

BTEC SPORT, ACTIVITY AND FITNESS

COMPONENT 2 - LEARNING AIM A – Training to improve fitness for sport and activity

| Block A – Interpreting fitness data in relation to sport and activity | |
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| Components of fitness | Aerobic endurance, muscular endurance, flexibility, speed, strength, power and body composition. |
| Fitness tests | <ul style="list-style-type: none"> o Cooper 12-minute run to test aerobic endurance o one-minute sit-up test to test muscular endurance o hand grip dynamometer to test strength o sit and reach to test flexibility o sergeant jump test to test power o 30-metre sprint test to test speed |
| How to interpret fitness test scores and compare them to normative data. | The results of each of the fitness tests can be compared to the national averages tables (normative data.) This tells you if the participant is above, at, or below average for that particular group of people. |
| Determine the fitness levels for different target groups: | Girls and boys (14–16 years), men and women, elite performers, older people (65+). |
| Fitness test scores and their impact on sport and activity. | <ul style="list-style-type: none"> o Cooper 12-minute run to test aerobic endurance – <u>Long distance running</u> o one-minute sit-up test to test muscular endurance - <u>Swimming</u> o hand grip dynamometer to test strength - <u>Boxing</u> o sit and reach to test flexibility - <u>Gymnastics</u> o sergeant jump test to test power - <u>Basketball</u> o 30-metre sprint test to test speed - <u>Sprinting</u> |

| Block B – Methods of training for sport and activity | |
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| Methods of training | <p>Continuous – The body works continuously, at a moderate level, for a long period of time.</p> <p>Fartlek – Involves exercise, usually running, which varies in time, distance, terrain and effort.</p> <p>Interval – Periods of high-intensity, anaerobic activity – followed by short periods of rest.</p> <p>Circuit – Involves different <i>stations</i> of exercise, with a different exercise being completed at each.</p> <p>Weight – The athlete moves varying levels of resistance depending on their training needs.</p> |
| To improve aerobic endurance | Continuous training, fartlek training, interval training |
| To improve muscular endurance | Circuit training, core stability training |
| To improve strength | Free weights, resistance machines |
| To improve flexibility | Static stretching, dynamic stretching, proprioceptive neuromuscular facilitation (PNF) stretching |
| To improve power | Plyometrics, anaerobic hill sprints, CrossFit |
| To improve speed | Interval training, sprint training, sport-specific speed training (speed, agility and quickness (SAQ®)) |
| Advantages of each method | Strengths of method in relation to selected sport or activity, limited need for equipment, can be done in a range of environments, cost of equipment, easy to set up, easy to progress. |
| Disadvantages of each method | Weaknesses of method in relation to selected sport or activity, related to selected sport of activity, tedium, cost of equipment, time, availability of equipment, requires specialist location, need for a coach/instructor, increased risk of injury, gym membership. |

| Block C – The FITT principles and additional principles of training | |
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| The F.I.T.T. principles | Frequency, Intensity, Time, Type. |
| Frequency | <i>How many times</i> participants will train in relation to their current fitness levels and considering progression/overload |
| Intensity | Appropriate measurement scale to determine <i>how hard</i> participants works during each activity – intensity measurement; rate of perceived exertion (RPE), Percentage of Maximum Heart Rate (Maximum Heart Rate = 220 - age); methods of measuring heart rate (radial and carotid pulse); use of technology to measure heart rate – apps (applications), smartwatches, heart-rate monitors |
| Time | <i>Appropriate length</i> for the session that encourages progressive overload and which is relative to the type of training; high intensity, short duration activities (HIT training); cardiovascular activities over 20 minutes, fat-burning activities over 28 minutes, strength/endurance training based on sets and reps. |
| Type | Component of fitness or method of training participants choose to work on; <i>variety of methods</i> used to prevent tedium; gym-based activities, outdoor fitness activities and sport-specific activities |
| Additional Principles of training | Specificity, progressive overload, overtraining, reversibility, participant differences and needs, training zones. |
| Specificity | Choosing a training method that develops a specific component of fitness which benefits participation in sport or activity |
| Progressive overload | Increasing participant workload over a period of time to encourage fitness improvement for their sport or activity |
| Overtraining | Being aware of the risk of injury due to fatigue caused by increasing training workload too quickly |
| Reversibility | Participants not being able to train and therefore decreasing in fitness and having to restart the programme at an appropriate level and having time away from their sport or activity |
| Participant differences and needs | Choosing a component of fitness based on fitness test data and relating the chosen fitness method(s) to their sport or activity |
| Training zones | Working at the correct intensity of maximum heart rate to experience fitness improvement; maintenance/warm-up zone 50–60%, fat-burning zone 60–70%, aerobic training zone 70–80%, anaerobic training zone 80–100%; measurement of intensity through rate of perceived exertion (RPE) or heart-rate measurement. |

| Block D – Understanding fitness programmes | |
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| Importance of a person-centred approach | Personal information to aid training programme design (health-screening questionnaire, activity likes and dislikes, availability to exercise) |
| Aims | Overall aim that meets participant’s main fitness, sport or activity goal |
| Objectives | How the participant will achieve their main goal |
| Selection of appropriate components of fitness for training | Flexibility, strength, muscular endurance and power, aerobic endurance, speed |
| Safe design | Appropriate training method selection and activities to meet main fitness goal |
| Components of a participant’s session plan | <i>Warm-up</i> – to increase the heart rate and increase mobility in the joints. <i>Main activities</i> – selection of training methods that will meet the main fitness goal. <i>Cool down</i> – to gradually decrease the heart rate; encourage the removal of waste products, including lactic acid; reduce muscle soreness after training. |