do you know the positions for viewing sexual organs?
E. What is purpose of the Fowler position?

6. Try to get the following information in the given situation, asking the patients.

1) You talk with a patient. Ask him/her about the localization and character of the pain:

E.g.: pains/trouble

Do any pains trouble you?

hurts/you
where/hurt
in what region/you/pain
you/pain/heart region
you/pain/stomach
you/pain/liver you/ headache
you/ toothache you/ earache
you/ substernal pain
you/ pains/ joints
you/ colics/ kidney
you/ colics/ stomach
pain/ severe
pain/ weak
pain/ gnawing
pain/spread
pain/localized
pain/unbearable
pain/radiate to the ear
pain/ subside/ after applying a hot water bottle
pain/ grow worse/after applying an ice-bag

2) Arrange the words in the proper order to make questions: take you temperature did your?

your is temperature what?
had fever how long you have?
temperature constant is your?
the your is by rising temperature evening?
Your temperature is abruptly gradually or rising?
Your is accompanied fever by pains?
Does chill alternate with fever the?
Have you an did temperature of fall abrupt?
When normal did your become temperature?

3) Complete the sentences:

If you catch the grippe you are attended by a _____
If your nerves are out of order you go to a_____
If you have a toothache you consult a _____.
If something has got into your eye you go to see an _____
If you have a sore throat you go to a _____
If you have a bad pain in your abdomen you consult a _____
If you have a heart attack you call a _____

4) Finish the sentences. Choose the correct answer.

1. The doctor wanted...
a) the heart failure to develop frequently;
b) the patient to be followed up at the outpatient department.
2. The nurse made...
a) the patient take bromide to control his sleeplessness;
b) the heart be excluded from the blood circulation.
3. The surgeon ordered.
a) the patient's wound to be bandaged immediately;
b) the intensity of the inflammatory process to be reducing gradually.

7. Unscramble the letters to write the words used in the Unit:

TNTIAEP AMAEGTEMNN
EATIAOMXINN
DEAPR
NECEMISP
BMNDAEO
EOWLB
RDNAI
ETURUS
ARTEEUPTEMR
ADORLS UTCEMNEBR ONSOIIPT

Unit 8. Ergotherapy

Do you know anything about occupational therapy?
Who trains people with physical and mental problems to be more independent in everyday life?
Have you ever heard about the health care profession 'ergotherapy'?
Which activities does occupational therapy involve?

Basic terminology

1.Supply the words with proper definitions:

1. ergotherapy	A. aim, purpose, objective
2.ergotherapist	B. treatment or rehabilitation of the disabled people with creative activity
3. occupational therapy	C. significant, relevant, important
4. creative	D. individuals with physical or mental conditions which limit their movements or various activities
5. meaningful	E. observation of a patient following the treatment, provided to control the therapeutic result of earlier therapy
6. rehabilitation	F. to evaluate something or somebody
7. disabled people	G.a health care field that treats a disease by physical work and recreation
8. purposeful	H. the length of time for which a human being or animal lives
9. follow-up	I. relating to the use of imagination or original ideas to develop something
10. assess	J. a specialist in ergotherapy
11. lifespan	K. restoring someone to health or normal life by treatment or special exercises
12. target	L. with a useful purpose

2. Read the text and underline any new information you haven't known before. Share the new knowledge with your groupmates.

Occupational therapy (OT) and ergotherapy are based on involving in meaningful activities of everyday life those people who have physical or mental problems. Such activities include self-care skills, work, education, social interaction, etc. Occupational therapy uses purposeful productive or creative activity to treat disabled (physically or emotionally) people aimed at supporting

them in overcoming their problems caused by their disorders of malfunctions.

Occupational therapists encourage participation in daily activities (occupations) despite impairments or limitations in physical or mental functioning across the individual's lifespan. Occupational therapy provides either assessment at home or post-traumatic follow-up.

Ergotherapy (originates from Gr. ergon - work, therapeia - therapy) - is the health care field that treats a disease by physical effort. Ergotherapy uses physical activity and exercise to treat diseases and disabilities. Ergotherapists advise how to prevent common injuries. Experts in ergotherapy offer ways to organize a safer workplace, reducing the risk of being injured in it.

The care given by ergotherapist is targeted on the important task to enable independent participation of a person in daily activities, to prevent diseased conditions, and ensure his health and normal life.

A medical professional, practicing ergotherapy, is responsible for the assessment and treatment of a disabled person. A special feature of this aid is obligatory cooperation with the disabled person, his family, relatives, friends. Thus, occupational therapy is a patient-centered practice; the patient integrates the therapeutic process.

At first, ergotherapist evaluates the individual ability to perform daily routine activities, and physical, cognitive, and communication skills. He collects data about the physical and social environment of a person. The physical environment includes living, housing, working, etc. conditions. Friends, group- or classmates, co-workers make the social environment. Ergotherapist also communicates with other experts in rehabilitation to help the patient in restoring skills that allow him to be as much as possible independent in his everyday activities.

3. Now you can give the answers:

1. Do you know what occupational therapy is?
2. What do the daily meaningful activities of the OT patients include?
3. What kinds of activity are used in OT to help individuals to overcome various problems?
4. What is the origin and what is the meaning of the word 'ergotherapy'?
5. What does the work of an ergotherapist include?
6. What kind of information does ergotherapist collect?
7. Which environments are assessed by ergotherapist?
8. Which conditions of physical environment do you know?

4. Match the words from two columns:

occupational	problems
emotional	people
meaningful	skills
social	activities
cognitive	therapist
physical	functioning
individual	ability
disabled	injury
common	environment

5. Review the unit vocabulary and find definitions for each word. According to the definitions put the proper part of speech before each vocabulary word (adj, n, v).

( ) creative	*significant, relevant, important*
( ) target	*the length of time for which a human being or animal lives*
( ) rehabilitate	*with physical or mental limits of their movements or activities*
(,) occupational therapy	*a specialist in ergotherapy*
( ) disabled	*treatment or rehabilitation of the disabled people with creative activity*
( ) ergotherapist	*a health care field that treats a disease by physical work and recreation*
( ) purposeful	*relating to the use of imagination or original ideas to develop something*
( ) meaningful	*aim, purpose, objective*
( ) follow-up	*to evaluate something or somebody*
( ) lifespan	*with a useful purpose*
( ) ergotherapy	*observation of a patient following treatment provided to control the therapeutic result of earlier therapy*
( ) assess	*to restore someone to health or normal life by treatment or special exercises*

6. Mark the following statements as true or false:

1. The main task of the ergotherapist is to help the friends and classmates of the patient to be independent.
2. Physical environment involves assessment, treatment, and cooperation

with the patient.

3. At first, ergotherapist diagnoses the abilities of the person to complete the daily activities.
4. Daily activities of the person include recreation, rehabilitation, and assessment.

7. Describe the work of an ergotherapist.

8. Now let's discuss "actions". Answer the following questions.

What types of motions do people perform when doing daily activities?
How can an inability to perform these actions affect a person's life?
What types of injuries may limit a person's range of motion?
How can someone increase his/her range of motion after an injury?

9. Get ready to discuss problems that can be caused by some motions after an injury in history:

Bend, grasp, kneel, lift, push, reach, roll, squat, stand, stoop, turn, twist.

10. In each set of words one word or expression is the odd one out, different from the others.

11. Find the word or expression that is different, explain your choice, and cross the odd out.

For example:

Meaningful, ~~**follow-up,**~~ disabled, emotional
(all the words are adjectives except **follow-up** which is a noun).

occupational therapy, ergotherapy, rehabilitation course, lifespan
occupational, creative, purposeful, target
self-care skills, work, social interaction, ergotherapist
rehabilitate, therapy, ergotherapist, lifespan
recreation, rehabilitation, assessment, disabled people

12. Match the half-sentences in the left column with the half-sentences in the right column to make correct sentences.

Example:
1 C Meaningful activities of everyday life include self-care skills, work, education, social interaction.

1. Meaningful activities of everyday life	A. stimulates the patient's participation in daily activities
2. Occupational therapist	B. assessment at home and post-traumatic follow-up of the disabled person
3. Some people have physical or mental problems	C.include self-care skills, work, education, social interaction
4. OT and ergotherapy use	D. for the proper assessment and treatment of a patient
5. The medical aid of ergotherapist must include	E. the physical environment
6. Ergotherapist is responsible	F. involving the disabled people in meaningful activities of everyday life
7. Occupational therapy supposes	G. cooperation with the disabled person, his family, relatives, friends
8. The conditions of living, housing, working are considered as	H. due to their disorders of malfunctions

13. Unscramble the letters to write the words and word combinations used in the Unit:

ETAIINLHROTBIA
OTILUOCPACAN AETHRPY
AESILBDD PLPOEE
RHSATGOTERIEP
TGTERA
LAFNUNIMGE
UOWPOFLL
NSAELFIP
DNEB
ARSPG

Unit 9. Massage
Basic terminology

Match the terms and definitions:

vernacular	to lengthen
manual	the arrangement of a group of objects along a line
stretching	the process of making a fixed part movable
trigger	the act of rubbing
effleurage	relating to the fascia surrounding and separating muscle tissue
friction	related to sacrum and skull
backbone	stroking movement in massage
myofascial	spine
mobilization	using plain, everyday language.
craniosacral	systematic therapeutic stroking or kneading of the body
coccyx	of or relating to the hands
massage	something that initiates or stimulates an action
alignment	the small bone at the end of the vertebral column in humans, formed by the fusion of four rudimentary vertebrae

Have you ever got massage?
How did you feel?
What did you get it for?
Have you ever been treated with massage?
What kind of problem did you have?
For what reason is massage typically done?

1. Read the text and fill the gaps with the proper type ofphysical therapy discussed:

- ***pulmonary***
- ***orthopedic***
- ***manual***
- ***aquatic***
- ***pediatric***
- ***cardiac***

Treatment methods:_____therapy

Physical therapists use their hands to work, called "_____ therapy" in PT vernacular. _____ therapy includes techniques for stretching, strengthening, and reducing pain. Physical therapists may use massage as a _____ technique for reduction of pain.

Techniques include effleurage, a massage technique from Sweden in which broad strokes are used to increase circulation throughout the body; acupressure, which identifies trigger points through deep pressure; and friction massage, quick, brisk movements in the direction of opposite fibers' alignment to interrupt neuronal pain signals and increase circulation. Depending on the type of injury, a therapist may choose effleurage to relax tense musculature throughout the body, trigger point massage to release a specific tight muscle (the trapezius, for example, is often tight due to poor posture), or friction massage for an injury like a sprained ankle, in which specific massage at the site of pain can complement rest, ice and elevation.

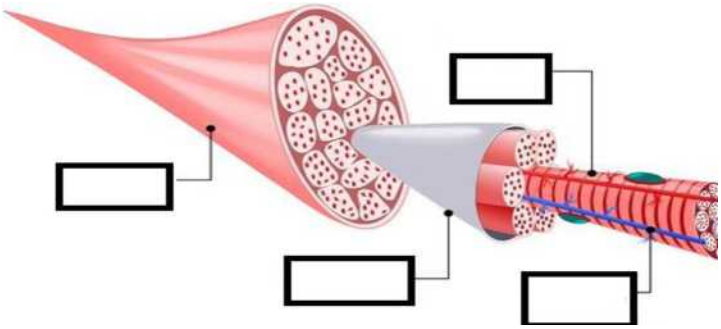
Physical therapists also perform mobilization techniques, a method by which tissue is moved to reduce pain. There are four grades of mobilization (1-4) from most gentle to more forceful pressure. PTs also perform the myofascial treatment (moving the fascia of the body to reduce pain) without instruments, only hands. Myofascial treatment has been proven to be very effective with chronic pain patients. Craniosacral therapy is another type of _____ treatment in which the cranium (the skull) and the sacrum (the portion of the backbone between the coccyx and the low back) are mobilized and massaged to relieve pain. Craniosacral therapy is effective in the reduction of migraine headaches, arthritic pain, and many types of chronic pain.

All physical therapists can do _____ therapy and are schooled in
different techniques of massage and mobilization (moving soft tissue and bones manually). However, some physical therapists find career tracks that take them away from direct contact with the patient. Physical therapists who become teachers and administrators will be less adept at manual therapy techniques because of a lack of daily practice than those who evaluate and treat patients for a living. Some physical therapists become famous because of the effectiveness of their _____ skills.

2. Write out all anatomical structures from the text above

3. Look at the picture and locate the following structures:

- fascia
- muscle
- blood vessels
- muscle fibers



Retrieved from: *https://deeprecovery*. com/understanding-fascia/

4. Read the statements and choose the correct option:

1) Manual therapy uses methods of **pain decrease / pain increase**
2) Swedish massage technique affects the work of **cardiovascular system / urinary system**
3) Effleurage is used **to relax muscles / to decrease weight** in the patient's body
4) Sacrum is located in the **lower / upper** part of the trunk.
5) **Myofascial treatment means treatment of face / treatment of some connective tissue.**
6) Manual skills take **first place / secondary place** in the successful career of PT.
7) Friction massage can combine relaxation, cold and elevation **at the place of injury / all over the body.**
8) Acupressure is a type of massage therapy using **finger pressure / palm pressure** on the bodily sites.

5. Study the combining forms and analyze the medical terms:
sacro - sacrum, spino- - spine, cranio- - skull, histo- - tissue, neuro - - nerve

spinal, histology, craniosacral, cranial, sacro-iliac, sacrococcygeal, spinocortical, sacroanterior, neurobiology, neurocyte, histologist, spinocerebellar.

6. Work in pairs. Read the case histories and ask questions tofill in theform below:

1) The patient is a 63-year-old female with a diagnosis of frozen shoulder, who is referred to an outpatient physical therapy clinic by an orthopedic

surgeon. She reports that her symptoms began approximately 4 months ago for no apparent reason. The patient is right-handed and complains of right shoulder pain and stiffness, which have become progressively worse over the past several months.

2) Mrs. B is a 75-year-old woman with severe bicompartmental knee osteoarthritis (OA). She visits an outpatient physical therapy clinic 3 weeks following left cemented posterior cruciate ligament (PCL)-sparing total knee arthroplasty (TKA). A paramedian incision was used.

3) Mrs. D is a 68-year-old woman who has been referred to physical therapy with reports of the onset of vertigo 2 weeks ago when she got out of bed and the world spun for about 10 seconds. Her current complaints include vertigo, nausea, vomiting, and imbalance. Her last episode of vertigo occurred this morning when she got out of bed.

7. Analyze the chart below and try to identify which characteristics are important in describing pain:

Welcome to the Chiropractic office of
Dr. Janis Kling, D.C.

Your health and well-being is our most important concern We hope you will feel comfortable asking questions regarding your treatment, rehab program, and our commitment to you. We thank you for your trust and confidence and will do all within our ability to assist you in your recovery

Office uee only
Chart:
Patient type:
Patient payment code:

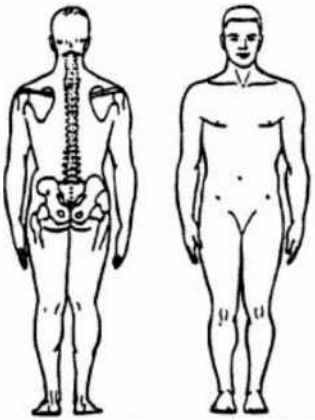
Copay/cash payment

Patient History

Today's Date: _____
Name _____
Address_____
City _____ State _____ Zip _____
Birthdate _____ Age _____
Social Sec # _____
Home Phone _____ Work Phone _____
Business / Employer _____
Type of Work _____
Check one: □ married □ single □ widowed □ divorced □ seperated

Who is responsible tor payment?_____ Do you have health/chropractic Insurance? _____
If you have insurance, please make sure we have a copy of your insurance card and an insurance authorization form signed by you. If we do not have this, you will need to pay us directly and file your own Insurance. _____
Is your pain/mjury a result of an: (please circle one)
Auto accident Personal injury On the job injury Illness __ Olher _____
Please tell us who referred you to our office so we may thank them:
_____

If you are In pain, please mark the exact location of your pain on the diagram below. Also describe the type and frequency of your pain, as well as any activity or movement which brings on or aggravates the pain For example: dull, sharp constant, on & off. when standing, when sitting, etc.. etc.



Please describe your MAJOR COMPLAINT:

Please rate your pain on a scale of 1 to 10. ("1" is the least degree of pain, "10" the most extreme pain)

1	2	3	4	5	6	7	8	9	10

8.Unscramble the letters to write correct words and word combinations used in the Unit

NSCAACOLRARI
SMESAGA
FFGEELEARU
IAMOTLZBIOIN
INQUEHCTE LUMNAA
THRPEYA LOODB
EESSLV SMULEC IFBER
FSCLOMYAAI
AERMNTTTE NIOICFRT
SESACRPEUUR

Unit 10. Rehabilitation and strengthening exercises
Basic terminology

Match the terms and definitions:

aerobic	the act, quality, or power of withstanding hardship or stress
anaerobic	a child in the earliest period of life, especially before he or she can walk
vigorous	either one of a pair of spongy saclike respiratory organs within the thorax of higher vertebrates, which oxygenate the blood and remove its carbon dioxide
circulation	myocardial infarction
endurance	the rate of incidence of a disease
recovery	living or occurring in the absence of free oxygen
infant	a mass of a muscle
augment	increased body weight caused by excessive accumulation of fat
heart attack	movement or passage through a system of vessels, as of water through pipes; flow
lung	a disease characterized by a decrease in bone mass and density, resulting in a predisposition to fractures
muscle bulk	to make (something already developed) greater, as in size, extent, or quantity
morbidity	any of the filaments constituting the extracellular matrix of connective tissue
fiber	a return to a normal or healthy condition
obesity	living or occurring only in the presence of free oxygen
osteoporosis	forceful; effective

Do you exercise regularly? Where do you usually exercise?
How do you think why physical exercise is so important for health? How much exercise do you need to gain the benefits?

1. ***Study the combining forms: a (an) - without, aero - air.***
Analyze the terms:
anaphylaxis, aerobic, anatomy, aerodynamics, anaerobic, apnea, anabiotic, aerophilia, asymptomatic, anoxia, analgesia.

2. ***Read the text below and mark the differences between the types of exercises.***

Treatment with physiotherapy: Exercise

Physical therapists must promote the power of exercise, both aerobic and anaerobic. Aerobic exercise (riding a bike for 15 minutes or more, vigorous

walking for 30 minutes, running for 10 minutes, swimming) increases circulation to the heart, improves lung capacity, and increases endurance for greater periods of exercise. An individual recovering from a heart attack or stroke with the proper precautions will benefit greatly from aerobic exercise as improved circulation, cardiovascular health and aerobic endurance have been proven to protect against future heart attacks or strokes. Aerobic exercise is beneficial to all ages and for many illnesses. (Currently, there is an obesity epidemic among America's children and aerobic exercise is directly linked to a healthy weight in children).

Anaerobic exercise is an exercise of shorter duration where the emphasis is on force output versus sustained activity. Examples of anaerobic exercise would be a bench press of fewer than three repetitions, jumping from a standing position in basketball, or a wrestler pinning an opponent down in less than three minutes. Anaerobic exercise challenges muscles to their ultimate force output and stretches fibers to increase muscle bulk. Physical therapists use anaerobic exercise to increase muscle strength in patients who are weakened through many different illnesses and injuries.

Physical therapists “prescribe” exercise for infants, children, young and older adults, and those considered to be very old (85 and up). Public health experts today are calling on physical therapists for advice and consultation on all types of morbidity epidemics such as childhood obesity, cardiovascular disease, and osteoporosis, so in many cases, physical therapists can augment clinical practice (clinical practice is defined as the evaluation and treatment of patients in need of physical therapy services) with a private consultation to companies, nonprofit organizations or schools. Aside from knowing how much and what kind of exercise to prescribe, physical therapists should also know all contraindications (when NOT to prescribe) exercise.

3. Answer the questions using the information from the text:

a) What is the task of physiotherapists?
b) What aerobic exercises are mentioned in the text? (give 3 more examples except those from the text)
c) What is the age of the patients to whom the exercises are recommended?
d) Can you trace any distinctions between aerobic and anaerobic exercises?
e) What is necessary to administer exercises properly?
f) What anaerobic exercises are mentioned in the text? (give 3 more examples except those from the text)
g) Why do public health experts consult PTs?

4. Fill in the gaps with the words from the box. If necessary, put the verbs into proper tense:

circulation, treatment, to prescribe, duration, obesity, to contraindicate, to advise

a) The application of medicines, surgery, therapy, etc., in treating a disease or
disorder is called.....
b) ... has become a major health problem in the United States.
c) Your eye doctor might.....the procedure if your abnormal blood vessels cluster tightly together.
d) For the test a patient will walk on a treadmill so his doctor can monitor blood.....during exercise.
e) The doctor .... the type of medication to treat asthma symptoms which depends on the severity of your asthma.
f) I am scheduled for scope surgery for a torn meniscus on my knee and what
is the .....for recovery?
g) Contact lenses are.....in very dusty, dry, and smoky atmospheres.

5. Find the opposites for the following words in the text:

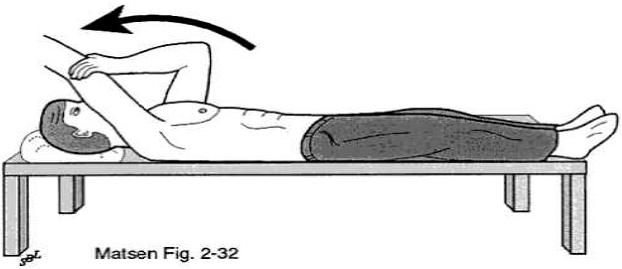
adult **–**
strengthen –
social –
aerobic –
longer –
input –
leanness –
illness –
young –
unchanging –
contract –

6. Read the statements and choose the correct option:

a) **Aerobic / anaerobic** exercise is sometimes known as "cardio" - exercise that requires pumping of oxygenated blood by the heart to deliver oxygen to working muscles.
b) **Aerobic / anaerobic** ("without oxygen") exercise is an activity that causes you to be quickly out of breath, like sprinting or lifting a heavyweight.
c) **Aerobic / anaerobic** exercise stimulates the heart rate and breathing rate to increase in a way that can be sustained for the exercise session.
d) Examples of **aerobic / anaerobic** exercises include cardio machines, spinning, running, swimming, walking, hiking, aerobics classes, dancing.
e) **Aerobic / anaerobic** exercises can become **aerobic / anaerobic** exercises if performed at a level of intensity that is too high.

7. Stiff (frozen) shoulders can be managed successfully by a simple exercise program conducted by the patient in the home. Put the orders for stretching exercises for a patient into proper places for each picture:

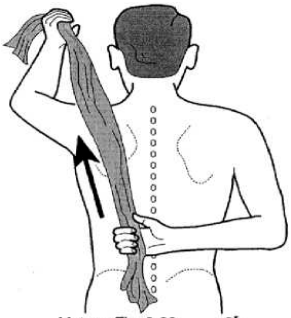
a) Get the arm up while you are lying down
b) Get the arm to externally rotate while lying down.
c) Get the arm up overhead while sitting down.
d) Get the arm across the body.
e) Get the arm to externally rotate while standing.
f) Get the arm up the back.



Matsen Fig. 2-32

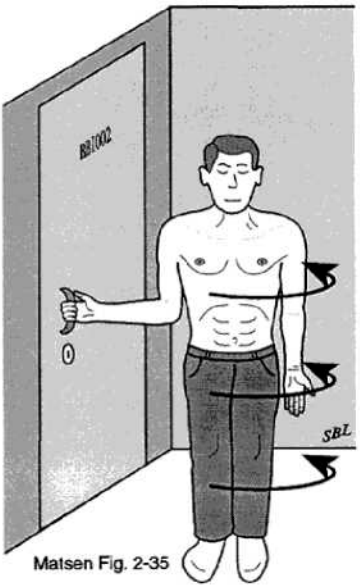
Matsen Fig. 2-33

Matsen Fig. 2-34



Matsen Fig. 2-36

Matsen Fig. 2-37



Matsen Fig. 2-35

8. Can you find necessary information to specify full-arc and short-arc exercises?

9. Unscramble the letters to write correct words and word combinations used in the Unit:

CRAIBEO EREICSXE
RCOIBAENA
EERVOCRY
ISOETOPOSOSR
ELSCMU KLUB
EANPA
CCIAORLNTIU
IENARSTESC
XRICESSEE RLAFUCL
EERECSIXS CREXESEI
PAGMRRO

Index of the basic terminology

disabled people (8)

ADDITIONAL READING

WHY OCCUPATIONAL REHABILITATION IS GOOD FOR BUSINESS

In the fast-paced world of today, workplace injuries are unfortunately all too common.

Whether it's a slip, trip, or fall, these incidents can have a significant impact on employees both physically and mentally. This is where Occupational Rehabilitation services come into play. These services focus on helping individuals recover from injuries and illnesses by providing them with the necessary support and resources to return to work safely and effectively.

Says Entrepreneur's Organization Queensland member and Founder of Momentum4 Chris Mitchell, "Occupational rehabilitation services are essential in promoting employee well-being and reducing the impact of injuries in the workplace. By providing tailored rehabilitation programs, we can help employees not only recover from their injuries but also prevent future incidents from occurring."

It is this personalised approach that is mandatory in ensuring the success of each individual's recovery journey. It is vital that consideration is given to the specific needs and circumstances of the injured employee, ensuring that they receive the right support and treatment to facilitate their recovery process. This customised approach not only speeds up the recovery time but also improves the overall well-being of the individual.

Occupational rehabilitation services also focus on preventive measures to minimise the risk of injuries in the workplace in the first place. By conducting thorough risk assessments and implementing safety measures, companies can help create a safer work environment for all employees. This proactive approach not only reduces the likelihood of injuries but also contributes to a positive and healthy workplace culture.

It's important to remember however that injuries sustained are not always physical and mental health issues in the workplace should not be overlooked. In today's fast-paced and highly demanding work environments, stress, anxiety and other mental health concerns are becoming increasingly prevalent. It is vital to be able to provide employees with the necessary support and resources to cope with these challenges, promoting mental well-being and resilience in the workplace.

"Mental health is just as important as physical health when it comes to employee well-being. By providing employees with the support they need to cope with stress and anxiety, we can create a more supportive and inclusive work environment where employees feel valued and empowered."

Services also play a crucial role in facilitating a smooth transition for employees returning to work after a period of absence due to injury or illness. Helping employees adjust to their work responsibilities, providing them with

ongoing support and ensuring a successful and sustainable return to work process are all vital components.

"The journey from injury to recovery may be challenging, but with the right support and resources in place, employees can overcome obstacles and emerge stronger than ever."

The benefits of occupational rehabilitation management are not limited to the individual employee either. Investing in employees' well-being and recovery can reduce absenteeism, boost productivity, and foster a positive work environment. These services contribute to a more engaged and motivated workforce, leading to increased job satisfaction and overall business success.

Brisbane-based Momentum4 is at the forefront of revolutionising employee well-being by offering personalised support, preventive measures and mental health resources for workplace injuries and illnesses. Their holistic approach combines physical, mental, and emotional well-being solutions tailored to individual needs. Technology-driven solutions and ongoing support ensure employees have the tools for a healthy work-life balance.

"I believe that employee well-being is not just a priority – it's a culture. By investing in these services, companies can create a workplace where employees feel safe, supported and empowered to reach their full potential."

WHAT IS REHABILITATION? AN EMPIRICAL INVESTIGATION LEADING TO AN EVIDENCE-BASED DESCRIPTION

There is no agreement about or understanding of what rehabilitation is; those who pay for it, those who provide it, and those who receive it all have different interpretations. Furthermore, within each group, there will be a variety of opinions. Definitions based on authority or on theory also vary and do not give a clear description of what someone buying, providing, or receiving rehabilitation can actually expect.

The evidence shows that rehabilitation may benefit any person with a long-lasting disability, arising from any cause, may do so at any stage of the illness, at any age, and may be delivered in any setting. Effective rehabilitation depends on an expert multidisciplinary team, working within the biopsychosocial model of illness and working collaboratively towards agreed goals. The effective general interventions include exercise, practice of tasks, education of and self-management by the patient, and psychosocial support. In addition, a huge range of other interventions may be needed, making rehabilitation an extremely complex process; specific actions must be tailored to the needs, goals, and wishes of the individual patient, but the consequences of any action are unpredictable and may not even be those anticipated.

Effective rehabilitation is a person-centred process, with treatment tailored to the individual patient's needs and, importantly, personalized monitoring of changes associated with intervention, with further changes in

goals and actions if needed.

What constitutes rehabilitation? Physiotherapy? Exercises? Something you receive ‘to get you better’? Many healthcare staff, when referring someone to rehabilitation, have little idea, maybe saying ‘they’ll sort out your problems for you’, or sometimes ‘they’ll work you really hard’. Commissioners, similarly, rarely understand what they are paying for; at most they expect a certain number of contact hours between a patient and a therapist and/or setting goals. Patients do not know what to expect.

Searching dictionaries or the Internet does not help much. Most definitions are not based on evidence. A modern healthcare system must do more than just stop people dying. It needs to equip them [patients] to live their lives, fulfill their maximum potential and optimise their contribution to family life, their community and society as a whole.

Rehabilitation achieves this by focusing on the impact that the health condition, developmental difficulty or disability has on the person’s life, rather than focusing just on their diagnosis. It involves working in partnership with the person and those important to them so that they can maximise their potential and independence, and have choice and control over their own lives. It is a philosophy of care that helps to ensure people are included in their communities, employment and education rather than being isolated from the mainstream and pushed through a system with ever-dwindling hopes of leading a fulfilling life.

An empirical investigation into the phenomenon of rehabilitation might clarify the matter. This editorial reviews studies reporting that rehabilitation has a beneficial effect and asks: what aspects of the intervention being studied, rehabilitation, are common between the various studies investigating successful rehabilitation?

This approach is not new. It was used to investigate the nature of ‘stroke unit rehabilitation’ in 2002 and the 2013 reviews stated:

In summary, organised inpatient (stroke unit) care was characterised by: (1) co-ordinated multidisciplinary rehabilitation, (2) staff with a specialist interest in stroke or rehabilitation, (3) routine involvement of carers in the rehabilitation process and (4) regular programmes of education and training.

What conditions are associated with benefit?

Systematic reviews have considered rehabilitation involving patients covering a large range of conditions, diseases, and ages, and in almost all groups a positive effect is shown. Patients can be helped by rehabilitation if they have the following:

Pulmonary and respiratory conditions;

Cardiac conditions;

Neurological conditions such as multiple sclerosis, stroke,6 motor neurone disease, and other conditions;

Musculo-skeletal disorders such as fractures, hip and knee arthroplasty, and sub-acute or chronic back pain;

Malignancies.

The common feature among the wide variety of disease disorders listed above is that the patient has a continuing disability, often with several or many factors contributing to the situation.

The only reasonable conclusion must be that rehabilitation, whatever it is, is likely to benefit anyone with persistent disability associated with an illness, regardless of the underlying disease or disorder.

Is rehabilitation effective anywhere?

Rehabilitation has been found effective in most settings:

Probably in intensive care units (there are many reviews, with contrasting findings);

Specialist rehabilitation inpatient wards;

Out-patient and day-hospital settings;

Nursing homes; and

At home.

It is specifically important to note that rehabilitation out of hospital, after discharge, is effective.

Although the strength of the evidence varies, there seems little doubt that rehabilitation can have a beneficial effect wherever it is delivered. Direct comparisons between different settings have rarely been studied.

Does stage or prognosis of disease affect effectiveness?

Categorization of disabling disorders by prognosis and stage is difficult, and the categories suggested are not as distinct as they appear. Moreover, the effects of development (in children) and aging (in older adults) lead to changes in disability and/or rehabilitation needs. Nonetheless, there is evidence that rehabilitation is beneficial in the following:

- The acute phase of sudden onset disorders; stroke,6 acute episodes of coronary artery disease, hip fracture, and traumatic brain injury including those where there is no 'natural recovery', such as spinal cord injury where rehabilitation has transformed life expectancy and social functioning.
- The later, more stable phases of acute onset disorders: stroke;
- Diseases that have a slow or fluctuant onset and are progressive to a greater or lesser degree: multiple sclerosis, osteoarthritis, chronic back pain;
- Diseases that are more inexorably progressive: Parkinson's disease and Alzheimer's disease.

One may conclude that rehabilitation is likely to be beneficial to a person with disability at any stage of their illness and whatever the nature of their prognosis, including when receiving palliative care: rehabilitation can benefit people with advanced cancer.

Does age limit effectiveness?

There are few trials of rehabilitation (in contrast to trials on specific interventions) involving children, and no reviews were identified. The studies already referred to have included people of all ages from teenagers through to

the very old and frail. There is no reason to doubt that rehabilitation is effective at any age, though there is little evidence for children.

THE EFFECTS OF CALORIC RESTRICTION AND/OR INTERMITTENT FASTING ON BONE HEALTH

Osteoporosis is a chronic condition characterized by low bone mass and places individuals at increased risk for fracture. Rehabilitation and lifestyle modifications that preserve and/ or promote gains in bone mass include regular physical activity, resistance training and dietary modification such as increased protein intake, adequate intake of calcium and vitamin D, and supplementation with magnesium and, possibly, vitamin K. In contrast, numerous studies indicate that caloric restriction (CR) and/ or intermittent fasting (IF), which have been proposed to augment rehabilitation for such conditions as stroke, cardiomyopathy, and heart failure, may negatively impact bone health. Thus, it is important to clarify the impact of these diets on bone metabolism so that fracture risk is mitigated in the context of rehabilitative healthcare.

CR is a diet that restricts the total number of calories rather than different food groups or periods of eating. The calorie limit is based upon a percentage of the recommended daily intake, which is calculated using the individual's basal metabolic rate. In contrast, IF severely restricts caloric intake for a period of time followed by a period of ad libitum intake. The fasting period can be practiced in different ways such as fasting every other day, fasting for two to three days at a time, or even fasting during particular hours of each day (also referred to as time-restricted feeding). The effects of CR and/or IF on weight loss and other outcomes have been extensively summarized elsewhere. However, not all of these effects are beneficial, as evidenced in the somewhat conflicting literature reporting on the impact that these diets have on bone metabolism. Here, we summarize this information, highlighting areas of consistency and discrepancy, and suggest future areas of study to advance the understanding of caloric restriction and/or intermittent fasting on bone health.

BONE REMODELING AND BONE HEALTH

Bone matrix is produced by cells called osteoblasts and resorbed by cells called osteoclasts. The balance of activity between these two cell populations determines bone mass and strength, which generally peaks in humans during early adulthood. When the actions of osteoblasts and osteoclasts are coupled, there is no net change in bone mass. However, when uncoupled in situations such as aging, the rate of bone resorption outpaces bone formation, leading to loss of bone mass. Low bone mass is a defining feature of osteoporosis and is a major risk factor for fracture, which places individuals at greater risk for disability and death. Thus, strategies aimed at building and/or preserving bone mass are of great clinical significance.

The most common clinical measure of bone mass is dual energy X'ray absorptiometry (DXA), which determines areal bone mineral density. It is important to note that DXA provides only a snapshot of bone mass whereas other techniques, such as measurement of serum markers, provide greater detail about dynamic changes in skeletal physiology. The most clinically-validated markers for bone formation or bone resorption are Procollagen type-1 N-terminal propeptide (P1NP) and C-terminal telopeptide of type 1 collagen (CTx), respectively, hereafter referred to as "bone turnover markers". These factors inform about the activity of osteoblasts and osteoclasts, which themselves are regulated by numerous systemic and local regulators such as leptin, parathyroid hormone (PTH), calcitriol, calcitonin, growth hormone (GH), insulin-like growth factor 1 (IGF-1), glucocorticoids, thyroid hormones, estrogens, androgens, transforming growth factor (TGF) - beta, and cytokines. Below, we highlight some of these factors that are particularly germane to the study of caloric restriction and/or intermittent fasting.

Caloric Restriction and Bone Health

In this section, we discuss the existing studies examining the impact of caloric restriction on bone health with an emphasis on molecular markers of bone remodeling. Studies in this area vary widely in the 1) specific caloric restriction employed, 2) duration of dietary restriction, and 3) species (or strain) studied.

Hamrick et al. studied the effects of increasing caloric restriction with time on bone health in mice. The mice received a 10% restriction beginning at fourteen weeks of age, a 25% restriction at fifteen weeks of age, and a final 40% restriction at sixteen weeks of age continuing until twenty-four weeks of age. This resulted in varied responses by anatomical location and between cortical versus trabecular bone. Compared to mice fed ad libitum, calorie-restricted mice displayed decreased femoral and vertebral cortical thickness whereas trabecular bone in both locations was unchanged (femora) or increased (vertebrae). Importantly, calorie-restricted mice had reduced femoral fracture strength. These changes were associated with a decrease in both serum leptin and IGF-1 in response to caloric restriction. These results are generally consistent with Delvin et al., who studied the effects of 30% caloric restriction in mice from three weeks of age to twelve weeks of age. Compared to mice fed ad libitum, calorie-restricted mice displayed impaired skeletal growth resulting in smaller body size and low bone mass. These changes were associated with reduced bone formation rate with increased bone resorption rate and decreased levels of serum leptin and IGF-1. This is consistent with the work of Shien et al, who subjected obese rats to 35% caloric restriction for four months, resulting in decreased bone mineral density and lower leptin and IGF-1 along with changes in several other serum markers. It is important to note that these findings differ somewhat from those observed in rats subjected to 30% caloric restriction from three weeks of age to seven weeks of age, which resulted in similar bone strength relative to body weight and increased trabecular bone volume in the lumbar

spine compared to control. That said, two studies in adult rats subjected to 30% or 40% caloric restriction indicates that the p-adrenoreceptor signaling plays a role in the response to energy restriction, with p-adrenergic blockade attenuating bone loss and preserving serum leptin levels following prolonged calorie restriction.

Interestingly, one study using mice and rats suggests that the effects of prolonged caloric restriction on bone mass appear impacted by age, with chronic caloric restriction preventing age-related bone loss. It is unclear if this finding is due to the prolonged nature of this intervention or if short duration caloric restriction in aged mice or rats impacts bone health. Indeed, twenty years of 30% caloric restriction in rhesus macaques - initiated between eight and fourteen years of age - led to only modest changes in bone volume related to smaller body mass with variable responses in serum markers of bone turnover.

Studies on the impact of caloric restriction in human subjects have produced inconsistent findings. For instance, Riedt et al. studied the effects of caloric restriction on obese premenopausal females subjected to a caloric deficit of approximately 30-40% with calcium supplementation for six months. Although leading to weight loss, this intervention did not impact bone mineral density or serum bone turnover markers. This is generally consistent with a study involving 25% caloric restriction in overweight individuals that showed no change in bone mineral density, though this study reported changes in certain bone turnover markers. In contrast, Villareal et al. reported that prolonged 35% caloric restriction for an average of 6.8 ± 5.2 years leads to reduced bone mineral density. Notably, individuals on a high protein diet plus caloric restriction experience less bone loss than caloric restriction alone, suggesting that the amount of bone loss during caloric restriction may be mitigated by specifically increasing protein intake.

HOW TO START A PHYSICAL THERAPY BUSINESS: 14 STEPS GUIDE

Do you dream of starting a physical therapy business after graduating from a Doctor of Physical Therapy (DPT) program? Compared to working as an employee in a clinic, owning a private physical therapist practice gives you more autonomy, helps you grow as an entrepreneur and clinician and offers the potential for higher income.

However, starting a physical therapy practice also means putting in longer hours, filling out more paperwork and learning a business skill set on top of your clinical skill set. You don’t have to do it all by yourself; you can get advice from your mentor and hire experts.

Can physical therapists own practices? Sure. Here’s a detailed (but by no means comprehensive) map of how to open a physical therapy clinic.

1. Research the market

Before starting a physical therapy business, research who your patients

would be. Ask yourself the following questions about where you'll be offering your services:

Who needs physical therapy in your area (and what are their age range and occupations)?

Why would they need it (what are the acute and chronic conditions they're dealing with)?

What types of PT would they need (such as manual techniques or stretching and strengthening exercises)?

You can survey prospective clients directly. Ask them what it would take for them to choose your physical therapy business.

Also, check out your competitors: their size, structure, locations, services and length of time in business. What can your physical therapist business offer that is different or better than what they provide?

2. Choose your niche

In a private physical therapy business, do you intend to focus on sports injuries, workplace injuries, pediatrics, geriatrics, post-surgical rehabilitation, chronic pain or other PT specialties? Will your PT practice emphasize manual physical therapy, PT modalities, stretching and strengthening or all of the above?

Also, determine if your physical therapy business will be staffed solely with physical therapists or will you bring in other rehabilitative science practitioners? That might include other healthcare professionals such as occupational therapists and speech-language pathologists within your interprofessional care team.

3. Decide on the business structure

Are you starting a physical therapy business on your own? Or would you prefer to work with other physical therapists, open a franchise or purchase an existing private practice in physical therapy?

Another option for how to start a physical therapy business is partnering with a gym or a large corporation that wants to offer PT onsite. You could consider offering virtual physical therapy services, too.

Research the options and their tax implications. You could set up your PT business as a sole proprietorship, a PLLC or an S corporation.

4. Choose the method of compensation

Will your physical therapy business be cash-based or insurance-based? If you choose the latter, research the insurance contract terms with each provider.

Also, will your office manager handle billing or will you use a third-party service? There are pros and cons to each option, so do your homework.

5. Develop a marketing plan

Starting a physical therapy business can begin with choosing a business name and getting a logo and business cards designed. Map a marketing strategy involving digital channels such as a website, social media and a blog.

Don't forget print materials like brochures and postcards and, if

feasible, place radio or television ads. Consider creating a customer incentive or loyalty plan.

Meet with local physicians to let them know about your services. Make it easy for them to schedule patients with you.

6. Develop a physical therapy business plan

A business plan serves as a roadmap for the growth and evolution of your physical therapy business. It can help you secure funding and keep you on track with your milestones.

It should describe the following:

Your services

Your market research

The competitive landscape

Your marketing plan

Operational details

Your management team

A first-year budget

Details about compensation

A financial summary

When going through this process of how to start a physical therapy business, include costs for insuring your clinic.

7. Secure financing

Once you plan for a physical therapy business, secure loans or investments from banks, angel investors, family members and friends. Consider crowdfunding, with incentives (such as free PT treatments) for each level.

Other options include borrowing money against your retirement accounts or taking out a second mortgage - but be careful not to get in too deep.

8. Determine your location

Start looking for a space for your physical therapy business after you know how much startup money is available. Think about factors such as:

Visibility

Proximity to potential referral sources (e.g., doctors and fitness centers)

Ease of parking

How much space you need (with room to grow)

Length of lease

Too-close proximity to competitors

Necessary renovations now or down the road

9. Fill out necessary paperwork

Set up a professional limited liability company (PLLC) or another business structure. Get your EIN from the IRS, make sure your PT license is up to date, purchase professional liability insurance coverage and set up a business bank account and credit card.

Consult with an attorney to make sure you understand how to start a physical therapy business that adheres to HIPAA standards.9 Also, you will

need to prepare documents for your patients to fill out: medical histories, insurance forms, pain maps, HIPAA disclosures, etc.

10. Begin searching for and hiring staff

Spread the word that you're starting a physical therapy business to your former classmates and colleagues who are physical therapists. Gauge their interest in joining your practice and ask them for referrals.

Even if you know them personally, vet candidates through an extensive interview process, background checks, etc. When starting a physical therapy business, hire an office manager who is competent, kind and friendly and who can be the face of your practice.

Consider hiring therapists and staff from different socioeconomic backgrounds, races, cultures, genders, sexual orientations, religions, and ethnicities to promote diversity in healthcare and increase relatability with patients.

11. Design the space

A professional architect and designer will help you maximize your square footage while capturing your vision of your physical therapy business. Plan the floor layout for a positive environment and efficient patient flow. Consider your color scheme and whether images on the walls will relate to physical therapy or be more abstract.

12. Purchase equipment

When starting a physical therapy business, list the equipment you will need. Your list might include hi-lo treatment tables, ultrasound units, TENS units, laser therapy units, exercise balls, resistance bands, weights and more. Also, purchase new computers and comfortable furniture.

13. Find the right software

To keep track of patient scheduling, records and billing, consider software programs such as:

An electronic health record system
A patient portal
A payment platform
Scheduling software
Accounting software
Customer relationship management software

Hire an expert to get your IT system up and running for your physical therapy business.

14. Celebrate

You're almost ready to open the doors to your physical therapy business. It's been a lot of work, but you are gaining valuable skills and knowledge. You're about to enjoy the rewards of career autonomy and ownership.

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