ADVANCED HEALTH & FITNESS SPECIALIST

Examination Content Outline

The Examination Content Outline is essentially a blueprint for the exam. All exam questions are based on this outline.

Target Audience Statement

The ACE Advanced Health & Fitness Specialist (AHFS) works with special populations (e.g., disease, post-rehabilitation) in cooperation with other qualified healthcare professionals to enhance quality of life and manage health risk. ACE-certified Advanced Health & Fitness Specialists conduct appropriate health- and fitness-related assessments for members of special populations and develop and administer programs designed to enhance strength, muscular endurance, balance, range of motion, and cardiovascular function.

The following eligibility requirements have been established for the AHFS certification examination:

- At least 18 years of age
- Adult CPR certification, current at the time of the examination
- Hold a current ACE Personal Trainer or Lifestyle and Weight Management Consultant Certification; or an NCCA-accredited certification in health and fitness; or hold a four-year (bachelor's) degree in exercise science or related field. Registrants holding degrees in nutrition or nursing must submit documentation supporting completion of exercise science–related coursework at the time of registration.
- 300 hours of work experience designing and implementing weight-management and exercise programs for overweight and obese individuals, as documented by a qualified professional

Domains, Tasks, and Knowledge and Skill Statements

A Role Delineation Study completed for the Advanced Health & Fitness Specialist certification first identified the major categories of responsibility for the professional. These categories are defined as Domains and it was determined that the profession could be divided into four Performance Domains, or major areas of responsibility. These Performance Domains are:

Domain I:	Assessment
Domain II:	Program Design
Domain III:	Program Implementation and Management
Domain IV:	Professional Responsibility

The Advanced Health & Fitness Specialist draws upon knowledge from four foundational sciences, or Content Domains, in their work. Content Domains include topics important to the competence of the Advanced Health & Fitness Specialist that apply primarily to the Assessment, Program Design, and Program Implementation and Management Domains.

The Exercise Science Domain was delineated further into three significant topics: Anatomy, Kinesiology and Physiology. Within each Performance Domain, there is additional Domain-specific information referring to tests, procedures, and techniques.

The Content Domains are:

- Exercise Science (Anatomy, Kinesiology and Physiology)
- Nutrition
- Psychology
- Pathophysiology

There are two dimensions in test specifications: vertically for Assessment, Program Design, Program Implementation and Management, and Professional Responsibility. The horizontal dimension includes Exercise Science (Anatomy, Kinesiology, and Physiology), Nutrition, Psychology, and Pathophysiology.

ACE determined that the Professional Responsibility Performance Domain is managed to a large degree by its policies concerning professional discipline and certification renewal, and that 10 questions in this Domain suffice. As a result, the test specifications on the following page distribute the weighting that would otherwise be allocated beyond the eight questions among the remaining three Performance Domains.

Table 1: Exam Content Outline: Advanced Health & Fitness Specialist Certification

		EXERCISE SCIENCE					
Performance Domain	Total Items	Anatomy	Kinesiology	Physiology	Nutrition	Psychology	Pathophysiology
Assessment	32	1	2	5	7	10	7
Program Design	33	2	3	5	7	9	7
Program Implementation and Management	50	3	4	7	10	14	12
Professional Responsibility	10						
Total:	**125**	**6**	**9**	**17**	**24**	**33**	**26**

Each Domain is composed of Task Statements that detail the job-related functions of that Domain. Each Task Statement is divided into Knowledge and Skill Statements to further detail the scope of information required and how that information is applied in a practical setting for task statement.

EXAM CONTENT OUTLINE

DOMAIN I: ASSESSMENT 26%

Task 1 - Obtain health information by establishing rapport with the client, using questionnaires, and communicating with other healthcare providers, as indicated, to assess the individual's appropriateness for physical activity, facilitate program design, and identify the need for referral.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.

4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, and food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on a client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.

4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.

14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 2 - Gather lifestyle information using interviews and questionnaires to facilitate program design and optimize adherence.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on a client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing a client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.

4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 3 - Identify the client's readiness, expectations, and personal preferences using interviews and questionnaires to facilitate program design.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.

9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).

9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing the client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.

3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 4 - Perform baseline and periodic follow-up evaluations of physical fitness levels and physical limitations using recommended guidelines and established protocols to facilitate program design, ensure safety, and monitor effectiveness.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).

16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.

12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 5 - Maintain detailed records of assessment data using established documentation policies and procedures to adhere to professional guidelines and facilitate program design.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.

2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.

7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.

10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

DOMAIN II: PROGRAM DESIGN 26%

Task 1 - Establish realistic and appropriate goals using the client's expectations and limitations, assessment data, and the principles of exercise science to develop a safe and effective program.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.

12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.

13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.

8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 2 - Apply the principles of exercise science by integrating the specific, measurable goals and interpreting assessment and reassessment data to develop individualized, safe, and effective programs for clients with chronic disease and/or disabilities.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs

(illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:
1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:
1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on client's perception of signs and symptoms.

Skill in:
1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.

15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 3 - Modify the program based on reassessment data, exercise logs, and client-reported information to maximize the probability of success.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).

5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).

3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.

15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

DOMAIN III: PROGRAM IMPLEMENTATION AND MANAGEMENT 40%

Task 1 - Orient the client to an individualized program using appropriate educational techniques to set the foundation for program implementation.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.

13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.

9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 2 - Instruct the client on safe and effective exercise techniques using appropriate educational techniques to achieve optimal program goals.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol,

drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:
1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:
1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on client's perception of signs and symptoms.

Skill in:
1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each

organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11 Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 3 - Facilitate program adherence through education, the principles of behavior change, rapport building, etc., to achieve goals.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).

5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base on popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.

2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on the client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.
2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.

14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 4 - Monitor the client's progress and changing status based on subjective and objective data that includes periodic reassessments to ensure safe and effective programming.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
9. Health-related components of physical fitness, principles of training, and adaptations (acute and chronic) to exercise.
10. Skill-related components of physical fitness, principles of training, and adaptations (agility, balance, coordination, speed, power, and reaction time).
11. Cardiorespiratory system with respect to the carrying capacity, delivery, and extraction of oxygen.
12. Metabolism, including energy production and nutrient utilization.
13. Neuromuscular physiology (e.g., muscle fiber types, proprioceptors, motor-unit recruitment).
14. Programming guidelines to improve fitness.
15. Environmental conditions impacting exercise (e.g., heat, humidity, cold, air pollution, altitude).

Skill in:

1. Facilitating cardiorespiratory fitness, musculoskeletal strength, and flexibility.
2. Selecting appropriate exercise modalities.
3. Selecting safe exercises for all muscle groups.
4. Applying appropriate training principles (FITT).
5. Modifying programs.
6. Assessing body composition.
7. Assessing dynamic and static posture and balance.
8. Assessing gait.
9. Assessing cardiorespiratory and musculoskeletal fitness.
10. Interpreting medical history.
11. Assessing clients' lifestyles.
12. Conducting risk stratification.
13. Comparing test data to normative values.
14. Selecting appropriate assessments.
15. Referring to the appropriate healthcare professional(s).
16. Communicating with members of the healthcare team.
17. Assessing anthropometric parameters.
18. Recognizing side effects associated with common categories of medications as they relate to energy and performance.

Nutrition

Knowledge of:

1. Macronutrients, micronutrients, hydration, supplements, engineered foods, alcohol, drugs (illicit, over-the-counter, prescription), and stimulants.
2. Current, credible, and appropriate nutrition resources.
3. Nutrition guidelines, food selection, preparation, and storage.
4. Digestion and absorption process.
5. Popular diets and associated health risks.
6. Nutrition requirements specific to each classification of disease or dysfunction.
7. Metabolic conversion of nutrients.

Skill in:

1. Assessing the quality of the client's food intake.
2. Educating the client on making appropriate food choices based on sound nutritional practices.
3. Recommending reputable resources for clients with an interest in a structured dietary management program.
4. Educating the client on appropriate food selections based on known risk reduction.
5. Recognizing deficiencies in nutrition as they relate to exercise performance.
6. Maintaining a current knowledge base of popular diets and extreme dietary measures.
7. Applying hydration guidelines as they relate to exercise duration, environmental conditions, and client status.

Psychology

Knowledge of:

1. Psychological conditions that require referral to appropriate allied health professionals.
2. Communication techniques (e.g., active listening, appropriate eye contact, non-verbal behavior).
3. Techniques that build and enhance rapport.
4. Individual differences that influence behavior (e.g., exercise history, lifestyle, gender, age, culture, ethnicity).
5. Psychological implications of chronic diseases, disabilities, and dysfunction.
6. Sources for disease-specific guidelines.
7. Theories of behavior change (e.g., stages of change, health belief model) and their implications.
8. Psychological obstacles that may interfere with the attainment of goals (e.g., self-esteem, anxiety, self-efficacy, mood).
9. Principles of adult learning (e.g., readiness, success, practice) and appropriate educational tools.
10. Psychological side effects of medications and appropriate precautions for a client taking medications and/or other substances.
11. The negative and positive impact of assessment data on motivation.
12. Motivational techniques used to optimize exercise adherence and other healthy lifestyle behaviors.
13. How chronic diseases, disabilities, and injuries will impact exercise adherence based on client's perception of signs and symptoms.

Skill in:

1. Interviewing and communicating effectively with the client and/or healthcare team.

2. Interpreting body language and recognizing incongruities between verbal and non-verbal behaviors.
3. Building trust and rapport.
4. Assessing client's readiness, expectations, and preferences.
5. Applying principles of behavioral change.
6. Identifying barriers associated with various chronic diseases, disabilities, and injuries that may affect programming.
7. Adapting programming in accordance with identified barriers.
8. Identifying and/or addressing unrealistic expectations as they relate to underlying chronic diseases, disabilities, and injuries.
9. Establishing goals (e.g., specific, measurable, action-oriented, realistic, timed).
10. Selecting and integrating appropriate educational tools for use in client instruction.
11. Facilitating the client's acceptance, responsibility, and accountability for program goals.
12. Designing a safe, well-balanced, and comprehensive program specific to the client's health status, special needs, program preferences, and goals.
13. Instructing and/or supervising the client in the safe and proper execution of exercise.
14. Modifying motivational strategies based upon assessment and/or reassessment.
15. Making appropriate referrals.

Pathophysiology

1. General pathophysiology of chronic diseases, disabilities, and injuries as related to each organ system, including cardiovascular, respiratory, endocrine, neurological, musculoskeletal, gastrointestinal, reproductive, and integumentary.
2. Signs and symptoms of chronic diseases, disabilities, and injuries.
3. Guidelines for designing programs specific to chronic diseases, disabilities, and injuries using FITT principles as they apply to cardiorespiratory, strength, and flexibility training.
4. Influence of chronic diseases, disabilities, and injuries on exercise selection.
5. Influence of chronic diseases, disabilities, and injuries on the selection of assessment tools.
6. Predicted responses to exercise in clients with chronic diseases, disabilities, and injuries.
7. Designing safe, comprehensive, and effective programs based on the client's current health status.
8. Appropriate exercise modifications for chronic diseases, disabilities, and injuries based on the client's response to exercise.
9. Indications for modification or termination of an exercise session or activity.
10. Circumstances requiring referral to other health professionals.
11. Contraindicated activities/exercises.
12. Appropriate documentation of signs, symptoms, and responses to exercise.
13. Effect of medication on exercise selection.
14. Potential effect of exercise on medication requirements.
15. How environmental factors affect exercise for clients with chronic diseases, disabilities, and injuries.
16. Alternative medical services (e.g., chiropractic, acupuncture, naturopathy) and how they may affect exercise/activity selection for clients with chronic diseases, disabilities, and injuries.
17. Potential medical emergencies in clients with chronic diseases, disabilities, and injuries.
18. Recognized protocols (e.g., McKenzie extension exercises, rotator cuff progression) for clients with chronic diseases, disabilities, and injuries.

Skill in:

1. Assessing and reassessing the client's readiness, expectations, and limitations.
2. Administering and analyzing assessment data.
3. Interpreting the data from the referring health professional.
4. Modifying the program to meet the needs of the client.
5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.

12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

Task 5 - Document program activity using accepted recording techniques to track progress and communicate (as necessary) with other healthcare professionals.

Exercise Science

Knowledge of:

Anatomy

1. General anatomy of the following systems: musculoskeletal, cardiorespiratory, neuromuscular, digestive, endocrine, reproductive, and integumentary.
2. General anatomical terminology (e.g., landmarks, planes of movement, position, muscle roles, muscle origin, and muscle insertion).

Kinesiology

3. Passive and active ranges of motion.
4. Muscle function, types of muscle contraction, and associated factors affecting movement (e.g., neurological, biomechanical, kinesthetic).
5. Appropriate exercise design to address balance (e.g., static, dynamic), muscular imbalances, and postural alignment.
6. Biomechanical concepts of human movement (e.g., Newton's laws) as applied to exercise.
7. Application of the principles related to muscular strength and endurance (e.g., resistance, overload, specificity, repetitions, sets, frequency, rest periods, progression).

Physiology

8. Types of training (cardiorespiratory, resistance, and flexibility) and the risks and benefits associated with each.
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5. Applying standard and accepted testing methods to measure current fitness status.
6. Identifying environmental factors that influence exercise performance.
7. Recognizing the need for terminating a specific activity, an exercise session, or the entire program.
8. Recognizing personal scope of practice.
9. Teaching proper alignment and execution techniques.
10. Recognizing and managing emergency situations.
11. Addressing unrealistic expectations.
12. Applying program guidelines specific to special populations.
13. Identifying problematic signs and symptoms before, during, and after the exercise session.
14. Documenting health- and fitness-related data.
15. Referring the client to appropriate health professionals.

DOMAIN IV: PROFESSIONAL RESPONSIBILITY 8%

Task 1 - Adhere to applicable law, regulations, industry guidelines, and sound business practices by maintaining a working knowledge of these topics and/or obtaining qualified consultation as needed to protect the interests of clients and minimize risk.

Knowledge of:

1. Risk management, including risk assessment, waiver, and informed consent.
2. Liability, including health screening, medical release forms, exercise recommendations, supervision, instruction, facilities, and equipment.
3. Negligence, both contributory and comparative.
4. Copyright law.
5. Scope of practice.
6. Standard of care.
7. Americans with Disabilities Act.
8. Standards governing confidentiality (e.g. HIPPA).

Skill in:
1. Completing an accident/injury report.
2. Completing and interpreting health-history data.
3. Safeguarding confidential information.
4. Following industry guidelines to minimize risk of injury and litigation.
5. Maintaining professionalism with employers, peers, and clients.
6. Securing copyrighted and intellectual property.

Task 2 - Adhere to the ACE Code of Ethics by upholding its principles consistently to protect the interests of clients, enhance confidence in the industry, and maintain professional responsibilities.

Knowledge of:
1. American Council on Exercise Code of Ethics.
2. Standards governing confidentiality.
3. Scope of practice for all members of the treatment team.
4. Current CPR, AED, infection control, and first-aid procedures.
5. Fair and equal treatment for all clients.
6. American Council on Exercise Professional Practices and Disciplinary Procedure.

Skill in:
1. Providing safe and effective exercise instruction/education.
2. Safeguarding confidential information.
3. Referring clients to more qualified fitness, medical, or health professionals when appropriate.
4. Administering CPR, and AED if accessible.
5. Administering basic injury-management procedures.
6. Enhancing healthcare professionals' confidence in the fitness industry.
7. Establishing and maintaining clear professional boundaries.

Task 3 - Respond to acute medical conditions and injuries as they arise by providing first aid, initiating CPR, using an AED if available, and following an emergency action plan to provide appropriate care and risk management.

Knowledge of:
1. CPR, AED, and basic first-aid procedures.
2. Signs and symptoms of injuries.
3. Factors associated with injury prevention.
4. Contraindications to exercise.
5. Facility risk management and emergency protocols, including EMS activation.
6. Facility evacuation procedures.
7. Signs and symptoms of acute medical conditions.

Skill in:
1. Administering basic first aid, CPR, and AED if accessible.
2. Completing an incident report and notifying appropriate parties.
3. Directing the evacuation process of clients in accordance with facility evacuation procedures.
4. Securing updated medical clearance.

Task 4 - Maintain appropriate insurance consistent with the characteristics of the professional setting to protect clients and other parties.

Knowledge of:
1. Professional liability insurance.
2. General liability insurance.
3. Worker's compensation insurance.
4. Health and disability insurance.
5. Property insurance.
6. Business interruption insurance.
7. Differences between an independent contractor and employee.

Task 5 - Enhance competence through ongoing education in current research and exercise modalities to optimize professional services when dealing with special populations.

Knowledge of:
1. Appropriate sources for acquiring continuing education.
2. Credible and current health and physical activity information and research as related to special populations.

Skill in:
1. Applying current information and recommendations when working with a client and/or treatment team.