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| **Minor Award Name** | Sports Anatomy and Physiology |
| **Minor Award Code** | 5N4648 |
| **Level** | 5 |

**Suggested resources to support delivery:**

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| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| Levels of Organisation | Presentation | Online presentation covering the difference between cells, tissues, organs and organ systems. | Author: Poppy JacobsPrezi | <https://prezi.com/sqibptycu0yv/what-is-the-difference-between-cells-tissues-organs-and-or/> |
| Histology | Document | The 4 basic tissue types in the human body. | Author: Sheri Amsel | <http://www.exploringnature.org/graphics/teaching_aids/Tissue_identification.pdf> |
| Musculoskeletal System | Article | Types of synovial joints. | Human Anatomy | <http://www.mananatomy.com/basic-anatomy/synovial-joints> |
| Posture and Sports Performance | Article | Comprehensive and practical article identifying the most common postural defects and the importance of posture in sports performance. | Author: Dr. Monika Schloder, Coaching Best Professional Training | <http://coachingbest.com/the-importance-of-posture-in-sports-performance/> |
| Postural Defects | Journal Article | This research piece titled ‘The influence of sport on the development of postural disorders in athletes.’ is useful for tutor reference in relation to postural defects and sport.  | Authors: Dejan Stošić, Saša Milenković, Dobrica Živković - Faculty of Sports and Physical Education, University of Niš, Serbia | <http://facta.junis.ni.ac.rs/pe/pe201104/pe201104-03.pdf> |
| Muscle Contraction | Video | Practical animation showing muscle contraction and the sliding filament theory. | Wellcome Trust | <http://bigpictureeducation.com/animation-sliding-filament-theory> |
| Muscle Contraction; Sport Specific | Video | A practical look at muscle contraction and its relationship to strength; exemplified using weightlifting and gymnastics. Covers concentric, isometric and eccentric contractions.  | Associate Professor John Cronin, Auckland University of TechnologySports IncTV New Zealand Ltd. | <http://sciencelearn.org.nz/Contexts/Sporting-Edge/Sci-Media/Video/Types-of-strength> |
| Anatomical Terms of Movement | Article | This article explains the main actions of muscles using descriptions and pictures. | Author: Oliver Jones | <http://teachmeanatomy.info/the-basics/anatomical-terminology/terms-of-movement/> |
| Role of Blood in Sports Performance | Journal Article | Useful journal article for tutor reference titled ‘Red blood cells in sports: effects of exercise and training on oxygen supply by red blood cells.’ | Author: Heimo MairbäurPublisher: Frontiers Media SA | <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3824146/> |
| Exercise and the Cardiovascular System | Article | The short and long term effects of exercise on the cardiovascular system. | Professional Fitness Institute | <http://fitness-health-wellness.com/short-long-term-effects-exercise-cardiovascular-sys/> |
| Exercise and the Cardiovascular System | Document | Useful text for tutor reference; cardiovascular responses to exercise. | Authors: Sharon A. Plowman and Denise L. Smith. | <http://downloads.lww.com/wolterskluwer_vitalstream_com/sample-content/9780781792073_Plowman/samples/Chapter_13_Cardiovascular_Responses.pdf> |
| Exercise PhysiologyMuscle Metabolism  | Article | Muscle contraction occurs via metabolism of ATP derived primarily from the simple sugar glucose. | Boundless | <https://www.boundless.com/physiology/textbooks/boundless-anatomy-and-physiology-textbook/muscle-tissue-9/muscle-metabolism-98/muscle-metabolism-547-9135/> |
| Exercise PhysiologyMuscle Metabolism | Article | Energy for Exercise. Easy to understand practical explanation of adenosine triphosphate (ATP) and the three biochemical systems involved in muscle contraction. | Science Learning HubThe University of Waikato | <http://sciencelearn.org.nz/Contexts/Sporting-Edge/Looking-closer/Energy-for-exercise> |
| Exercise Physiology | Article | Lactic acid in exercise aerobic respiration. | Author: Laura NiedziochaLivestrong.com | <http://www.livestrong.com/article/415574-lactic-acid-in-exercise-aerobic-respiration/> |
| Exercise Physiology | Article | Lactic acid, useful article for tutor reference. | BrianMac Sports Coach | <http://www.brianmac.co.uk/lactic.htm> |
| Exercise Physiology | Article | Energy Systems; aerobic and anaerobic pathways explained.  | TeachPE.Com | <http://www.teachpe.com/physiology/energy_systems.php> |
| Exercise Physiology | Article | Acclimatisation to altitude; covers cardiovascular and respiratory system responses.  | Sporting Excellence Ltd. | <http://www.sport-fitness-advisor.com/acclimatization-to-altitude.html> |
| HomeostasisPhysiology | Document | Homeostasis, a detailed explanation of the process.  | IHW, Biology Mad | <http://biologymad.com/resources/A2%20Homeostasis.pdf> |
| Exercise Physiology | Article | How Does Adrenaline Affect an Athlete's Performance? | Author: Mike CottrillLivestrong.com | <http://www.livestrong.com/article/446347-how-does-adrenaline-affect-an-athletes-performance/> |
| Functional Anatomy for Sport and Exercise | ebook | Useful as a quick reference guide for tutors. Covers anatomical position and terminology, muscle classification and contraction, skeletal muscle structure and function and the functional anatomy of the musculoskeletal system relevant to sport and exercise.  | Author: Claire E. MilnerPublisher: Routledge | <http://basijcssc.ir/sites/default/files/Functional%20Anatomy%20for%20Sport%20and%20Exercise-%20Quick%20Reference.pdf> |
| Sport and Exercise Anatomy and Physiology | Website | Very useful website; divided into well written, easy to read articles covering all of the body systems and physiology of skeletal muscle contraction, force, velocity and power, muscle roles and contraction types, muscle spindles and the stretch reflex, pulmonary ventilation and gas exchange, peripheral gas exchange, physiological responses and adaptations, vascular and respiratory responses to exercise, system adaptations to exercise, ATP-PC system, the aerobic system and the anaerobic glycolytic system. | PT Direct | <http://www.ptdirect.com/training-design/anatomy-and-physiology> |
| Anatomy and Physiology | Online Activity | Online 2D/3D interactive anatomy explorer. | Innerbody.comHowToMedia, Inc. | <http://www.innerbody.com/> |
| Anatomy and Physiology | Online Quiz | A range of online quizzes covering body systems, useful for revision.  | Free Anatomy Quiz | <http://www.free-anatomy-quiz.com/> |
| Anatomy and Physiology | Online Quizzes & Flashcard Activities | Over 250 online practice tests which cover all major anatomy and physiology topics. Useful revision tool. Option to create a profile with detailed scoring results to identify strengths and weaknesses.  | Varsity Tutors | <http://www.varsitytutors.com/human_anatomy_and_physiology-practice-tests> |
| Anatomy and Physiology | Online Interactive Activities | Useful interactive activities for students to reinforce learning of human anatomy.  | John Wiley & Sons, Inc.  | <http://www.wiley.com/college/apcentral/anatomydrill/> |
| Anatomy and Physiology | Online Interactive Activities | Approximately 100 online activities/animated objects to support the teaching and learning of human anatomy. | Wisc-Online by Fox Valley Technical College | <https://www.wisc-online.com/learn/natural-science/life-science> |
| Musculoskeletal System | Video | This video explores how the musculoskeletal system performs during different sports.  | Discovery Education | [http://www.discoveryeducation.com//what-we-offer/curricular-resources/science-supplemental/index.cfm#](http://www.discoveryeducation.com//what-we-offer/curricular-resources/science-supplemental/index.cfm) |
| Musculoskeletal Anatomy | Online Interactive Atlas | More than 80 anatomical images of the upper and lower extremities. | Carol Teitz, MD and Dan Graney, PhDUniversity of Washington  | <http://depts.washington.edu/msatlas/index.html> |
| Human Anatomy | App | Well-illustrated anatomical content that includes over 4,000 3D models, supplemented by animations. Available for iPad, iPhone, Android, PC, and Mac, and Windows Touch devices, and as institutional licenses. | Argosy Publishing, Inc. | <http://www.visiblebody.com/products/> |
| Human Anatomy | App | Well-illustrated anatomical content; includes 1000s of medical animations in ‘Pocket Body', 'Pocket Brain', and 'Pocket Heart' applications for iOS devices (iPad and iPhone). | eMedia Interactive Ltd. | <http://www.pocketanatomy.com/> |
| Anatomy and Physiology | Website | Comprehensive range of learning exercises and videos to improve understanding of human anatomy and physiology. | McGraw-Hill Higher Education | <http://highered.mheducation.com/sites/0072495855/sitemap.html> |
| Anatomy and Physiology | YouTube Channel | Range of educational surface anatomy videos in 3D, involves muscle and joint movements and emphasises living anatomy.(3D glasses support viewing) | Royal College of Surgeons in Ireland | <https://www.youtube.com/playlist?list=PL6DbJmB3fDQrPhy8aGR6MKRMP-kwwh4Z2> |
| Anatomy and Physiology Sport and Exercise Science, An Introduction | Book | This book is useful for more advanced tutor reference, it is divided into three sections. Only Section 1, Anatomy and Physiology is relevant to this programme, however, the book has relevance across other Sport and Recreation programme modules. Broken down into six chapters; Sport and exercise in the Life Sciences, Human A&P, Human Physiological Systems, Skeletal Muscle Physiology and Metabolism, Energy Balance and Body Composition and Lifestyle Factors affecting Health.  | Routledge, Taylor and Francis Group | <http://cw.routledge.com/textbooks/9780340815694/order.htm> |
| Anatomy and Physiology | Online MCQs | Section 1, Anatomy and Physiology; MCQs for Chapter 2, Human A&P, Chapter 3, Human Physiological Systems and Chapter 4, Skeletal Muscle Physiology and Metabolism. Advanced revision questions. | Routledge, Taylor and Francis Group | <http://cw.routledge.com/textbooks/9780340815694/mcq1.htm> |
| Anatomy and Physiology | Website | Comprehensive resources which simplify and support learning of anatomy theory. Great selection of video lessons, revision activities and quizzes covering the following topics; circulatory system, respiratory system, haematology, digestive system, nervous system, muscular system, skeletal system, endocrine system and integumentary system.  | Khan Academy | <https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology> |
| Anatomy and Physiology | Book | Anatomy and Human Movement Pocketbook; easy to use quick reference text covering theory of human anatomy and physiology.  | Author: Nigel Palastanga, Roger Soames and Dot Palastanga | <https://www.elsevier.com/books/anatomy-and-human-movement-pocketbook/palastanga/978-0-443-06912-3> |
| Great Ways to Learn Anatomy and Physiology  | Book | Very useful tutor or learner reference text covering all the major anatomy and physiology topics, together with useful techniques for learning. \*Particularly beneficial for learners who find the topic difficult to absorb.  | Author: Charmaine McKissockPalgrave Study Skills | <http://www.palgrave.com/page/detail/great-ways-to-learn-anatomy-and-physiology-charmaine-mckissock/?sf1=barcode&st1=9780230209916> |
| Anatomy and PhysiologyBTEC Level 3 National Sport Book 1 | Book | This book is learner friendly, well-illustrated, engaging and easy to read. It covers all of the anatomy and physiology theory on the programme. Only the first section of this book is relevant to this programme, however, the book has relevance across other Sport and Recreation programme modules.  | Authors: Mark Adams, Ray Barker, Adam Gledhill, Chris Lydon, Chris Mulligan, Pam Phillippo and Louise Sutton | <http://www.pearsonschoolsandfecolleges.co.uk/FEAndVocational/SportsStudies/BTEC/Level3BTECNationalSport/ISBN/StudentResources/BTECNationalSportBook1PerformanceandExcellence3e.aspx> |
| An Introductory Guide to Anatomy & Physiology | Book \*E-Learning available with purchase. | This book is written to introduce learners to anatomy and physiology. The text is support by illustrations throughout. Useful reference for all human anatomy systems.  | Author: Louise Tucker | <http://www.emspublishing.co.uk/books/an-introductory-guide-to-anatomy-and-physiology> |
| Human Anatomy | Book | The Anatomy Student's Self-Test Visual Dictionary: An All-In-One Anatomy Reference and Study Aid | Author: Ken Ashwell | <http://barronseduc.com/0764147242.html> |
| Physiology of Sport and Exercise | Book | Physiology of Sport and Exercise 6th Edition, advanced text suitable for tutor reference.  | Authors: Larry Kenney, Jack Wilmore and David Costill | <http://www.humankinetics.com/products/all-products/physiology-of-sport-and-exercise-with-web-study-guide-6th-edition> |

 **Useful Organisations:**

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| **Name** | **Contact Information** |
| National Council for Curriculum and Assessment (NCCA) | [www.ncca.ie](http://www.ncca.ie)  |
| Quality and Qualifications Ireland (QQI) | <http://www.qqi.ie/>  |
| Further Education Support Service (FESS) | [www.fess.ie](http://www.fess.ie)  |
| American College of Sports Medicine | <http://www.acsm.org/> |
| Human Kinetics | <http://www.humankinetics.com/europe> |
| Sports Science | <http://www.sportsci.org/> |
| Top End Sports | <http://www.topendsports.com/> |

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| **MOOCs (Massive Online Open Courses)** |
| Free access to online coursesSearch regularly for new courses and new start dates | <https://www.mooc-list.com/> |
| Free Online Diploma Anatomy and Physiology | <https://alison.com/courses/Diploma-in-Human-Anatomy-and-Physiology> |