NCFE Complete Content Guide and Revision Checklist

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Skeletal System Revision Checklist

Structure of the Skeleton

I can:

- Identify and locate the bones in the axial skeleton: cranium, sternum, ribs, vertebrae.
- Identify and locate the bones in the appendicular skeleton: clavicle, scapula, humerus, radius, ulna, carpals, metacarpals, tarsals, metatarsals, pelvis, femur, tibia, fibula, phalanges.

Functions of the Skeletal System

I can:

- Explain how the skeleton provides support.
- Describe how the skeleton allows movement.
- Explain how the skeleton protects vital organs.
- Identify the role of bones in storing minerals.
- Explain how bones contribute to blood cell production.
- Describe how the skeleton provides shape and structure to the body.

Types of Bones

I can:

- Identify the long bones and explain their function in movement.
- Identify the flat bones and describe their protective role.
- Identify the irregular bones and their specific functions.
- Identify the short bones and their role in movement.
- Explain the function of sesamoid bones, including the patella.

Types of Joints

I can:

- Identify fixed joints and describe their function.
- Explain the role of slightly moveable joints.
- Identify synovial joints and their types: ball and socket, hinge, pivot, saddle, condyloid, gliding.
- Provide examples of where these joints are found in the body.

Joint Actions

I can:

- Explain flexion and give examples of its application in sport.
- Explain extension and provide sport-related examples.
- Describe rotation and how it applies to movement.
- Explain abduction and give relevant examples.
- Describe adduction and how it applies to fitness activities.
- Explain plantarflexion and provide examples of its application.
- Describe dorsiflexion and how it contributes to movement in sport.

Structure of a Synovial Joint

I can:

- Identify the key components of a synovial joint: articulating cartilage, ligaments, tendons, synovial membrane, synovial fluid, joint capsule.
- Explain the function of each component in a synovial joint.
- Identify the articulating bones of different synovial joints.

Structure of the Spine

I can:

- Identify the different regions of the vertebral column: cervical (atlas, axis), thoracic, lumbar, sacrum, coccyx.
- Explain the function of each section of the spine.

Posture

I can:

- Describe the effects of good posture on health and fitness.
- Identify the consequences of poor posture.
- Recognize and describe postural changes including kyphosis, lordosis, and scoliosis.

Muscular System Revision Checklist

Types of Muscle

I can:

- Identify the three types of muscle: cardiac, smooth, and skeletal.
- Describe the characteristics and functions of cardiac muscle.
- Locate and describe the role of smooth muscle in the body.
- Explain the function and voluntary nature of skeletal muscle.

Structure of the Muscular System

I can:

- Identify and locate the main muscles of the muscular system.
- Explain how each muscle contributes to joint actions:
    - Deltoid: abduction of the shoulder.
    - Trapezius: movement of head and shoulder blades.
    - Latissimus dorsi: adduction of the arm.
    - Pectorals: rotation of the humerus, arm adduction.
    - Biceps: flexion of the elbow.
    - Triceps: extension of the elbow.
    - Abdominals: trunk flexion and spinal rotation.
    - Obliques: rotation of the upper body.
    - Quadriceps: knee extension.
    - Hamstrings: knee flexion.
    - Gastrocnemius: plantarflexion at the ankle.
    - Gluteals: hip extension.
    - Hip flexors: hip flexion.
    - Tibialis anterior: dorsiflexion of the foot.

Muscle Movement

I can:

- Explain how muscles work in antagonistic pairs to produce movement.
- Identify and describe the roles of the agonist (prime mover) and antagonist.
- Define and locate the origin and insertion of key muscles: biceps, triceps, quadriceps, hamstrings.

Muscle Contractions

I can:

- Explain isotonic contractions and their types: concentric and eccentric.
- Describe isometric contractions and provide examples of static contractions.

Muscle Fibre Types

I can:

- Identify and describe type 1 (slow twitch) muscle fibres, including:
    - Dark red colour.
    - Slow contraction speed.
    - Slow fatigue rate.
    - Best suited for endurance activities (e.g., long-distance running, swimming).
- Identify and describe type 2 (fast twitch) muscle fibres, including:
    - White colour.
    - Fast contraction speed.
    - Quick to fatigue.
    - Best suited for explosive movements (e.g., sprinting, weightlifting).

Performance of Muscle Fibres

I can:

- Explain how individuals have different proportions of muscle fibre types.
- Describe how specific training improves the performance of each fibre type:
    - Type 1: Low-intensity, high-rep training enhances endurance.
    - Type 2: High-intensity, low-rep training enhances power and speed.

Components of Fitness Revision Checklist

Health-Related Fitness

I can...

- Identify and define the five components of health-related fitness.
- Explain how muscular strength, cardiovascular endurance, flexibility, muscular endurance, body composition links to sporting and fitness activities.
- Describe how improvements in each component enhance performance.
- Understand the different types of muscular strength (static, dynamic, explosive).

Skill-Related Fitness

I can...

- Identify and define the six components of skill-related fitness.
- Explain how agility, balance, coordination, power, reaction time, and speed apply to health and fitness activities.
- Describe how improving each component benefits performance in various sports.

Fitness Testing

Health-Related Fitness Tests

I can...

- Explain the purpose and procedure of cardiovascular endurance tests (Multi-stage fitness test, 12-minute Cooper run, Bruce protocol test).
- Describe how to measure muscular strength using the handgrip dynamometer.
- Conduct and interpret muscular endurance tests (sit-up test, maximum push-up test, squat test).
- Explain how body composition is assessed using BMI and skinfold callipers.
- Describe how flexibility is measured using the sit and reach test.

Skill-Related Fitness Tests

I can...

- Describe the purpose and procedure of agility testing using the Illinois agility test.
- Explain how speed is assessed using the 30-metre sprint test.
- Measure coordination using the alternate hand wall toss test.
- Assess power with the vertical jump test.
- Measure balance using the stork stand test.
- Evaluate reaction time using the ruler drop test.

Methods and Principles of Training Revision Checklist

Training Methods

I can...

- Understand and explain different training methods and how they support different fitness goals:
    - **Interval training**: Improves cardiovascular and anaerobic fitness.
    - **Circuit training**: Targets strength, muscular endurance, and multiple fitness components.
    - **Fartlek training**: Enhances speed and cardiovascular fitness.
    - **Continuous training**: Develops cardiovascular endurance and aerobic fitness.
    - **Weight training and bodyweight exercises**: Increases muscle mass, strength, endurance, and reduces body fat.
    - **Plyometric training**: Improves power, speed, and strength.
    - **Flexibility training**: Increases range of motion, posture, muscle coordination, and reduces injury risk.

Heart Rate Training Zones

I can...

- Use the **Maximum Heart Rate (MHR) formula**: 220 - age.
- Apply **heart rate zones**:
    - **Aerobic fitness**: 60-80% of MHR.
    - **Anaerobic fitness**: 80-100% of MHR.

Repetitions and Sets

I can...

- Understand how to structure repetitions and sets to meet specific training goals:
    - **Muscular strength**: High weight, low repetitions.
    - **Muscular endurance**: Low weight, high repetitions.

Principles of Training

I can...

- Understand and apply the five principles of training (SPORT: Specificity, Progression, Overload, Reversibility, Tedium).
- Apply the FITT principles (Frequency, Intensity, Time, Type) to optimize performance.

Health and Fitness Training Programme Revision Checklist

Health and Fitness Analysis Tools

I can...

- Explain the purpose of a **Physical Activity Readiness Questionnaire (PAR-Q)**, including:
    - The type of health and lifestyle information it collects.
    - Why it is used during a gym induction or before starting an exercise programme.
- Describe the purpose of a **Lifestyle Questionnaire**, including:
    - The lifestyle factors it assesses (physical activity, alcohol consumption, smoking, stress, and diet).
    - Why it is administered before a training plan.
    - How it helps identify necessary lifestyle changes to reach fitness goals.
- Explain how a **Food Diary** is used to:
    - Track food and drink consumption.
    - Monitor diet throughout a training programme.
    - Identify necessary dietary changes to support fitness goals.

Collecting, Using, Analysing, and Evaluating Data

I can...

- Describe how to **collect** data by:
    - Identifying the required information.
    - Choosing the most appropriate data collection method.
    - Carrying out the selected data collection method.
- Explain how to **use** data while following **data protection requirements**.
- Understand how to **analyse** data by:
    - Summarising the collected data.
    - Interpreting findings using logical reasoning.
    - Identifying trends and patterns.
- Explain how to **evaluate** data by:
    - Establishing the significance of findings.
    - Identifying improvements to the data collection process.

Goal Setting (SMART Goals)

I can...

- Define and apply **SMART** goal-setting principles:

    - **Specific** – clearly defining the goal.
    - **Measurable** – ensuring progress can be tracked.
    - **Achievable** – setting a goal that is realistic based on ability and resources.
    - **Realistic** – ensuring the goal is relevant and practical.
    - **Time-bound** – setting deadlines for achieving goals.
- Differentiate between:
    - **Short-term goals** (1 day – 1 month).
    - **Medium-term goals** (1 month – 6 months).
    - **Long-term goals** (6 months+).

Components of a Health and Fitness Programme

I can...

- Explain the purpose of a health and fitness programme.
- Identify the key components of a programme, including:
    - Clients' goals and rest days.
    - Lifestyle analysis.
    - PAR-Q (Physical Activity Readiness Questionnaire).
    - Fitness test results.
    - Session plans.

Health and Safety

I can...

- Identify health and safety considerations in planning and delivering a programme.
- Assess the suitability of facilities for training sessions.
- Perform equipment checks and ensure proper setup.
- Monitor client behaviour to maintain a safe environment.
- Ensure training intensity progresses appropriately to prevent injury.
- Recommend appropriate clothing and footwear for different fitness activities.

The Session Plan

I can...

- Identify the key sections of a session plan:
    - Warm-up
    - Main activity section
    - Cool-down
- Choose appropriate training methods based on goals.

- Plan activities with appropriate time, repetitions, sets, weight, intensity levels, and rest periods.
- Set and monitor heart rate training zone targets for sessions.
- Identify targeted muscles for each exercise.

Warm-Up and Cool-Down

Warm-Up

I can...

- Explain the purpose and benefits of a warm-up, including:
    - Increasing heart rate gradually.
    - Mobilising joints.
    - Increasing blood flow to muscles.
    - Preparing muscles for activity.
    - Reducing the risk of injury.
    - Aiding mental preparation.
- Identify the phases of a warm-up:
    - Mobilisation
    - Pulse raiser
    - Dynamic stretching
    - Practising movement patterns

Cool-Down

I can...

- Explain the purpose and benefits of a cool-down, including:
    - Allowing breathing rate to return to normal.
    - Gradually decreasing heart rate.
    - Reducing body temperature.
    - Removing waste products from muscles.
- Identify the phases of a cool-down:
    - Pulse lowering
    - Static stretching
- Recommend appropriate timescales for warm-up and cool-down activities.

Main Activity Section

I can...

- Apply the principles of training to a session:
    - Specificity – Training must be relevant to the goal or sport.
    - Progression – Gradual increases in intensity.

    - Overload – Challenging the body to cause adaptations.
    - Reversibility – Understanding the effects of stopping training.
    - Tedium – Avoiding boredom with varied exercises.
- Use the FITT principles to structure training:
    - Frequency – How often exercise takes place.
    - Intensity – Training at an appropriate level, such as % of max heart rate.
    - Time – Duration of sessions and exercises.
    - Type – Selecting the right training methods for goals.
- Understand the role of training methods in improving fitness.
- Adapt sessions based on individual differences, such as:
    - Age, gender, and fitness level.
    - Medical conditions and required adjustments.
    - Pregnancy and religious considerations.

Effects of Health and Fitness Activities on the Body Revision Checklist

Short-Term Effects

I can...

- Describe the short-term effects of exercise, such as:
    - Increased breathing rate and heart rate
    - Increased blood pressure
    - Increased body temperature and sweating
    - Muscle fatigue and DOMS

Long-Term Effects

I can...

- Explain the long-term adaptations to regular exercise, including:
    - Improved cardiovascular endurance
    - Increased muscular strength and hypertrophy
    - Decreased resting heart rate and improved oxygen efficiency

Respiratory System Revision Checklist

Structure of the Respiratory System

I can...

- Identify and describe the pathway of air through the respiratory system.
- Locate and explain the function of the following structures:
    - Nose/Mouth
    - Pharynx
    - Larynx
    - Trachea
    - Bronchi
    - Bronchioles
    - Alveoli
    - Lungs
    - Ribs
    - Diaphragm
    - Intercostal muscles

Functions of the Respiratory System

I can...

- Describe the mechanics of inhalation and exhalation.
- Explain the role of the diaphragm, ribs, and intercostal muscles in breathing.

Diffusion and Gaseous Exchange

I can...

- Define diffusion and gaseous exchange.
- Explain how oxygen and carbon dioxide move between the alveoli and capillaries.
- Identify and describe the features of alveoli that assist gaseous exchange.

Respiratory Measurements

I can...

- Interpret spirometer traces and explain:
    - Breathing rate (BR)
    - Tidal volume (TV)
    - Vital capacity (VC)
    - Inspiratory reserve volume (IRV)

    - Expiratory reserve volume (ERV)
    - Residual volume (RV)

Respiratory Changes

I can...

- Explain the respiratory changes that occur from rest to exercise.
- Understand how breathing rate and depth increase to meet oxygen demand.

Cardiovascular System Revision Checklist

Structure and Function of Blood Vessels

I can...

- Identify and describe the structure and function of:
    - Veins
    - Arteries
    - Capillaries

Blood Redistribution

I can...

- Explain how blood vessels redistribute blood during exercise using:
    - Vasodilation
    - Vasoconstriction

Structure of the Heart

I can...

- Identify and locate the structures of the heart, including:
    - Left and right atria
    - Left and right ventricles
    - Pulmonary vein
    - Pulmonary artery
    - Aorta
    - Vena cava
    - Valves (bicuspid, tricuspid, aortic, pulmonary)
    - Septum

The Cardiac Cycle

I can...

- Describe the pathway of deoxygenated and oxygenated blood through the heart.

Cardiovascular Measurements

I can...

- Understand heart rate (HR), maximum heart rate (MHR), stroke volume (SV), and cardiac output (CO).
- Apply the equation: **CO = SV x HR**.

Blood Pressure

I can...

- Describe systolic and diastolic blood pressure.
- Explain the classifications of blood pressure and factors affecting it.

Energy Systems

I can...

- Explain the anaerobic and aerobic energy systems.
- Identify their characteristics, duration, and by-products.

Lifestyle Factors Revision Checklist

Activity Levels

I can...

- Define and differentiate between an **active lifestyle** and a **sedentary lifestyle**.
- Explain the **current NHS physical activity guidelines** for maintaining a healthy lifestyle.
- Classify health and fitness activities as **moderate or vigorous** based on their intensity levels.

Diet

I can...

- Identify the **key nutrients** needed for participation in health and fitness activities, including:
    - Fat
    - Carbohydrates
    - Protein
    - Vitamins
    - Minerals
    - Fibre
    - Water
- Explain the components of a **balanced diet** according to **NHS guidelines** and the **Eatwell Guide**.
- Understand and interpret **recommended daily allowances (RDA)** for key nutrients.
- Explain the **importance of hydration** and the **effects of dehydration** on performance.
- Describe **energy expenditure**, including the balance between **calories consumed versus calories burned**.

Rest and Recovery

I can...

- Explain the importance of **rest and recovery** for health and fitness.
- Identify key recovery methods, including:
    - Sleep
    - Cool-down exercises
    - Balanced diet
    - Static stretching

    - Massages
    - Ice baths
    - Rehydration
    - Proper food intake
    - Rest periods

Other Lifestyle Factors

I can...

- Explain how **drugs** can negatively impact health and fitness, including:
    - **Performance-enhancing drugs** (joint pain, dehydration, muscle weakness, vision problems, blood pressure issues).
    - **Recreational drugs** (muscle wastage, cardiovascular problems, weight loss, loss of concentration).
- Describe the negative effects of **smoking** on health and fitness, including:
    - Breathlessness
    - Reduced blood flow due to narrowed arteries
- Explain how **alcohol** affects performance, including:
    - Decreased coordination
    - Delayed reaction time
    - Impaired balance
    - Increased dehydration
- Identify how **stress** impacts health and fitness, leading to:
    - Anxious performance
    - Irritability
    - Fatigue