



Information about the subject

Degree: Bachelor of Sciences of Physical Activity and Sport

Faculty: Faculty of Physical Activity and Sport Sciences

Code: 280412 **Name:** Prevention and Rehabilitation of Injuries in PA

Credits: 6,00 **ECTS Year:** 4 **Semester:** 1

Module: 3) Specific Obligatory Formation Module.

Subject Matter: Physical exercise, fitness and sports physical training. **Type:** Compulsory

Field of knowledge: Health Sciences

Department: Physical Preparation and Conditioning

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

284A	<u>Barbara Imfeld Elvira</u> (Responsible Lecturer)	barbara.imfeld@ucv.es
284B	<u>Encarnacion Liebana Gimenez</u> (Responsible Lecturer)	encarnacion.liebana@ucv.es
284C	<u>Encarnacion Liebana Gimenez</u> (Responsible Lecturer)	encarnacion.liebana@ucv.es
284D	<u>Alejandro Sanz Bayo</u> (Responsible Lecturer)	alejandro.sanz@ucv.es
CATR	<u>Encarnacion Liebana Gimenez</u> (Responsible Lecturer)	encarnacion.liebana@ucv.es
PRICA	<u>Barbara Imfeld Elvira</u> (Responsible Lecturer)	barbara.imfeld@ucv.es



Module organization

3) Specific Obligatory Formation Module.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Physical activity and physical exercise for health and with special populations.	12,00	Physical Activity and Health	6,00	3/1
		Prescription and Programmes for Healthy Lifestyles	6,00	4/1
Physical exercise, fitness and sports physical training.	18,00	Evaluation of Biological Condition	6,00	3/1
		Planning and Methodology of Training in PA	6,00	3/2
		Prevention and Rehabilitation of Injuries in PA	6,00	4/1
Teaching of Physical Education and Sports.	18,00	Design, Evaluation and Intervention in Educational Programmes	6,00	4/1
		Didactics and Methodology of Sports and Physical Activity	6,00	3/1
		Social Morality and Professional Deontology	6,00	4/1
Sports organization and management.	12,00	Sports Marketing	6,00	3/2
		Sports Training Planning and Organisation	6,00	3/1



Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Differentiate and/or identify pathologies or injuries resulting from physical activity, as well as various useful methods or processes for their prevention and/or rehabilitation.
- R2 Plan, design, and propose the evaluation of a physical-sports prevention and/or rehabilitation program, justifying the methods, techniques, and exercises used.
- R3 Critically analyze and contrast various documentary information sources in English regarding injuries, prevention, and physical-sports rehabilitation, using this information to support a prevention and/or rehabilitation program, as well as practical tasks and cases.



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3	40,00%	Written and/or practical tests.
R1, R2, R3	40,00%	Individual or Group Work / Project.
R1, R2, R3	20,00%	Exercises and Practices in the Classroom.

Observations

This course is NOT eligible for a single assessment request in accordance with Article 10.3 of the GENERAL REGULATIONS FOR ASSESSMENT AND GRADING OF OFFICIAL COURSES AND UCV DEGREE PROGRAMS. Students may keep the assessment instruments passed during the 3 years following the first enrolment.

It is necessary to obtain 50% in all assessment instruments to pass the subject.

Attendance at all practical sessions indicated in the schedule is compulsory. Failure to attend **80%** of these sessions will result in the student failing both exam sessions for the course and having to retake them in the following enrollment period.

In case of not fulfilling any of these criteria, the student will be graded with a maximum of 4.5.

SPECIFICATIONS OF THE EVALUATION INSTRUMENTS

Written and/or practical tests

There will be a single exam at the end of the course in the scheduled dates according to the academic calendar. This will consist of two parts:

- Multiple-choice test (10%).
- Practical written exam (30%).

It is necessary to obtain 50% in each of the parts.

Individual or Group Work / Project

A project related to the contents of the course may be carried out:

- Written work (25%).
- Practical exhibition of the work (15%).

It is necessary to obtain 50% in each of the parts.

Exercises and Classroom Practices

Participation in the different tasks carried out in class or through the UCVnet platform.

The detailed explanation (procedure for the assignments) as well as the evaluation tools



(worksheets or rubrics) for each section will be posted on each group's platform at the student's disposal.



Use of Artificial Intelligence Tools in the CAFD Degree Program

Use of Artificial Intelligence tools in the CAFD degree program In the Bachelor's Degree in Physical Activity and Sports Sciences (CAFD), the use of Artificial Intelligence (AI) tools is permitted in a complementary and responsible manner, as long as it contributes to active learning, the development of critical thinking, and the improvement of students' professional skills. Under no circumstances should AI replace personal effort, direct practice, or independent reflection, which are fundamental pillars of this degree program.

Permitted Uses of AI:

- Obtaining alternative explanations of theoretical or methodological concepts.
- Generating outlines, concept maps, or summaries to support study.
- Simulating interviews, questionnaires, or training sessions as part of methodological or research practices.
- Receiving feedback on report writing, provided that the original content is the student's own.
- Supporting the search for bibliography or scientific references, always contrasting with reliable and real academic sources, and respecting the CAFD regulations for the presentation of university work.

Prohibited Uses of AI:

- Writing complete sections of academic papers, classroom exercises and practices, internship reports, journals, or portfolios, as well as the Final Degree Project.
- Formulating hypotheses, objectives, or conclusions for academic work.
- Replacing qualitative or quantitative data analysis with automated tools without human validation.
- Creating videos, presentations, or avatars with AI as a substitute for the student's oral or practical presentation.
- Obtaining automatic answers to tests, rubrics, or assessable activities through the use of AI.

Citation and Attribution Guidelines:

- Any use of AI tools must be explicitly acknowledged in the submitted document (e.g., in a footnote or appendix).
- The name of the tool, the purpose of use (e.g., grammatical review, organization of ideas, interview simulation), and where it was used in the work must be indicated.
- Responsible use of AI will be evaluated within the framework of originality, academic honesty, and digital competence.

Additional recommendations:

Students are encouraged to combine the use of AI with traditional methods (manual problem solving, practical session design, direct observation, etc.) to ensure the comprehensive development of their skills.



If there are any doubts about the permitted use of AI in a specific activity, students should consult the faculty responsible for the course.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Attendance at practices.
- M2 Resolution of problems and cases.
- M3 Discussion in small groups.
- M4 Practical laboratories.
- M5 Presentation of content by the teacher.
- M6 Practical lesson.
- M7 Group dynamics and activities.



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORETICAL CLASS: Presentation of contents by the teacher. Competency analysis. Demonstration of capabilities, skills and knowledge in the classroom. M3, M5, M7	R1, R2, R3	16,00	0,64
PRACTICAL CLASS / SEMINAR: Group dynamics and activities. Resolution of problems and cases. Practical laboratories. Data search, computer classroom, library, etc. Meaningful construction of knowledge through student interaction and activity. M2, M3, M5, M6, M7	R1, R2, R3	38,00	1,52
EVALUATION: Set of oral and/or written tests used in the evaluation of the student, including the oral presentation of the final degree project. M2, M7	R1, R2	4,00	0,16
TUTORING: Supervision of learning, evolution. Discussion in small groups. Resolution of problems and cases. Presentation of results before the teacher. Presentation of diagrams and indexes of the proposed works. M3	R1, R2, R3	2,00	0,08
TOTAL		60,00	2,40



LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Problem solving. Preparation of exercises, memoirs, to present or deliver in classes and/or in tutoring. M2, M3, M7	R1, R2, R3	20,00	0,80
SELF-EMPLOYED WORK: Study, Individual preparation of exercises, assignments, reports, to present or deliver in classes and/or in tutoring. Activities in platform or other virtual spaces. M2	R1, R2, R3	70,00	2,80
TOTAL		90,00	3,60

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
1. Sports Injuries: classification, epidemiology and injury-inducing mechanisms	Sports Injuries: classification, epidemiology and driving mechanisms
2. Participation of the CAFD graduate in the approach to a physical activity injury	Participation of the CAFD graduate in the approach to physical activity injuries
3. Methods and techniques of prevention and rehabilitation of injuries in physical activity	Methods and techniques for the prevention and rehabilitation of injuries in physical activity



Temporary organization of learning:

Block of content	Number of sessions	Hours
1. Sports Injuries: classification, epidemiology and injury-inducing mechanisms	10,00	20,00
2. Participation of the CAFD graduate in the approach to a physical activity injury	10,00	20,00
3. Methods and techniques of prevention and rehabilitation of injuries in physical activity	10,00	20,00



References

BASIC BIBLIOGRAPHY:

- Arhos, E. K., Capin, J. J., Buchanan, T. S., & Snyder-Mackler, L. (2021). Quadriceps Strength Symmetry Does Not Modify Gait Mechanics after ACL Reconstruction, Rehabilitation, and Return-to-Sport Training. *The American journal of sports medicine*, 49(2), 417-425. <https://doi.org/10.1177/0363546520980079>
- Behm, D. G., Blazevich, A. J., Kay, A. D., & McHugh, M. (2016). *Acute effects of muscle stretching on physical performance, range of motion, and injury incidence in healthy active individuals: a systematic review*. *Applied Physiology, Nutrition, and Metabolism*, 41(1), 1– 11. doi: 10.1139/apnm-2015-0235
- Bertelsen, M. L., Hulme, A., Petersen, J., Brund, R. K., Sørensen, H., Finch, C. F., ... Nielsen, R. O. (2017). *A framework for the etiology of running-related injuries*. *Scandinavian Journal of Medicine & Science in Sports*, 27(11), 1170–1180. doi: 10.1111/sms.12883
- Brewer, C. (2017). *Athletic Movement Skills*.
- Cavanaugh, J. T., & Powers, M. (2017). *ACL Rehabilitation Progression: Where Are We Now?* *Current Reviews in Musculoskeletal Medicine*, 10(3), 1 8. doi: 10.1007/s12178-017-9426-3
- Davies, L., Cook, J., Leal, J., Areia, C. M., Shirkey, B., Jackson, W., Campbell, H., Fletcher, H., Carr, A., Barker, K., Lamb, S. E., Monk, P., O'Leary, S., Haddad, F., Wilson, C., Price, A., & Beard, D. (2020). Comparison of the clinical and cost effectiveness of two management strategies (rehabilitation versus surgical reconstruction) for non-acute anterior cruciate ligament (ACL) injury: Study protocol for the ACL SNNAP randomised controlled trial. *Trials*, 21(1), 405. <https://doi.org/10.1186/s13063-020-04298-y>
- Davies, G., Riemann, B. L., & Manske, R. (2015). *Current concepts of plyometric exercise*. *International Journal of Sports Physical Therapy*, 10(6), 760 786.
- Diehl, J. J., Best, T. M., & Kaeding, C. C. (2006). *Classification and Return-to-Play Considerations for Stress Fractures*. *Clinics in Sports Medicine*, 25(1), 17 28. doi: 10.1016/j.csm.2005.08.012
- Eren, I., Canbulat, N., Atalar, A. C., Eren, S. M., Uçak, A., Çerezci, Ö., & Demirhan, M. (2020). A Clinical Comparison of Home-Based and Hospital-Based Exercise Programs Following Arthroscopic Capsulolabral Repair for Anterior Shoulder Instability. *Journal of Sport Rehabilitation*, 29(6), 777-782.
- Hansen-Honeycutt, J., Chapman, E. B., Nasypany, A., Baker, R. T., & May, J. (2016). *A clinical guide to the assessment and treatment of breathing pattern disorders in the physically active: part 2, a case series*. *International Journal of Sports Physical Therapy*, 11(6), 971 979.
- Helly, K. L., Bain, K. A., Hoch, M. C., Heebner, N. R., Gribble, P. A., Terada, M., & Kosik, K. B. (2021). The Effect of Attending Physical Rehabilitation After the First Acute Lateral Ankle Sprain on Static Postural Control in Patients With Chronic Ankle Instability. *Journal of Sport Rehabilitation*, 30(7), 1000–1007. <https://doi.org/10.1123/jsr.2020-0346>
- Herring, A., & Davis, D. L. (2021). Mimickers of Hill-Sachs Lesions. *Canadian Association of Radiologists Journal*, 72(2), 258-270. <https://doi.org/10.1177/0846537119895751>



- Hooren, B. V., & Peake, J. M. (2018). *Do We Need a Cool-Down After Exercise? A Narrative Review of the Psychophysiological Effects and the Effects on Performance, Injuries and the Long-Term Adaptive Response*. *Sports Medicine (Auckland, N.Z.)*, 48(7), 1 21. doi: 10.1007/s40279-018-0916-2
- Kakavas, G., Malliaropoulos, N., Bikos, G., Pruna, R., Valle, X., Tsaklis, P., & Maffulli, N. (2021). Periodization in Anterior Cruciate Ligament Rehabilitation: A Novel Framework. *Medical Principles and Practice: International Journal of the Kuwait University, Health Science Centre*, 30(2), 101-108. <https://doi.org/10.1159/000511228>
- Kenyon, L. K., & Blackinton, M. T. (2011). *Applying Motor-Control Theory to Physical Therapy Practice: A Case Report*. *Physiotherapy Canada*, 63(3), 345–354. doi: 10.3138/ptc.2010-06
- Lindsay, D. M., Horton, J. F., & Vandervoort, A. A. (2000). *A Review of Injury Characteristics, Aging Factors and Prevention Programmes for the Older Golfer*. *Sports Medicine*, 30(2), 89–103. doi: 10.2165/00007256-200030020-00003
- McCrary, J. M., Ackermann, B. J., & Halaki, M. (2015). *A systematic review of the effects of upper body warm-up on performance and injury*. *British Journal of Sports Medicine*, 49(14), 935. doi: 10.1136/bjsports-2014-094228
- Medeiros, D. M., & Martini, T. F. (2018). *Chronic effect of different types of stretching on ankle dorsiflexion range of motion: Systematic review and meta-analysis*. *The Foot*, 34, 1 32. doi: 10.1016/j.foot.2017.09.006
- Mendiguchia, J., Martínez-Ruiz, E., Edouard, P., Morin, J.-B., Martínez-Martínez, F., Idoate, F., & Méndez-Villanueva, A. (2017). *A Multifactorial, Criteria-based Progressive Algorithm for Hamstring Injury Treatment*. *Medicine and Science in Sports and Exercise*, 49(7), 1482 1492. doi: 10.1249/mss.0000000000001241
- Muehlbauer, T., Roth, R., Bopp, M., & Granacher, U. (2012). *An Exercise Sequence for Progression in Balance Training*. *Journal of Strength and Conditioning Research*, 26(2), 568–574. doi: 10.1519/jsc.0b013e318225f3c4
- Muratori, L. M., Lamberg, E. M., Quinn, L., & Duff, S. V. (2013). *Applying principles of motor learning and control to upper extremity rehabilitation*. *Journal of Hand Therapy*, 26(2), 94 103. doi: 10.1016/j.jht.2012.12.007
- Opplert, J., & Babault, N. (2017). *Acute Effects of Dynamic Stretching on Muscle Flexibility and Performance: An Analysis of the Current Literature*. *Sports Medicine (Auckland, N.Z.)*, 48(2), 299 325. doi: 10.1007/s40279-017-0797-9
- Page, P. (2012). *Current concepts in muscle stretching for exercise and rehabilitation*. *International Journal of Sports Physical Therapy*, 7(1), 109 119.
- Pak, T., & Kim, A. M. (2021). Anterior Glenohumeral Joint Dislocation. *StatPearls*. <https://search.ebscohost.com/login.aspx?direct=true&db=mdc&AN=32491785&lang=es&site=ehost-live>
- Plachel, F., Korn, G., Ortmaier, R., Hoffelner, T., Resch, H., & Moroder, P. (2019). Repair failure increases the risk of developing secondary glenohumeral osteoarthritis: A long-term follow-up after open repair of large subscapularis tendon tears. *Orthopaedics & traumatology, surgery & research : OTSR*, 105(8), 1529- 1533. <https://doi.org/10.1016/j.otsr.2019.09.021>



- Prodromos, C. C., Han, Y., Rogowski, J., Joyce, B., & Shi, K. (2007). *A Meta-analysis of the Incidence of Anterior Cruciate Ligament Tears as a Function of Gender, Sport, and a Knee Injury–Reduction Regimen*. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*, 23(12), 1320–1325.e6. doi: 10.1016/j.arthro.2007.07.003
- Tesch, P. A., Fernandez-Gonzalo, R., & Lundberg, T. R. (2017). *Clinical Applications of Iso-Inertial, Eccentric-Overload (YoYo™) Resistance Exercise*. *Frontiers in Physiology*, 8, 188–196. doi: 10.3389/fphys.2017.00241
- Thein, J. M., & Brody, L. T. (1998). *Aquatic-Based Rehabilitation and Training for the Elite Athlete*. *Journal of Orthopaedic & Sports Physical Therapy*, 27(1), 32–41. doi: 10.2519/jospt.1998.27.1.32
- Vogler, J. H., Csiernik, A. J., Yorgey, M. K., Harrison, J. J., & Games, K. E. (2017). *Clinician-Friendly Physical Performance Tests for the Hip, Ankle, and Foot*. *Journal of Athletic Training*, 52(9), 861–862. doi: 10.4085/1062-6050-52.7.07
- Wiewelhoeve, T., Döweling, A., Schneider, C., Hottenrott, L., Meyer, T., Kellmann, M., ... Ferrauti, A. (2019). *A Meta-Analysis of the Effects of Foam Rolling on Performance and Recovery*. *Frontiers in Physiology*, 10, 376. doi: 10.3389/fphys.2019.00376
- Wigernæs, I., Høstmark, A. T., Kierulf, P., & Strømme, S. B. (2000). *Active recovery reduces the decrease in circulating white blood cells after exercise*. *International Journal of Sports Medicine*, 21(8), 608–612.
- Zhao, M., Zhou, Y., Chang, J., Hu, J., Liu, H., Wang, S., Si, D., Yuan, Y., & Li, H. (2020). *The accuracy of MRI in the diagnosis of anterior cruciate ligament injury*. *Annals of Translational Medicine*, 8(24). <https://doi.org/10.21037/atm-20-7391>