unit04

BTEC Level 3 Nationals in Sports Coaching and Development (2019 Specification)

60 Guided Learning Hours  
33 Lessons

this resource covers:

Unit 4: Nutrition for Physical Performance

Links to other units:

**Unit B:** Health, Wellbeing and Sport

**Unit D1:** Applied Coaching Skills

**Unit E:** Research Project in Sport

**Unit 9:** Fitness Training

Nutrition for Tennis Performance

Nutrition is a key consideration for tennis players due to the long professional competition season (January – November),   
the nature of tournaments (matches played every day or every other day) and of the matches themselves. Matches are   
made up of repetitive bursts of activity (the average point lasts 10 seconds) and last 90 minutes on average; the Australian Open Men’s final in 2022 lasted 5 hours and 53 minutes though. The diet of professional players is crucial to ensure they   
have the energy to perform and recover appropriately; they are expected to consume between 3500 and 5000 calories a day. On the day of a match, players are likely to follow an eating plan based on the below:

| **When** | **What** | **Quantity** |
| --- | --- | --- |
| **Before (3-4 hours prior)** | Carbs + protein + fats | Meal |
| **Before (15-60 minutes)** | Carbs | Snack |
| **During (every hour)** | Carbs | 30-60 grams |
| **After (<30 minutes)** | Carbs + protein | Snack |
| **After (<2 hours)** | Carbs + protein + fats | Meal |

Protecting the integrity of tennis is an ongoing priority of the governing bodies of tennis to ensure that tennis is and remains a clean sport. The Tennis Anti-Doping programme is managed and enforced by the International Tennis Federation on behalf of the men’s and women’s tours and the Grand Slams. There are high profile cases of players being banned for doping using a variety of prohibited substances.

| **Lesson** | **Topic** | **Activities** | **Resources** |
| --- | --- | --- | --- |
| **Learning Aim A:** Examine concepts of nutrition, hydration, diet and digestion | | | |
| 1 | **A1 Nutrition**   * **Structures,  function and sources of micronutrients  and fibre** * **Macronutrients** | In this unit, learners will look at the concepts of nutrition and digestion, exploring the physiology of the digestive system and how food is broken down and subsequently utilised by the body. They will then be introduced to the components of a balanced diet and common terms linked to nutritional requirements. Learners will also explore energy intake and expenditure and how this can be measured in different ways for individual sports performers. They will also consider the availability, costs and accuracy of these measures and how relevant they are to the participant. Learners will look at hydration and diet for different sporting activities and investigate the sporting demands of performers and how nutritional requirements will vary for each individual. The inclusion of sports drinks, gels and traditional methods of hydration will be considered, alongside the activity levels and fitness levels of the individual and the legislation relating to doping for increased performance. Finally, learners will be able to apply their knowledge and understanding by producing a realistic diet and hydration plan.  Introduce learners to the concept of nutrients and how macro and micronutrients make up a balanced diet. Lead a class discussion about the importance of diet for tennis performance; learners can discuss their prior knowledge  of nutrition and identify what makes a balanced diet for a tennis player.  Ask learners to work in pairs and to use textbooks to  identify the structure and function of carbohydrates.  They should describe the differences between: sugars  and starches / simple and complex carbohydrates, monosaccharides, disaccharides and polysaccharides  and identify sources of each.  Ask learners to produce a leaflet or presentation about carbohydrates which could be developed further in future lessons by including information about fats, proteins and micronutrients. Learners should include diagrams of sugar molecules to help explain the difference between simple and complex carbohydrates.  Learners should explain the role of carbohydrate in the  diet, its structure and function, and also include information about how much carbohydrate is needed for a balanced diet and why and when a tennis player might need to increase this amount.  Lead a Q+A session to identify learners’ knowledge and any gaps in their understanding of carbohydrates. | * Slides 1,2,3 * Internet access  and computers * Textbooks including: * Bean A, The Complete Guide  to Sports Nutrition (Complete Guides):  8th edition Bloomsbury Sport, 2017 ISBN 978-1472924209 * Bean A – Sports Supplements (A&C Black, 2007) ISBN 9780713682595 * Brown J and  Rea S, BTEC National for Sport and Exercise sciences  (Third Edition), Hodder Education  010 ISBN 9781444111989 |
| 2 | **A1 Nutrition**   * **Structures, function and sources of micronutrients  and fibre** * **Macronutrients** | Lead a class discussion about the structures, function and sources of the macronutrient – protein. Ask learners for examples of sources of protein and the role of protein in  the diet. Learners need to understand how proteins are made up of amino acids, some of which are essential and some non-essential.  Working in their pairs from the previous lesson ask learners to carry out internet research and use textbooks to find information about proteins. This information should be added to their presentation or leaflet.  Learners should include diagrams of amino acids to help explain the difference between essential and non-essential. Learners should explain the role of protein in the diet, its structure and function, and also include information about how much protein is needed for a balanced diet and why and when a tennis player might need to increase this amount. | * Slide 4 * Internet access  and computers * Textbooks |
| 3 | **A1 Nutrition**   * **Structures, function and sources of micronutrients  and fibre** * **Macronutrients** | Lead a class discussion about the structures, function and sources of the macronutrient – fats. Ask learners for examples of sources of fats and the role of fat in the diet. Include in the discussion key features of triglycerides & fatty acids, examining saturated and unsaturated fats.  Learners add to their leaflet the role of fats in the diet, its structure and function, and also include information about how much fat is needed for a balanced diet and why and when a tennis player might need to decrease this amount.  Learners should include diagrams of fatty acids to help explain the difference between saturated, unsaturated (monounsaturated, polyunsaturated), hydrogenated fats, trans fats and fatty acids (omega 3 and omega 6).  Ask each pair to share their presentation or leaflet with the class and share the information they have collected about macronutrients. | * Slide 5 * Internet access  and computers * Textbooks |
| 4 | **A1 Nutrition**   * **Micronutrients** | Lead a Q+A session with learners about the role of vitamins and minerals including the different types, their functions and food sources.  Working individually, ask learners to carry out research in textbooks or online to identify the different sources of vitamins and minerals. Learners should consider the role, function and food source of the following:   * Vitamins: A, C, D, E, K and the B vitamins (thiamine, riboflavin, niacin, pantothenic acid, biotin, vitamin B-6, vitamin B-12 and folate) * Minerals: calcium, potassium, sodium, phosphorus, magnesium, chloride, and sulphur   Learners use this information to produce a report on the role and function of vitamins and minerals in a balanced diet. They could further develop their report by analysing the use of vitamin and mineral supplements.  Lead a class discussion about the role of a balanced diet for a tennis player and the possible impact of an unbalanced diet on their performance.  Ask learners to collect and bring into class clean and dry food wrappers. It would be useful for learners to choose food wrappers from a range of different products, including: cereal, bread, pasta, chocolate bars, biscuits, crisps, fruit snack bars, protein shakes, nuts, ready meals. Distribute the food wrappers and ask learners to work in pairs to analyse the wrappers. Learners should examine the wrappers and examine the nutrition information. They should make a note of the macro and micronutrients identified on the wrappers and any other nutritional information. Learners can then analyse the nutritional benefit of the different foods. For example, how much energy (calories) does 100g of each food contain, how much carbohydrate does it contain and is the carbohydrate sugar?  Lead a class discussion to enable the learners to share their information gained from the food wrapper analysis and to present any conclusions. | * Slide 6 * Textbooks * Internet access, computers * A variety of clean and dry food wrappers |
| 5 | **A1 Nutrition**   * **Fibre** | Introduce learners to the role of fibre in the diet.  Learners need to be aware of the two types of fibre and  their food sources.  You could arrange for a guest speaker to talk to the class about a balanced diet and macro and micro nutrients. The guest speaker could be a dietician or nutritionist. The guest speaker should explain the role of nutrients in the diet, linked to tennis (sports) performance. They should give examples of food sources, identifying the micro and macro nutrient content and why some food types are preferable to others. Learners should be encouraged to make notes during the talk and ask questions about the need for a balanced diet and possible impacts of an unbalanced diet on the body and tennis (sports) performance. | * Slide 7 * Guest speaker |
| 6 | **A1 Nutrition**   * **Nutritional requirements** | Deliver a lesson on essential and non-essential nutritional requirements. Learners need to understand that the body cannot make all of the nutrients it needs, or as much of some nutrients as the body needs. Learners need to know the six basic essential nutrients (protein, minerals, fat, vitamins, carbohydrates, and water) and those that the body needs to obtain from food sources i.e. amino acids - leucine, valine, arginine, vitamins - A, B6, D, C, B12 and minerals - iron, potassium, calcium, sodium, chloride.  Ask learners to carry out research in textbooks individually to add to the information delivered, identifying food sources of the essential and non-essential nutrients, and making brief notes about their function.  Lead a Q+A session about the role of essential and  non-essential nutrients, allowing learners to share their research information. | * Slides 8 * Textbooks |
| 7 | **A1 Nutrition**   * **Common terminology and standard abbreviations** | Lead a class discussion about common terminology  and standard abbreviations used in nutrition to find out  what learners already know and understand about the following terms:   * Recommended Daily Allowance (RDA) * Reference Daily Intake (RDI) * Optimum Daily Intake (ODI) * Safe Intake (SI) * Estimated Average Requirements (EAR)   It would be useful to introduce learners briefly to energy measurement, calories, joules, kilocalories and Kilojoules – this is covered in more depth in lesson 17.  Learners should make notes about the different terms and give a definition for each.  Lead a discussion about the amounts of nutrients for each term’s requirements for adults and children and how this might differ for sports performers / adults and children who have an increased activity level.  Recap lesson 4’s activity with food wrappers. Ask learners to discuss the information on food wrappers, do they use the same terms and abbreviations? Does this vary depending on the food type or food brand? Why is it important to know, for example the RDA and RDI? Why is it important that these terms use the same measures, Kcal, calories, KJ, J, %? | * Slide 9 |
| 8 | **A2 Hydration**   * **Signs and symptoms** | Introduce learners to hydration, ensuring they know the following terms:   * dehydration * hyperhydration * hypohydration * superhydration   Lead a class discussion about the common signs  and symptoms of dehydration, hyperhydration, hypohydration and superhydration.  Learners should make notes about hydration and the signs and symptoms of dehydration, hyperhydration, hypohydration and superhydration. Working in pairs they could use this information to produce a presentation about the role of hydration for a tennis player, including the signs and symptoms to look out for and the impact of dehydration, hyperhydration, hypohydration and superhydration on tennis performance and the tennis player.  Learners could present to their class and answer any questions from the tutor and their peers about hydration. | * Slide 10 * Internet access, computers |
| 9 | **A2 Hydration**   * **Fluid intake** * **Sources** | Lead a class discussion about fluid intake. How does this change pre, during and post a tennis match? What are the possible impacts if fluid intake does not change pre, during and post-match? Ask learners to share their experiences of fluid intake, what do they drink and when? What impacts on their body and on their performance have they experienced e.g., dehydration, dizziness, nausea/vomiting?  Learners work in small groups and further discuss what is meant by pre, during and post event for a tennis player.  They should identify different drinks and sources of fluid intake that a tennis player could use. When is each type appropriate? When might it be better to have a sports drink, sports gel, water?  Lead a class discussion allowing learners to share the information collected during the groupwork. Ask learners to identify the importance of maintaining correct hydration during the three different stages for a tennis player? And why does the need for fluid change pre, during and post event? | * Slide 11 |
| 10 | **A2 Hydration**   * **Fluid intake** * **Sources** | Recap the previous lesson and the need for fluid intake pre, during and post event. Ask learners about the different sources of fluid they identified in lesson 9. Explain the difference between and what is meant by: water, hypertonic, hypotonic and isotonic sports drinks.  In pairs, ask learners to create their own sports drink. Learners should identify whether they are making a hypertonic, hypotonic or isotonic sports drink.  Recipes can be found online:  <http://news.bbc.co.uk/sport1/hi/health_and_fitness/4289704.stm>  <https://www.runnersworld.com/uk/nutrition/recipes/a774179/diy-sports-drink/>  <https://www.thelionhealth.com/homemade-sports-drink-recipes/>  Lead class discussion about the ingredients learners used to make their sports drink, how it tasted and its possible impact on hydration and tennis performance.  You could allow learners to participate in a tennis match and use their different drinks as sources of hydration – this would allow them to identify which type of homemade sports drinks helped their performance. | * Slide 12 * Sports drink recipes and ingredients |
| 11 | **A3 Diet**   * **Balanced diet** | Recap lesson 5 and the information shared by the guest speaker on a balanced diet. Lead a class discussion about a balanced diet and its components. Ask learners to share their interpretation of a balanced diet and give examples of the foods they eat to ensure they have a balanced diet. Learners need to understand how nutrition affects healthy body function and how this is relevant to a tennis player and their ability to perform well.  Ask learners to work individually and to carry out  internet research about a balanced diet. They should identify  the % amounts of the different nutrients which make up a balanced diet:   * Carbohydrates, fats, proteins, water, fibre, and how much of each key vitamins and minerals are required.   Learners should consider how these % change depending on the person, activity type and level of performance.  Ask leaners to write a food diary for a day or retrospectively for the day before. Making a record of each meal and drink with information about the amount of calories and % of  each nutrient.  Ask learners to share their researched information and how they used this to help them write a food diary. Learners could discuss the importance of a balanced diet for a tennis player and when the % of nutrients can change – depending on the activities they are taking part in e.g. pre-training, competition. | * Slide 13 * Internet access and computers |
| 12 | **A3 Diet**   * **Influence of nutrition on health** | Lead a class discussion about the influence of nutrition on health, such as:   * obesity * cholesterol * cancer risk * heart disease   Ask learners to work in pairs and to carry out internet research about the above. Learners could use this information to produce a poster about the influence of nutrition on health. They should include, where possible, examples of how nutrition can have a positive on health.  For example, the possible positive effects of a low-fat diet or eating less processed food. Learners should also identify any relevant statistics related to health and nutrition.  Learners could display their posters on the classroom  walls and spend time looking at each other’s work and the examples presented in the posters. | * Slide 14 * Internet access, computers |
| 13 | **A3 Diet**   * **Guides for sources of nutrition and balanced diets** | Introduce learners to the different guides available for  sources of nutrition and balanced diets and their purpose.  Ask learners to work in pairs and to carry out internet research about the following:   * government guidelines * evidence-based recommendations * credible sources * food pyramid * eatwell plate * food labelling   Learners should identify what the guideline is, an example  of it and how it aims to achieve a balanced diet. This information should be used to produce a leaflet titled  ‘Guides for sources of nutrition and balanced diets.’  Learners should share their leaflets with the class and discuss the role of these guides. Are they useful for the general population? How do they help sports people to maintain a balanced diet? What is aim of the information provided by government and other organisations? | * Slide 15 * Internet access, computers |
| 14 | **A4 Digestion**   * **Structure of the digestive system** | Introduce learners to the structures that make up the digestive system. There are a number of online resources that give information about the different digestive structures:  <https://www.bbc.co.uk/bitesize/guides/z9pv34j/revision/1>  <https://www.bbc.co.uk/bitesize/guides/zwqycdm/revision/1>  <https://revisionscience.com/gcse-revision/biology/human-body/food-nutrition-digestion/digestive-system>  Learners should draw and label a diagram of the digestive system or find a diagram online which they can add to  their notes.  Learners need to make sure they annotate their diagram  with the functions of each structure. Leaners should include the following structures of the digestive system:   * gastrointestinal tract * buccal cavity * oesophagus * stomach * small intestine * large intestine * anus * digestive juices and enzymes * tongue * salivary glands * liver * pancreas * gallbladder   Using their notes, ask learners to write a short report  about food’s journey through the digestive system.  Learners could develop their report by including diagrams  of the different structures. | * Slide 16 * Internet access, computers |
| 15 | **A4 Digestion**   * **Functions of digestive system** | Recap lesson 14 and lead a Q+A session about the  function of the digestive system, the structures and how each structure helps enable the function.  Ask learners to work in pairs to produce an annotated poster of the functions of the digestive system. Learners should use their notes from lesson 14, where appropriate. Leaners must include the following functions of the digestive system:   * digestion * absorption * excretion   Ask learners to display their posters around the classroom and allow them time to review each other’s posters. | * Slide 17 |
| 16 | **All of Learning  Aim A** | Assessment Learning Aim A, B and C: revision time allocated for learners to write notes and prepare for Assignment 1. (Assignment 1 covers Learning Aims A,  B and C.)  A detailed case study examining the energy, nutrition, hydration, diet, digestion and anti-doping for athletes and their importance in relation to sports performance. | * Internet access, computers, textbooks  and journals |
| **Learning Aim B:** Explore energy intake and expenditure for sports and physical activity | | | |
| 17 | **B1 Energy**   * **Measures** * **Sources** | Recap lesson 7 and the introduction of how energy is measured. In lesson 7 learners examined food wrappers to identify the amount of different nutrients in foods. Remind learners of the following measures of energy:   * calories * joules * kilocalories * kilojoules   Ask learners to make notes about the different energy measures and why they are used.  Lead a class discussion about the sources of energy.  Where do we get the energy our bodies need to fuel everyday activities and tennis performance?  In pairs, ask learners to carry out internet research to identify the amount of energy in fats, carbohydrates and proteins. Learners should be aware of the amount of energy in 1g of each source. They can then research the recommended allowance of each source and work out which food types they could consume to achieve this. For example, the recommended daily intake of protein is approx. 50g.  A boiled egg contains 6g and a chicken breast has around 54g, so by consuming a boiled egg and a chicken breast a person has consumed their daily intake of protein.  Lead a class discussion to enable learners to share the examples they researched and the information they gained about sources of energy. | * Slide 18 * Internet access, computers and textbooks |
| 18 | **B1 Energy**   * **Measuring requirements** * **Body weight** | Lead a class discussion about body composition,  what it means and the different ways it can be estimated  and measured.  Learners would benefit from the opportunity to practice using different equipment to estimate body composition, including:   * height and weight measure to calculate BMI * skinfold callipers and bioelectrical impedance analysis equipment to estimate body fat   Learners should collect data from the body composition testing they carry out. They should be given time to analyse their data by comparing against normative values  Introduce learners to calorimetry (direct and indirect). Learners need to be aware that calorimetry is the process of measuring the amount of heat released or absorbed during a chemical reaction. In everyday life, calorimetry controls the metabolic rates in people and enables body temperature to be maintained. | * Slide 19 * Equipment to measure body composition:  tape measure, weighing scales, skinfold callipers, BIA equipment (body fat scales). * It would be  useful for  learners to have the opportunity to use or observe the use of hydro-densitometry equipment – this may require a centre visit |
| 19 | **B2 Energy balance**   * **Basal metabolism** * **Age** * **Gender** * **Climate** * **Physical activity** | Recap lesson 17, energy measures and sources. Introduce learners to the concept of energy balance. Lead a class discussion about energy intake, expenditure and performance implications for tennis players.  Learners to work individually and to carry out internet research about energy balance. Learners should provide a definition of basal metabolism and should research the impact of age, gender, climate and physical activity levels  on basal metabolism. Learners should include examples which demonstrate their understanding of how basal metabolism changes due to age, gender etc. For example, learners should research and provide information which enables them to describe the impact on basal metabolism and how it changes - for a 17-year-old female who participates in tennis at club level who lives in Davos, Switzerland (high altitude) compared to a 30-year-old male who plays tennis recreationally and lives in Kuala Lumpur, Malaysia (high humidity).  Learners could present their information to the class as  a PowerPoint presentation or by producing annotated posters. | * Slide 20 * Internet access and computers |
| 20 | **All of Learning  Aim B** | Assessment Learning Aim A, B and C: revision time allocated for learners to write notes and prepare for Assignment 1. (Assignment 1 covers Learning Aims A,  B and C.)  A detailed case study examining the energy, nutrition, hydration, diet, digestion and anti-doping for athletes and their importance in relation to sports performance. | * Internet access, computers, textbooks and journals |
| **Learning Aim C:** Investigate legislation, guidance and procedures associated with anti-doping | | | |
| 21 | **C1 Performance enhancing substances  and drugs**   * **Anti-doping** | Introduce learners to anti-doping and write a class  definition for the term.  Lead a class discussion about prohibited substances and drugs, anti-doping and the role of anti-doping organisations such as the World Anti-Doping Agency (WADA),  UK Anti-Doping (UKAD), and sport federations (e.g. the International Tennis Integrity Agency (ITIA) and the LTA).  The following sites may be useful:   * World Anti-Doping Agency <https://www.wada-ama.org/> * UK Anti-Doping <https://www.ukad.org.uk/> * International Tennis Integrity Agency <https://www.itia.tennis/> * The LTA <https://www.lta.org.uk/clean-tennis/>   You could arrange for a guest speaker to talk to the class about their experiences of drug testing procedures and protocols. It would be beneficial if the guest speaker could discuss the roles and responsibilities of anti-doping organisations and their approach to legislation, monitoring, education, research and development, testing and investigations. Encourage learners to take notes during the talk under the following headings:   * purpose of World Anti-Doping Agency (WADA) & UK  Anti-Doping (UKAD) and other anti-doping organisations * roles and responsibilities of these organisations   Ask learners to carry out internet research to complete  their notes with information about the roles of anti-doping organisations. | * Slide 21 * Guest speaker * Internet access and computers |
| 22 | **C1 Performance enhancing substances  and drugs**   * **World Anti-Doping Agency (WADA)** | Ask the class to navigate the WADA site and identify information about what WADA does:  “The World Anti-Doping Agency's mission is to lead a collaborative worldwide movement for doping-free sport.”  “The World Anti-Doping Agency was founded with the aim of bringing consistency to anti-doping policies and regulations within sport organizations and governments right across the world.”– WADA website  and how it helps to support athletes and provide education about anti-doping, including the following:   * support personnel * coaches * sport science staff * nutritionist * parents   Learners could use this information to make a flyer which explains how WADA support athletes and educate about anti-doping. | * Slide 22 |
| 23 | **C1 Performance enhancing substances  and drugs**   * **Performance enhancing substances** * **Prohibited at  all times** * **Prohibited in competition** * **Substances banned in particular sports** | Recap lesson 21 and discuss performance enhancing substances and drugs. Introduce learners to the WADA Prohibited List – it would be useful to visit their online site (<https://www.wada-ama.org/en/what-we-do/the-prohibited-list>), discuss why substances may be included on the list and show learners examples of what substances are included on the list.  There are 3 key reasons why substances are included in the WADA Prohibited List:   1. Performance enhancing 2. Harmful to health 3. Against the spirit of sport   In pairs, learners carry out research about performance enhancing substances, including:   * prohibited substances * non-approved substances * anabolic agents * peptide hormones, growth factors, related substances, and mimetics * beta-2 agonists * hormone and metabolic modulators * diuretics and masking agents * prohibited methods * manipulation of blood and blood components * chemical and physical manipulation * gene and cell doping * stimulants (non-specified and specified) * narcotics * cannabinoids * glucocorticoids * beta blockers   This is a long list and learners could be allocated several lessons, and homework tasks, to complete their research. Alternatively, learners could be allocated 1 or 2 of the substances and then share their research with the rest of  the class.  Alongside their research about the different banned substances, learners should investigate:   * if and how these can have a performance benefit to the performer, and how these effects might link to the demands of tennis * the risks to health of these substances * substances which are prohibited at all times  (in and out-of-competition), and those which are prohibited in competition * substances only banned in particular sports   Learners should use this research to produce a PowerPoint presentation which can be presented to the class. | * Slide 23 * Internet access and computers |
| 24 | **C2 Anti-doping legislation and guidance**   * **Agencies and policing of  anti-doping** * **World Anti-Doping Agency (WADA)** * **UK Anti-Doping (UKAD)** * **International Tennis Integrity Agency (ITIA)** | Introduce learners to the different anti-doping rules and guidance used in tennis. Learners need to be aware of the agencies and policing of anti-doping.  Split the class into groups and allocate each group an agency: WADA, UKAD or the ITIA and LTA.  Each group will collect information about their agency  and present this to the other group. Within each group learners should work in pairs or individually to research  their agency ensuring that they identify research which covers the following:   * World Anti-Doping Agency (WADA): * roles and responsibilities * WADA Code compliance monitoring * athlete outreach * global anti-doping development (RADO) * education * anti-doping coordination and Anti-Doping  Administration and Management System (ADAMS) * science and medicine * cooperation with law enforcement   UK Anti-Doping (UKAD):   * roles and responsibilities * testing process and doping control * education and prevention * intelligence and investigations * results management * science and medicine   Tennis Organisations - International Tennis Integrity Agency (ITIA) and the LTA:   * roles and responsibilities * testing process and doping control * education and prevention * intelligence and investigations * results management * science and medicine   Learners should be given time in the groups to prepare their research before presenting to the class. Each group should be encouraged to ask the other questions. | * Slide 24 * Internet access and computers |
| 25 | **C2 Anti-doping rules and guidance**   * **Athletes’  rights and responsibilities** * **Anti-Doping  Rule Violations** * **Consequences  of Doping** * **Reporting Doping** | Lead a class discussion about anti-doping within tennis, including players responsibilities as well as other personnel involved in their training and performance. There are a number of high-profile cases where players claimed they were not aware that they were taking banned substances e.g. Maria Sharapova (see ITIA website for tennis cases).  Nutritional supplements include:   * vitamins and minerals * dietary supplements * whey protein * BCAAS * creatine * caffeine * herbal supplements * Cannabidiol (CBD) oil   Strict Liability principle – what does this mean and what are the implications for players? Look at possible 'inadvertent’ doping, particularly through medications and supplements. How might a player minimise this risk?  Look at Global DRO website <https://globaldro.com/Home> to check the status of medications, and Informed Sport to understand how to minimise risks from supplements: <https://sport.wetestyoutrust.com/>  As a class discuss the rights and responsibilities as a tennis player using the following headings as a guide:   * Anti-Doping Rule Violations * Consequences of Doping * Reporting Doping   Lead a Q+A session to check learners understanding of  anti-doping rule violations, the consequences of doping and reporting doping. | * Slide 25 and  Slide 26 |
| 26 | **C3 Testing process and Whereabouts**   * **Whereabouts** * **Testing process** | Introduce learners to the testing process and Whereabouts rule set out by WADA.  Learners work in pairs and to carry out internet research about the testing process. Within the testing process learners need to consider:   * doping control officer/chaperone * unannounced visit * athlete’s availability and reporting * tests: urine, blood, blood serum for Athlete  Biological Passport * when/where an athlete may be tested   Learners need to understand the testing process, how samples are collected securely and the rigour of the process.  Whereabouts: UKAD and the ITIA’s awareness of an athlete’s whereabouts in order to test them out of competition without advance notice.  Learners use the information they collect to produce a leaflet which could be given to young tennis players just starting to compete to explain the testing and whereabouts procedures.  Lead a class discussion about the issues surrounding  testing (in competition and out of competition) and the  role of the athlete whereabouts approach used by  anti-doping organisations. | * Slide 27 * Internet access and computers |
| 27 | **All of Learning  Aim C** | Assessment Learning Aim A, B and C: revision time allocated for learners to prepare for Assignment 1. (Assignment 1 covers Learning Aims A, B and C.)  A detailed case study examining the energy, nutrition, hydration, diet, digestion and anti-doping for athletes and their importance in relation to sports performance. | * Internet access, computers, textbooks  and journals |
| **Learning Aim D:** Produce a diet and hydration plan to support a selected sport or physical activity | | | |
| 28 | **D1 Activities**   * **Aerobic** * **Anaerobic** * **Muscular strength and endurance** * **Flexibility** | Recap lesson 17, energy and sources. Lead a class discussion about aerobic and anaerobic activities within tennis and the role of macronutrients for the different  types of activity.  Learners would benefit from taking part in tennis in pairs  and small groups to enable them to identify the different types of activities within the sport, including:   * Aerobic * Anaerobic * Muscular strength and endurance * Flexibility   Working in pairs learners should identify the energy requirements of tennis training and competition. They should consider how a tennis player can meet the energy needs from appropriate nutrients for their different activities. Learners should make notes to help them plan a nutritional strategy at the end of this learning aim. | * Slide 28 * Tennis equipment and playing  area (courts  or sports hall) |
| 29 | **D1 Activities**   * **Timing** | Lead a class discussion about the importance of timing food for the season and the event and how performers might structure their nutritional plans to accommodate different times of the tennis season and training / competition loads.  Learners work individually to produce a ‘timeline’ for a tennis players year. The timeline should identify the timing of diet and hydration considerations during training and the competition calendar i.e. pre-season, midseason, post-season, pre-event, inter-event and post-event.  Ask learners to share their timelines with the class and explain their nutritional plans for the different stages of training and competition throughout the year. | * Slide 29 |
| 30 | **D2 Planning diets**   * **Nutritional assessment tools** | Introduce learners to nutritional assessment tools and  their use. Ask learners to discuss the pros and cons of  these tools:   * food diary * food recall and frequency questionnaires * body composition assessment   Ask learners to work individually to produce a food diary for the coming week. These can be discussed in lesson 31.  Learners carry out internet research to find examples of  food recall and frequency questionnaires. They could then produce their own questionnaires which could be completed by another pair in the class.  Examples can be found online:  <https://biolincc.nhlbi.nih.gov/media/studies/framoffspring/Forms/Exam%203%20Food%20Frequency%20Questionnaire.pdf?link_time=2018-10-24_03:34:10.492789>  Learners work in pairs to carry out body composition assessments of each other.  Lead a class discussion about nutritional assessment tools. Ask learners to identify the reliability of these tools, how long they take to carry out and their use for assessing nutritional needs of a tennis player. | * Slide 30 * Internet access and computers * Body composition measurement equipment (skinfold callipers, rulers, weighing scales etc) |
| 31 | **D2 Planning diets**   * **Appropriate for selected activity** * **Appropriate for selected sports performer** * **Assessment  of needs** | Ask learners to discuss their food diaries from lesson 30. Learners should identify any common diet strengths and weaknesses identified in their diaries.  Recap lesson 17, energy measures and sources.  Lead a class discussion about the dietary requirements if a tennis player wanted to:   * gain weight or lose weight * gain muscle * gain fat or lose fat * carbohydrate loading   Learners should identify how the diet can be changed to achieve the aims.  Working individually ask learners to make notes from the class discussion which cover the following:   * planning a diet for a tennis player * the aims of the diet plan (weight gain / loss, muscle gain, protein intake, fat gain/loss and carbohydrate loading)   Learners will use this information to help them develop a nutritional plan.  Lead a Q+A session about meeting the nutritional needs  of a tennis player and how diet needs to be adapted. | * Slide 31 |
| 32 | **D2 Planning diets**   * **Nutrition** * **Food groups** * **Supplements** | Lead a class discussion about how the content learned from this unit can be used to plan a diet and hydration for a tennis player and what should be include in the plan.  Learners should be given the opportunity and time to prepare a nutrition and hydration plan for a tennis player based on initial nutritional assessment findings. Learners should consolidate and use the notes made during the teaching of this unit content relevant for a tennis player and the demands of their sport including:   * Nutrients * Food types * Sources * Availability * Activity * Timing * Nutrition aims   Learners should include practical actions the performer may take before, during and after tennis participation. You could give learners case studies / scenarios for them to use.  Learners should be given time to work in pairs and individually to practice applying their knowledge. Learners should include the following information:   * Aims of the diet and hydration plan * Nutrition and nutritional requirements * Hydration / fluid intake * Energy balance considerations / basal metabolism * Data gained from body composition assessments,  food recall and food frequency questionnaires and assessment of needs * Types of activities, relevant to a tennis player  (intensity, time, type, aerobic, anaerobic) * Timings (pre-event etc) * Common nutritional terminology and standard abbreviations   Learners should be able to provide valid reasons, references or evidence to support the elements of their nutrition and hydration plan. They should be able to identify the benefits it will have for the tennis player and make suggestions for ongoing review of the plan.  Lead a Q+A session allowing learners to share their knowledge of planning diets, giving examples of how they can be adapted to meet the needs of different tennis players. | * Slide 32 |
| 33 | **All of Learning  Aim D** | Assessment Learning Aim D: revision time allocated for learners to write notes and to prepare for Assignment 2 (Assignment 2 covers Learning Aim D).  A justified two-week diet and hydration plan for a selected performer undertaking a specific sport (tennis). | * Internet access, computers, textbooks and journals |