



LITHUANIAN SPORTS UNIVERSITY

STUDY MODULE PROGRAMME (SMP)

Module Code	B	710	B	118	Accredited until				Renewal date		
	Branch of Science		Progr.	Registr. №.							

Entitlement

Basics of Physiotherapy

Prerequisites

Anatomy, physiology.

Course (module) Learning Outcomes

№.	Learning Outcomes	Teaching / Learning Methods	Assessment Methods
1	To be able to find and understand contemporary scientific ideas arising from fundamental and applied science and practice.	Discussion, Formal lecture, Literature analysis	Group work, Problem-solving task, Scientific paper (text) analysis
2	To be able to adapt to new situations and make responsible and reasonable decisions based on knowledge and skills.	Exercise classes, Formal lecture, Practical exercises (tasks)	Problem-solving task, Reporting for practice work
3	To be able to learn creatively and constantly from the achievements of contemporary fundamental and applied science and creatively apply knowledge in professional activities.	Exercise classes, Formal lecture, Group work, Role play, Small group tutorials	Group (team) project, Reporting for practice work, Scientific paper (text) analysis
4	Be able to manage time, information, and think creatively as a leader.	Discussion, Group work, Idea (mind) mapping, Interactive lecture, Simulation of real-life (world) situations, Team project	Problem-solving task, Reporting for practice work
5	To be able to apply scientific achievements in planning, organizing and carrying out activities.	Interactive lecture, Practical exercises (tasks), Reading list	Reporting for practice work, Scientific paper (text) analysis

Main aim

To introduce students with the concept of physiotherapy, basic concepts, clinical reasoning, research methods, the application of the principles of exercise, organizing physiotherapy procedures.

Summary

Students will know the essence of the Physiotherapy concept, PThistory, purpose, general applying principles, structure of the procedure and goals. Palpation of anatomical structures, passive movements, active and resistive movements. The classification of the movements and exercises, exercises with instruments and without, applying and combining of different PT means. The principles of the applying main PT methods. Organizing of the group and individual PT procedures, PT indications and contraindications.

Level of module

Level of programme		Subject group (under the regulation of the area)
Cycle	Type	
First	Bachelor	Bendrojo universitetinio lavinimo

Group under financial classification

Syllabus

№.	Sections and themes	Responsible lecturer
1.	Introduction to the module. Introduction to the module teachers, requirement, order, assessment, subject e-learning system.	

№.	Sections and themes	Responsible lecturer
2.	Physiotherapy in rehabilitation system. History and concept of Physiotherapy	
3.	Physical exercises and their classification.	
4.	Therapeutic exercise, passive and active movements and exercise in physiotherapy	
5.	Effect of movements and exercise on body functions	
6.	Anatomical and biomechanical basics of physiotherapy	
7.	Physiological basics of physiotherapy	
8.	Physical properties and their training	
9.	Aims, methods and methodics of physiotherapy	
10.	General methodology of physiotherapy procedures. Patient's safety during the procedure	
11.	Dosage and order of exercise during the procedure. Exercise progression.	
12.	Indications and contraindications for physiotherapy.	
13.	Stability, stabilization, exercise.	
14.	Nutrition and physiotherapy	
15.	Designing home rehabilitation programme.	
16.	Physical factors and their use in physiotherapy.	
17.	The basics of functional research in physiotherapy. Subjective and objective patient examination	
18.	Use of subjective and objective patient examination methods in clinical practice and research	
19.	Somatoscopy and antropometry	
20.	Pain, its evaluation and classification.	
21.	Aging and physiotherapy	
22.	Clinical reasoning, examination and planing and prognosis in Physiotherapy.	
23.	Cyriax Methodology.	
24.	Functional tests in Physiotherapy	
25.	Surface anatomy. Palpation and its techniques.	
26.	Goniometry	
27.	Manual muscle testing.	
28.	mobility, mobilization. Passive and active techniques.	
29.	Infection control (hand hygiene, direct contact infections, hospital-based infections, sterilization, disinfection).	
30.	Course evaluation. Feedback.	
31.	Medical Latin language and terms.	
32.	Movements in different planes and axis.	
33.	passive movements: neck	
34.	Passive movements: scapula, arm.	
35.	Passive movements: trunk	
36.	Passive movements: leg.	
37.	Manual resistance: head. Eccentric / concentric.	
38.	Manual resistance: trunk	
39.	Manual resistance: arm.	
40.	Manual resistance: leg.	
41.	Exercises for strength training with and without kinesitherapy, in a closed and open kinematic chain.	
42.	Exercises for flexicurity with and without physiotherapy tools. Manual stretching. Post-isometric, post-reciprocal relaxation.	
43.	Balance and coordination training with and without physiotherapy tools.	
44.	Exercise for posture correction	
45.	Exercises to develop speed and agility with and without physiotherapy tools.	

№.	Sections and themes	Responsible lecturer
46.	Breathing exercises: static and dynamic.	
47.	Anatomy of the anterior, posterior, lateral and medial surfaces of the neck and torso. Palpation of bones, muscles, ligaments, tendons, blood vessels.	
48.	Anatomy of the anterior and posterior surfaces of the shoulders. Palpation of bone and muscle structures, tendons.	
49.	Anatomy of the anterior and posterior surface of the upper limb. Palpation of bones, muscles, ligaments, tendons, blood vessels and nerves.	
50.	Anatomy of the anterior, posterior, lateral and medial surfaces of the pelvis, hip and thigh. Palpation of bones, muscles, ligaments, tendons, blood vessels and nerves.	
51.	Anatomy of the anterior, posterior, lateral and medial surfaces of the lower limb. Palpation of bones, muscles, ligaments, tendons, blood vessels and nerves.	
52.	Goniometry. Joint end feel types. Examination and evaluation.	
53.	Examination and evaluation of the amplitudes of the neck, torso, upper limb movements.	
54.	Investigation and evaluation of lower limb motion amplitudes.	
55.	MMT: Neck and trunk.	
56.	MMT: shoulder and upper limb.	
57.	MMT: lower limb.	

Evaluation procedure of knowledge and abilities:

References

№.	Title	Edition in Lithuanian Sports University library		In Lithuanian Sports University bookstore	Number of ex. in the methodical cabinet of the depart.
		Pressmark	Number of exemplars		
1.	Stropus, R., Tamašauskas, K.A., Paužienė, N. (2005). Žmogaus anatomija. Vitae Litera, Kaunas, p. 512.	611 Ta75	80	Yes	
2.	Neumann, D. A. (2013). Kinesiology of the musculoskeletal system: foundations for rehabilitation. Elsevier Health Sciences.			No	1
3.	Dreeben-Irimia, O. (2013). Physical therapy clinical handbook for PTAs. Jones & Bartlett Publishers. 2nd edition.			No	1
4.	O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. (2013). Physical rehabilitation. FA Davis.			No	1
5.	Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). Muscles: Testing and Function, with Posture and Pain (Kendall, Muscles). Philadelphia: Lippincott Williams & Wilkins.			No	1
6.	Muscolino, J. E. (2013). Know the Body: Muscle, Bone, and Palpation Essentials-E-Book. Elsevier Health Sciences.			No	1
7.	Reese, N. B., & Bandy, W. D. (2016). Joint Range of Motion and Muscle Length Testing-E-Book. Elsevier Health Sciences.			No	1
8.	Muntianaitė, Inga (2018). Pečių lanko kineziologija ir kineziterapija : mokomoji knyga	615.825 Mu59	1	Yes	1

№.	Title	Edition in Lithuanian Sports University library		In Lithuanian Sports University bookstore	Number of ex. in the methodical cabinet of the depart.
		Pressmark	Number of exemplars		
9.	Lenčiauskienė, Daiva. Sąnarių paslankumą ir raumenų jėgą lavinamosios metodikos : metodinė knyga 2017	616.7 Le201	6	Yes	
10.	Šakalienė, Rasa Išsėtinė sklerozė ir kineziterapija : studijų knyga 2014	615.825 Ša38	8	Yes	1
11.	Klubo sąnario artrozė ir endoprotezavimas. Kineziologija ir kineziterapija : mokomoji knyga, 2014	616.7 K1-168	12	Yes	1
12.	Norkin, C. C., & White, D. J. (2016). Measurement of joint motion: a guide to goniometry. FA Davis.			No	1

Additional literature

№.	Title
1.	Hertling, D., & Kessler, R. M. (2006). Management of common musculoskeletal disorders: physical therapy principles and methods. Lippincott Williams & Wilkins.
2.	Pettman, E. (2007). A history of manipulative therapy. Journal of Manual & Manipulative Therapy, 15(3), 165-174.
3.	Byrd, J. T. (2007). Evaluation of the hip: history and physical examination. North American journal of sports physical therapy: NAJSPT, 2(4), 231.
4.	Letafatkar, A., Hadadnezhad, M., Shojaedin, S., & Mohamadi, E. (2014). Relationship between functional movement screening score and history of injury. International journal of sports physical therapy, 9(1), 21.
5.	Elleberg, D., & St-Louis-Deschênes, M. (2010). The effect of acute physical exercise on cognitive function during development. Psychology of Sport and Exercise, 11(2), 122-126.
6.	Kashihara, K., Maruyama, T., Murota, M., & Nakahara, Y. (2009). Positive effects of acute and moderate physical exercise on cognitive function. Journal of physiological anthropology, 28(4), 155-164.
7.	Paillard, T., Rolland, Y., & de Souto Barreto, P. (2015). Protective effects of physical exercise in Alzheimer's disease and Parkinson's disease: a narrative review. Journal of clinical neurology, 11(3), 212-219.
8.	Sharma, P. K., & Rao, K. H. (2002). Analysis of different approaches for evaluation of surface energy of microbial cells by contact angle goniometry. Advances in colloid and interface science, 98(3), 341-463.
9.	Müller-Putz, G. R., Zimmermann, D., Graimann, B., Nestinger, K., Korisek, G., & Pfurtscheller, G. (2007). Event-related beta EEG-changes during passive and attempted foot movements in paraplegic patients. Brain research, 1137, 84-91.
10.	Guzzetta, A., Staudt, M., Petacchi, E., Ehlers, J., Erb, M., Wilke, M., ... & Cioni, G. (2007). Brain representation of active and passive hand movements in children. Pediatric research, 61(4), 485.
11.	Shimada, S., Qi, Y., & Hiraki, K. (2010). Detection of visual feedback delay in active and passive self-body movements. Experimental brain research, 201(2), 359-364.
12.	Matteis, M., Vernieri, F., Troisi, E., Pasqualetti, P., Tibuzzi, F., Caltagirone, C., & Silvestrini, M. (2003). Early cerebral hemodynamic changes during passive movements and motor recovery after stroke. Journal of neurology, 250(7), 810-817.
13.	Formaggio, E., Storti, S. F., Galazzo, I. B., Gandolfi, M., Geroin, C., Smania, N., ... & Manganotti, P. (2013). Modulation of event-related desynchronization in robot-assisted hand performance: brain oscillatory changes in active, passive and imagined movements. Journal of neuroengineering and rehabilitation, 10(1), 24.
14.	Prabhu, R. K., Swaminathan, N., & Harvey, L. A. (2013). Passive movements for the treatment and prevention of contractures. Cochrane Database of Systematic Reviews, (12).

№.	Title
15.	van Trijffel, E., van de Pol, R. J., Oostendorp, R. A., & Lucas, C. (2010). Inter-rater reliability for measurement of passive physiological movements in lower extremity joints is generally low: a systematic review. <i>Journal of physiotherapy</i> , 56(4), 223-235.
16.	Onishi, H., Sugawara, K., Yamashiro, K., Sato, D., Suzuki, M., Kirimoto, H., ... & Kameyama, S. (2013). Neuromagnetic activation following active and passive finger movements. <i>Brain and behavior</i> , 3(2), 178-192.
17.	Dhungel, K. U., Malhotra, V., Sarkar, D., & Prajapati, R. (2008). Effect of alternate nostril breathing exercise on cardiorespiratory functions. <i>Nepal Med Coll J</i> , 10(1), 25-27.
18.	Anderson, D. E., McNeely, J. D., & Windham, B. G. (2010). Regular slow-breathing exercise effects on blood pressure and breathing patterns at rest. <i>Journal of human hypertension</i> , 24(12), 807.
19.	Eherer, A. J., Netolitzky, F., Högenauer, C., Puschnig, G., Hinterleitner, T. A., Scheidl, S., ... & Hoffmann, K. M. (2012). Positive effect of abdominal breathing exercise on gastroesophageal reflux disease: a randomized, controlled study. <i>The American journal of gastroenterology</i> , 107(3), 372.
20.	Cook, G. (2010). <i>Movement: Functional movement systems: Screening, assessment, corrective strategies</i> . BookBaby.
21.	Rahnama, N., Bambaeichi, E., Taghian, F., Nazarian, A. B., & Abdollahi, M. (2010). Effect of 8 Weeks Regular Corrective Exercise on Spinal Columns Deformities in Girl Students. <i>Journal of Isfahan Medical School</i> , 27(101).
22.	Patel, K. (2014). <i>Corrective Exercise: A Practical Approach: A Practical Approach</i> . Routledge.
23.	Witvrouw, E., Danneels, L., Van Tiggelen, D., Willems, T. M., & Cambier, D. (2004). Open versus closed kinetic chain exercises in patellofemoral pain: a 5-year prospective randomized study. <i>The American journal of sports medicine</i> , 32(5), 1122-1130.
24.	Tucker, W. S., Armstrong, C. W., Gribble, P. A., Timmons, M. K., & Yeasting, R. A. (2010). Scapular muscle activity in overhead athletes with symptoms of secondary shoulder impingement during closed chain exercises. <i>Archives of physical medicine and rehabilitation</i> , 91(4), 550-556.
25.	Wright, R. W., Preston, E., Fleming, B. C., Amendola, A., Andrish, J. T., Bergfeld, J. A., ... & McCarty, E. C. (2008). A Systematic Review of Anterior Cruciate Ligament Reconstruction Rehabilitation—Part II: Open Versus Closed Kinetic Chain Exercises, Neuromuscular Electrical Stimulation, Accelerated Rehabilitation, and Miscellaneous Topics. <i>The journal of knee surgery</i> , 21(03), 225-234.
26.	Marshall, P. W., & Murphy, B. A. (2005). Core stability exercises on and off a Swiss ball. <i>Archives of physical medicine and rehabilitation</i> , 86(2), 242-249.
27.	Akuthota, V., Ferreiro, A., Moore, T., & Fredericson, M. (2008). Core stability exercise principles. <i>Current sports medicine reports</i> , 7(1), 39-44.
28.	Vasseljen, O., Unsgaard-Tøndel, M., Westad, C., & Mork, P. J. (2012). Effect of core stability exercises on feed-forward activation of deep abdominal muscles in chronic low back pain: a randomized controlled trial. <i>Spine</i> , 37(13), 1101-1108.
29.	Liu, H., Yao, K., Zhang, J., Li, L., Wu, T., Brox, J. I., & He, C. (2013). Sling exercise therapy for chronic low-back pain. <i>Cochrane Database of Systematic Reviews</i> , (9).
30.	Moore, K. L., Dalley, A. F., & Agur, A. M. (2013). <i>Clinically oriented anatomy</i> . Lippincott Williams & Wilkins.
31.	Field, D., & Hutchinson, J. S. O. (2006). <i>Field's anatomy, palpation, and surface markings</i> . Elsevier Health Sciences.
32.	Cuthbert, S. C., & Goodheart, G. J. (2007). On the reliability and validity of manual muscle testing: a literature review. <i>Chiropractic & osteopathy</i> , 15(1), 4.
33.	Bohannon, R. W. (2005). Manual muscle testing: does it meet the standards of an adequate screening test?. <i>Clinical rehabilitation</i> , 19(6), 662-667.
34.	Thompson, J. A., O'Sullivan, P. B., Briffa, N. K., & Neumann, P. (2006). Assessment of voluntary pelvic floor muscle contraction in continent and incontinent women using transperineal ultrasound, manual muscle testing and vaginal squeeze pressure measurements. <i>International Urogynecology Journal</i> , 17(6), 624-630.
35.	Conable, K. M., & Rosner, A. L. (2011). A narrative review of manual muscle testing and implications for muscle testing research. <i>Journal of chiropractic medicine</i> , 10(3), 157-165.

№.	Title
36.	Kent-Braun, J. A., Ng, A. V., Doyle, J. W., & Towse, T. F. (2002). Human skeletal muscle responses vary with age and gender during fatigue due to incremental isometric exercise. <i>Journal of Applied Physiology</i> , 93(5), 1813-1823.
37.	Staud, R., Robinson, M. E., & Price, D. D. (2005). Isometric exercise has opposite effects on central pain mechanisms in fibromyalgia patients compared to normal controls. <i>Pain</i> , 118(1-2), 176-184.
38.	Colcombe, S. J., Erickson, K. I., Scalf, P. E., Kim, J. S., Prakash, R., McAuley, E., ... & Kramer, A. F. (2006). Aerobic exercise training increases brain volume in aging humans. <i>The Journals of Gerontology Series A: Biological Sciences and Medical Sciences</i> , 61(11), 1166-1170.
39.	Cools, A. M., Dewitte, V., Lanszweert, F., Notebaert, D., Roets, A., Soetens, B., ... & Witvrouw, E. E. (2007). Rehabilitation of scapular muscle balance: which exercises to prescribe?. <i>The American journal of sports medicine</i> , 35(10), 1744-1751.
40.	Sander, A., Keiner, M., Schlumberger, A., Wirth, K., & Schmidtbleicher, D. (2013). Effects of functional exercises in the warm-up on sprint performances. <i>The Journal of Strength & Conditioning Research</i> , 27(4), 995-1001.

Coordinating lecturer

Position	Degree, surname, name	Schedule №.
Associate Professor		43

Subdivision

Entitlement	Code
a	2006

Study module teaching form №. 1

Semester	Mode of studies	Structure				Total hours	Credits	
		Theory	Seminars	Lab Works	Ind. work			
A	S	D	30	12	48	170	260	10

Languages of instruction:

Lithuanian	L	English	E	Russian	R	French	F	German	G	Other	Oth.
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Plan of in-class hours

№. of Themes	Academic hours			№. of Themes	Academic hours		
	Theory	Seminars	Lab Works		Theory	Seminars	Lab Works
1.	1	0	0	30.	1	0	0
2.	1	0	0	31.	0	1	0
3.	1	0	0	32.	0	1	1
4.	1	0	0	33.	0	0	1
5.	1	0	0	34.	0	0	2
6.	1	0	0	35.	0	0	1
7.	1	0	0	36.	0	1	1
8.	1	0	0	37.	0	0	1
9.	1	0	0	38.	0	0	1
10.	1	0	0	39.	0	0	2
11.	1	0	0	40.	0	1	1
12.	1	0	0	41.	0	0	3
13.	1	0	0	42.	0	1	2
14.	1	0	0	43.	0	1	3
15.	1	0	0	44.	0	0	1
16.	1	0	0	45.	0	1	1
17.	1	0	0	46.	0	1	1
18.	1	0	0	47.	0	0	2
19.	1	0	0	48.	0	0	2

