



# ACSM-CEP Crosswalk

## 2022 Outline

### Domain I: Patient Assessment

#### A. Assess a patient's medical record for information related to their visit.

1. Knowledge of:
  - a. the procedure to obtain and store patient's medical history through available documentation following HIPAA and HITRUST rules and regulations
  - b. the necessary medical records needed to properly assess a patient given their diagnosis and/or reason for referral
  - c. the procedure to obtain physician referral and medical records required for program participation
  - d. information and documentation required for program participation
  - e. the epidemiology, pathophysiology, progression, risk factors, key clinical findings and treatments of chronic diseases
  - f. the techniques (e.g., lab results, diagnostic tests) used to diagnose chronic diseases, their indications, limitations, risks, normal and abnormal results
  - g. medical charting, terminology and common acronyms, reconciliation across sources of information (records, patient, medication)

#### 2. Skill in:

- a. interpreting information from medical records in patient care, exercise assessment and/or prescription
- b. assessing various vital signs
- c. assessing patient physician referral and/or medical records to determine program patient status

## 2024 Outline

### Domain I: Patient Assessment

#### A. Assess a patient's medical record for information related to their visit.

1. Knowledge of:
  - a. the procedure to obtain and store patient's medical history through available documentation following HIPAA and HITRUST rules and regulations
  - b. the necessary medical records needed to accurately assess a patient given their diagnosis and/or reason for referral
  - c. the procedure to obtain physician referral and medical records required for program participation
  - d. information and documentation required for program participation
  - e. the epidemiology, pathophysiology, progression, risk factors, key clinical findings and treatments of chronic diseases
  - f. the techniques (for example, lab results, diagnostic tests) used to diagnose chronic diseases, their indications, limitations, risks, normal and abnormal results
  - g. medical charting, terminology and common acronyms, reconciliation across sources of information (for example, records, patient, medication)

#### 2. Skill in:

- a. interpreting information from medical records in patient care, exercise assessment and/or prescription
- b. interpreting vital signs (for example, heart rate, blood pressure, SpO2) using clinical reasoning  
**NOTE: Modified from "assessing" to "interpreting"**
- c. assessing patient physician referral and/or medical records to determine patient status

**B. Interview patient regarding medical history for their visit and reconcile medications.**

## 1. Knowledge of:

- a. establishment of rapport through health counseling techniques (e.g., the patient centered approach) and nonjudgmental positive regard in creation of collaborative partnership.
- b. use of open-ended inquiry, active listening and attention to nonverbal behavior, interest and empathy.
- c. information and documentation required for program participation
- d. the procedure to obtain informed consent from patient to meet legal requirements
- e. commonly used medications in patients with chronic diseases, their mechanisms of action and physiological effects, and how they may change as a result of physical activity
- f. medical charting, terminology and common acronyms

## 2. Skill in:

- a. administering informed consent
- b. interviewing patient for medical history pertinent to the reason for their visit and reconciling medications
- c. active listening and usage of health counseling techniques
- d. data collection during baseline intake assessment
- e. proficiency in medical charting

**C. Obtain and assess resting biometric data (e.g., height, weight, ECG, arterial oxygen saturation, blood glucose, body composition, spirometry).**

## 1. Knowledge of:

- a. best practice-based intake assessment tools and techniques to assess and interpret clinical and health measures (e.g., height, weight, anthropometrics, body mass index, resting energy expenditure)
- b. medical therapies for chronic diseases and their effect on resting vital signs and symptoms
- c. normal cardiovascular, pulmonary and metabolic anatomy and physiology

**B. Interview patient regarding medical history for their visit and reconcile medications.**

## 1. Knowledge of:

- a. when to use open-ended inquiry, active listening, and attention to nonverbal behavior while demonstrating interest and empathy  
*NOTE: Text change to focus on when to use what strategy*
- b. information and documentation required for program participation
- c. commonly used medications in patients who have chronic diseases
- d. basic pharmacodynamics and pharmacokinetics of commonly prescribed medications as it relates to exercise
- e. medical charting, terminology and common acronyms

## 2. Skill in:

- a. administering informed consent
- b. interviewing patient for medical history pertinent to the reason for their visit  
*NOTE: Text change to remove “reconciling medication”*
- c. active listening and using health counseling techniques
- d. data collection during assessment (for example, risk, intake, discharge)  
*NOTE: Text change to include examples*
- e. proficiency in basic medical charting  
*NOTE: Text change to focus on “basic”*

**C. Obtain and assess resting biometric data (for example, oxygen saturation, blood pressure, body composition, ECG).**

## 1. Knowledge of:

- a. best practice-based intake assessment tools and techniques to assess and interpret clinical and health measures (for example, height, weight, anthropometrics, body mass index, resting energy expenditure)
- b. medical therapies for chronic diseases and their effect on resting vital signs and symptoms
- c. normal cardiovascular, pulmonary and metabolic anatomy and physiology

2022 Outline (continued)

2024 Outline (continued)

- d. techniques for assessing signs and symptoms (e.g., peripheral pulses, blood pressure, edema, pain)
- e. 12-lead and telemetry ECG interpretation for normal sinus rate and rhythm or abnormalities (e.g., arrhythmias, blocks, ischemia, infarction)
- f. ECG changes associated with, but not limited to, drug therapy, electrolyte abnormalities, myocardial injury and infarction, congenital defects, pericarditis, pulmonary embolus and the clinical significance of each

- d. chronic disease risk factors and contraindications for exercise  
**NOTE: New**
- e. typical presentation of chronic disease populations  
**NOTE: New**
- f. techniques for assessing signs and symptoms (for example, peripheral pulses, blood pressure, edema, pain)
- g. 12-lead and telemetry ECG interpretation for normal sinus rate and rhythm or abnormalities (for example, arrhythmias, blocks, ischemia, infarction)
- h. common ECG changes associated with, but not limited to, drug therapies and electrolyte abnormalities  
**NOTE: Text change to focus on “common”**

2. Skill in:

- a. administering and interpreting resting biometric data to determine baseline health status
- b. preparing a patient and ECG electrode application for resting ECGs
- c. assessing vital signs and symptoms at rest

2. Skill in:

- a. administering best practice intake assessment tools and techniques  
**NOTE: Expanded to include assessments beyond resting biometric data**
- b. interpreting resting biometric data to determine baseline health status
- c. preparing a patient and ECG electrode application for resting ECGs
- d. assessing vital signs and symptoms at rest

**D. Determine a sufficient level of monitoring/supervision based on a preparticipation health screening.**

**D. Determine a sufficient level of monitoring/supervision based on a preparticipation health screening.**

1. Knowledge of:

- a. normal physiologic responses to exercise
- b. abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic)
- c. pertinent areas of a patient’s medical history (e.g., any symptoms since their procedure, description of discomfort/pain, orthopedic issues)
- d. indications and contraindications to exercise testing and training
- e. current published guidelines for treatment of cardiovascular, pulmonary and metabolic pathologies (e.g., American College of Cardiology/American Heart Association [ACC/AHA] Joint Guidelines, Global Initiative for Chronic Obstructive Lung Disease [GOLD], American Diabetes Association [ADA])

1. Knowledge of:

- a. normal physiologic responses to exercise
- b. abnormal responses/signs/symptoms to exercise associated with different pathologies (for example, cardiovascular, pulmonary, metabolic)
- c. pertinent areas of a patient’s medical history (for example, any symptoms since their procedure, description of discomfort/pain, orthopedic issues)
- d. indications and contraindications to exercise testing and training
- e. current published guidelines for management of chronic disease (for example, American College of Cardiology/American Heart Association [ACC/AHA] Joint Guidelines, Global Initiative for Chronic Obstructive Lung Disease [GOLD], American Diabetes Association [ADA], American Association of Cardiovascular and Pulmonary Rehabilitation [AACVPR])  
**NOTE: Text change to focus on “management” (vs treatment)**

2022 Outline (continued)

2024 Outline (continued)

- f. industry recognized preparticipation health screening practices (e.g., the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], ACSM’s preparticipation screening algorithm)
- g. medical therapies for chronic diseases and their effect on the physiologic response to exercise
- h. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases
- i. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
- j. methods used to obtain a referral for clinical exercise physiology services

- f. industry recognized preparticipation health screening practices (for example, the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], the ACSM preparticipation screening algorithm)
- g. medical therapies for chronic diseases and their effect on the physiologic response to acute and chronic exercise  
*NOTE: Text change to include acute and chronic exercise*
- h. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients who have chronic diseases
- i. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease

2. Skill in:

- a. implementing industry-recognized preparticipation health screening practices
- b. administering informed consent
- c. selecting an exercise test based on a patient’s disease, condition and ability
- d. determining risk and level of monitoring of patient using health history, medical history, medical records and additional diagnostic assessments
- e. modifying exercise/physical activity program in response to medication use, timing and side effects

2. Skill in:

- a. implementing industry-recognized preparticipation health screening practices
- b. selecting assessments based on a patient’s disease, condition, and ability  
*NOTE: Text change*
- c. determining risk and level of patient monitoring using health history, medical history, medical records and additional diagnostic assessments  
*NOTE: Text change*

**E. Assess patient goals, needs and objectives based on health and exercise history, motivation level and physical activity readiness.**

**E. Assess patient goals, needs and objectives based on health and exercise history, motivation level and physical activity readiness.**

1. Knowledge of:

- a. patient-centered health counseling techniques with nonjudgmental positive regard
- b. assessment of patient goals and exercise history through use of open-ended inquiry, active listening and attention to nonverbal behavior and reflective listening
- c. the effects of a sedentary lifestyle, including extended periods of physical inactivity and approaches to counteract these changes

1. Knowledge of:

- a. patient-centered health coaching techniques  
*NOTE: Text change to remove “nonjudgmental positive regard”*
- b. assessment of patient goals and exercise history through use of open-ended inquiry, active and reflective listening, and attention to nonverbal behavior  
*NOTE: Text change to remove “reflective listening”*
- c. the effects of a sedentary lifestyle, including extended periods of physical inactivity and approaches to counteract these changes

2022 Outline (continued)

2024 Outline (continued)

d. behavior modification tools and techniques to assess patient's expectations, goals and motivation level (e.g., health literacy, identification of real and perceived barriers, decisional balance)	d. behavior modification theories, tools and techniques to assess patient's expectations, goals and motivation levels (for example, health literacy, identification of real and perceived barriers, decisional balance)
e. common barriers to exercise compliance and adherence (e.g., physical/disease state, environmental, demographic, vocation)	e. common barriers to exercise compliance and adherence (for example, physical/disease state, environmental, demographic, vocation)
f. known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, sex, socioeconomic status, education, ethnicity)	f. known demographic factors related to likelihood of adherence and maintenance of exercise (for example, age, sex, socioeconomic status, education, ethnicity)
g. characteristics associated with poor adherence to healthy behaviors (e.g., low self-efficacy, poor social support)	g. characteristics associated with poor adherence to healthy behaviors (for example, low self-efficacy, poor social support)
h. psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation)	h. psychological issues associated with acute and chronic illness (for example, anxiety, depression, social isolation, suicidal ideation)
i. validated tools for measurement of psychosocial health status	i. validated tools for measurement of psychosocial health status
j. a variety of behavioral assessment tools (e.g., SF-36, health-related quality of life, Chronic Respiratory Disease Questionnaire) and strategies for their use	j. behavioral assessment tools and strategies for their use <b>NOTE: Expanded to include examples</b>
k. recognizing adverse effects of exercise in apparently healthy individuals or those with chronic disease	k. adverse effects of exercise in apparently healthy individuals or those with chronic disease

2. Skill in:

2. Skill in:

a. active listening and behavior modification techniques	a. active listening and behavior modification techniques
b. counseling techniques and strategies to overcome real and perceived barriers	b. counseling techniques and strategies to overcome real and perceived barriers
c. applying health behavior theories and strategies to strengthen patient barriers self-efficacy and optimize compliance and adherence in support of achievement of goals	c. applying health behavior theories and strategies to strengthen self-efficacy and optimize compliance and adherence in support of goals
d. adapting/modifying an exercise program based on unique needs of a patient	d. modifying an exercise program based on unique patient needs and abilities <b>NOTE: Text change to include "abilities"</b>
e. administering commonly used screening tools to evaluate mental health status	e. administering commonly used screening tools to evaluate mental health status

**Domain II: Exercise Testing****A. Select, administer and interpret submaximal aerobic exercise tests (e.g., treadmill, step test, 6-minute walk).**

## 1. Knowledge of:

- a. tests to assess submaximal aerobic endurance
- b. the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- c. the mechanisms underlying the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- d. the effect of chronic diseases on acute and chronic responses to aerobic exercise
- e. standard and/or disease-specific endpoints for submaximal aerobic exercise tests in apparently healthy individuals and those with chronic disease
- f. typical submaximal aerobic test results and physiological values in trained and untrained individuals and those with and without chronic diseases
- g. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
- h. abnormal readings and results from exercise testing equipment (e.g., treadmill, ergometers, electrocardiograph, spirometer, metabolic cart, sphygmomanometer) that may indicate equipment malfunction
- i. commonly used medications in patients with chronic diseases, their mechanisms of action and side effects

**Domain II: Exercise Testing****A. Select, administer and interpret submaximal aerobic exercise tests (for example, treadmill, cycle, step test, 6-minute walk).**

## 1. Knowledge of:

- a. tests to assess submaximal aerobic endurance
- b. the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- c. the mechanisms underlying the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- d. the effect of chronic diseases on acute and chronic responses to aerobic exercise
- e. standard and/or disease-specific endpoints for submaximal aerobic exercise tests in apparently healthy individuals and those with chronic disease
- f. typical submaximal aerobic test results and physiological values in trained and untrained individuals and those with and without chronic diseases
- g. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
- h. abnormal readings and results from exercise testing equipment (for example, treadmill, ergometers, electrocardiograph, spirometer, metabolic cart, sphygmomanometer) that may indicate equipment malfunction
- i. commonly used medications in patients who have chronic diseases, their mechanisms of action and side effects, and their effect on physiological values during exercise  
**NOTE: Text change to add the effect on physiological values during exercise**
- j. relative and absolute contraindications  
**NOTE: New**
- k. normal and abnormal endpoints (signs/symptoms) for termination of exercise testing  
**NOTE: New**

## 2. Skill in:

- a. selecting the appropriate exercise test based on a patient's disease, condition and ability
- b. administering and interpreting of submaximal aerobic exercise tests
- c. modifying submaximal aerobic test and/or interpretation of results in response to medication use, timing and side effects

**B. Select, administer and interpret tests to assess musculoskeletal fitness, mobility and balance.**

## 1. Knowledge of:

- a. tests to assess flexibility, range of motion, mobility, muscular fitness (strength, endurance, power), and neuromotor skills (balance, agility, proprioception)
- b. the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- c. tests to assess physical function and balance
- d. the acute and chronic responses to flexibility and mobility exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems
- e. the mechanisms underlying the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, neoplastic, hematologic, orthopedic, immunologic, musculoskeletal, neurological, endocrine and immune systems in trained and untrained individuals
- f. the effects of chronic diseases and their treatments on acute and chronic responses to resistance exercise and an individual's flexibility and mobility

## 2. Skill in:

- a. selecting the appropriate exercise test based on a patient's disease, condition and ability
- b. administering and interpreting submaximal aerobic exercise tests
- c. modifying submaximal aerobic tests and/or interpreting results in response to medication use, timing and side effects

**NOTE: gramatic change**

- d. communicating level of effort required for successful testing (for example, RPE, target HR) with patient

**NOTE: New****B. Select, administer and interpret tests to assess musculoskeletal fitness, mobility and balance.**

## 1. Knowledge of:

- a. tests to assess flexibility, range of motion, mobility, muscular fitness (strength, endurance, power), and neuromotor skills (balance, agility, proprioception)
- b. the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- c. the acute and chronic responses to flexibility and mobility exercises on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems
- d. the mechanisms underlying the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, neoplastic, hematologic, orthopedic, immunologic, musculoskeletal, neurological, endocrine and immune systems in trained and untrained individuals
- e. the effects of chronic diseases and their treatments on acute and chronic responses to resistance exercise and an individual's flexibility and mobility
- f. standard and/or disease-specific endpoints for muscular strength, endurance, functional and balance testing in apparently healthy individuals and those with chronic disease

g. standard and/or disease-specific endpoints for muscular strength, endurance, functional and balance testing in apparently healthy individuals and those with chronic disease

g. typical muscular strength, muscular endurance, functional and balance test results and physiological values in a broad range of individuals (for example, trained and untrained, across the age groups, those with and without chronic diseases)

h. typical muscular strength, muscular endurance, functional and balance test results and physiological values in a broad range of individuals (e.g., trained and untrained, across the age groups, those with and without chronic diseases)

h. commonly used medications in patients who have chronic diseases, their mechanisms of action and side effects

**NOTE: Minor text change from “with” to “who have”**

i. commonly used medications in patients with chronic diseases, their mechanisms of action and side effects

2. Skill in:

2. Skill in:

a. selecting an exercise test based on a patient’s disease, condition and ability

a. selecting an exercise test based on a patient’s disease, condition and ability

b. administering and interpreting tests to assess muscular strength and endurance

b. administering and interpreting tests to assess muscular strength, endurance, and power

**NOTE: Text change to include “power”**

c. administering and interpreting physical functional and balance tests

c. administering and interpreting physical function and balance tests

d. modifying musculoskeletal fitness, mobility and balance tests and/or interpretation of results in response to medication use, timing and side effects

d. modifying musculoskeletal fitness, mobility, and balance tests and/or interpreting results in response to medication use, timing and side effects

**NOTE: Edited to remove reference to modification of tests**

**C. Select, prepare and administer maximal, symptom-limited exercise tests.**

**C. Select, prepare and administer maximal, symptom-limited exercise tests.**

1. Knowledge of:

1. Knowledge of:

a. contraindications to symptom-limited, maximal exercise testing and factors associated with complications (e.g., probability of coronary heart disease, abnormal blood pressure)

a. contraindications to symptom-limited, maximal exercise testing and factors associated with complications (for example, probability of coronary heart disease, abnormal blood pressure)

b. medical therapies for chronic diseases and their effect on the physiologic response to exercise

b. standard disease-specific practice guidelines/recommendations

**NOTE: New**

c. current practice guidelines/recommendations (e.g., AHA, Arthritis Foundation, National Multiple Sclerosis Society) for the prevention, evaluation, treatment and management of chronic diseases

c. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring) and the effect on exercise in patients who have chronic diseases

**NOTE: Minor text change**

d. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases

d. cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat



2022 Outline (continued)

2024 Outline (continued)

e. cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat	e. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
f. normal and abnormal endpoints (i.e., signs/symptoms) for termination of exercise testing	f. medical therapies for chronic diseases and their effect on resting and exercise vital signs and symptoms
g. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease	g. commonly used medications in patients who have chronic diseases, their mechanisms of action, side effects, and physiological effects on exercise <b>NOTE: Text change to include “physiological effects on exercise”</b>
h. medical therapies for chronic diseases and their effect on resting vital signs and symptoms	h. procedures to prepare a patient for ECG monitoring, including standard and modified lead placement
i. commonly used medications in patients with chronic diseases, their mechanisms of action and side effects	i. tools to guide exercise intensity (for example, heart rate, perceived exertion, dyspnea scale, pain scale)
j. procedures to prepare a patient for ECG monitoring, including standard and modified lead placement	j. the use of effective communication techniques (for example, active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills) to address patient concerns with exam procedures <b>NOTE: Minor text change to change “concerns” to “patient concerns”</b>
k. tools to guide exercise intensity (e.g., heart rate, perceived exertion, dyspnea scale, pain scale)	k. tests to assess maximal exercise tolerance
l. the use of effective communication techniques (e.g., active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills) to address any concerns with the exam procedures	l. the physiologic responses during incremental exercise to maximal exertion in trained and untrained individuals and those with and without chronic diseases
m. tests to assess maximal exercise tolerance	m. standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease
n. the physiologic responses during incremental exercise to maximal exertion in trained and untrained individuals and those with and without chronic diseases	n. typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases
o. standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease	o. medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise
p. typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases	
q. medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise	

2022 Outline (continued)

2. Skill in:

- a. administering a symptom-limited, maximal exercise test
- b. preparing a patient for ECG monitoring during exercise
- c. assessing vital signs and symptoms at rest and during exercise
- d. interpreting ECG rhythms and 12-lead ECGs

**D. Evaluate and report results from a symptom-limited maximal exercise test to medical providers and in the medical record as required.**

1. Knowledge of:

- a. the effects of chronic diseases on acute responses to maximal exercise
- b. standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease
- c. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease during maximal exercise testing
- d. typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases
- e. medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise
- f. the interpretation of maximal exercise test measures (e.g., ECG response, oxygen saturation, rate-pressure product, claudication) and prognostic tools (e.g., Duke Treadmill Score) in context with the indication for the test, termination reason and the patient's medical history

2. Skill in:

- a. interpreting and reporting results from a symptom-limited, maximal exercise test

2024 Outline (continued)

2. Skill in:

- a. selecting and administering a symptom-limited, maximal exercise test  
*NOTE: Text change to add "selecting"*
- b. preparing a patient for ECG monitoring during exercise
- c. assessing vital signs and symptoms before, during, and after exercise  
*NOTE: Text change to clarify timeframes*
- d. interpreting ECG rhythms and 12-lead ECGs
- e. recognizing and responding to relative and absolute contraindications to exercise testing *New*

**D. Evaluate and report results from a symptom-limited maximal exercise test to medical providers and in the medical record as required.**

1. Knowledge of:

- a. the effects of chronic diseases on acute responses to maximal exercise
- b. standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease
- c. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease during maximal exercise testing
- d. typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases
- e. medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise
- f. the interpretation of maximal exercise test measures (for example, ECG response, oxygen saturation, rate-pressure product, claudication, blood pressure) and prognostic tools (for example, Duke Treadmill Score) in context with the indication for the test, termination reason and the patient's medical history  
*NOTE: Text change - "blood pressure" added to first parenthetical reference*

2. Skill in:

- a. interpreting and reporting results from a symptom-limited, maximal exercise test
- b. assessing basic metabolic data (for example, VO<sub>2</sub>, respiratory exchange ratio, anaerobic threshold)  
*NOTE: New*

**E. Identify relative and absolute contraindications for test termination and report to medical personnel as needed.**

## 1. Knowledge of:

a. absolute contraindications and endpoints for terminating exercise testing

## 2. Skill in:

a. interpreting and reporting results from a symptom-limited, maximal exercise test

b. assessing vital signs and symptoms at rest and during exercise

c. interpreting ECG rhythms and 12-lead ECGs

**Domain III: Exercise Prescription****A. Develop individualized exercise prescription to support patient needs and goals for various exercise environments (e.g., home/community based, facility based, virtual).**

## 1. Knowledge of:

a. appropriate mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease

b. the FITT principle (frequency, intensity, time, type) for aerobic, flexibility, mobility, muscular fitness and neuromotor skills exercise prescription

c. the benefits and risks of aerobic, resistance and flexibility/mobility exercise training in apparently healthy individuals and those with chronic disease

d. the effects of physical inactivity and/or sedentary lifestyle and methods to counteract these changes through physical activity and exercise levels

e. normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases

**E. Identify relative and absolute indications for test termination and report to medical personnel as needed.**

## 1. Knowledge of:

a. relative and absolute indications and endpoints for terminating exercise testing

**NOTE: Text change**

## 2. Skill in:

a. interpreting and reporting results from a symptom-limited, maximal exercise test

b. assessing vital signs and symptoms during exercise

**NOTE: Text change to remove “at rest”**

c. interpreting ECG rhythms and 12-lead ECGs

**Domain III: Exercise Prescription****A. Develop individualized exercise prescription to support patient needs and goals for various exercise environments (for example, home/community based, medical facility or fitness facility based, virtual).****NOTE: Text change**

## 1. Knowledge of:

a. exercise prescription principles (e.g., frequency, intensity, type, time [FITT], specificity, progression) to meet the needs and abilities of apparently healthy individuals and those with chronic disease

**NOTE: New (loose combination of III.A.1.a and 1.b from 2022 outline)**

b. the benefits and risks of aerobic, resistance and flexibility/mobility exercise training in apparently healthy individuals and those with chronic disease

c. the effects of physical inactivity and/or sedentary lifestyle and methods to counteract these changes through physical activity and exercise levels

d. normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases

e. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring, occupational exercise) and the effect on exercise training in patients who have chronic diseases

**NOTE: Text change to add “occupational exercise”**

2022 Outline (continued)

2024 Outline (continued)

f. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise training in patients with chronic diseases

f. disease-specific strategies or tools (for example, breathing techniques, assistive devices, medications) to improve exercise tolerance in patients who have chronic disease

**NOTE: Text change to expand example to “medications”**

g. disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease

g. appropriate modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease

h. appropriate modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease

h. current practice guidelines/recommendations (for example, U.S. Department of Health and Human Services, American College of Sports Medicine, Arthritis Foundation) for exercise prescription in apparently healthy individuals and those with chronic disease

i. current practice guidelines/recommendations (e.g., U.S. Department of Health and Human Services, American College of Sports Medicine, Arthritis Foundation) for exercise prescription in apparently healthy individuals and those with chronic disease

i. metabolic calculations and their uses

**NOTE: Text change**

j. applying metabolic calculations

j. proper biomechanical techniques for exercise (for example, gait assessment, proper weightlifting form)

k. proper biomechanical technique for exercise (e.g., gait assessment, proper weight lifting form)

k. muscle strength/endurance and flexibility/mobility modalities and their safe application and instruction

l. muscle strength/endurance and flexibility/mobility modalities and their safe application and instruction

l. principles and applications of exercise session organization and prioritization

m. principles and application of exercise session organization and prioritization

m. known demographic factors related to likelihood of adherence and maintenance of exercise (for example, age, sex, socioeconomic status, education, ethnicity, vocation)

n. known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, sex, socioeconomic status, education, ethnicity, vocation)

n. psychological issues associated with acute and chronic illness (for example, anxiety, depression, social isolation, suicidal ideation)

o. psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation)

o. goal setting (for example, SMART goals), reviewing and providing constructive feedback in identifying barriers and reinforcing positive changes

**NOTE: Text change to clarify wording**

p. goal setting (e.g., SMART goals), reviewing and constructive feedback in identifying barriers and reinforcing positive changes

p. risk factor reduction programs and alternative community resources (for example, dietary counseling, weight management, smoking cessation, stress management, physical therapy/back care)

q. risk factor reduction programs and alternative community resources (e.g., dietary counseling, weight management, smoking cessation, stress management, physical therapy/back care)

q. incorporating health behavior theories into clinical practice

r. incorporating health behavior theories into clinical practice

2022 Outline (continued)

2. Skill in:

- a. interpreting functional and diagnostic exercise testing with applications to exercise prescription
- b. interpreting muscular fitness testing with applications to exercise prescription
- c. developing an exercise prescription based on a patient's clinical status and goals
- d. applying metabolic calculations
- e. applying strategies to reduce risk of adverse events during exercise (e.g., gait belt, blood glucose monitoring)
- f. individualizing exercise programs based on an individual's resources and environment
- g. optimizing patient compliance and adherence of exercise prescription

**B. Communicate the exercise prescription, the proper use of exercise equipment, and the importance of promptly reporting any adverse reactions or symptoms.**

1. Knowledge of:

- a. normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases
- b. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring), their effect on exercise training in patients with chronic diseases and how to communicate this information with patient
- c. lay terminology for explanation of exercise prescription
- d. the operation of various exercise equipment/modalities
- e. proper biomechanical technique for exercise (e.g., gait assessment, proper weightlifting form)
- f. muscle strength/endurance and flexibility and mobility modalities and their safe application and instruction

2024 Outline (continued)

2. Skill in:

- a. basic interpretation of functional (for example, muscular, aerobic, neuromotor) and diagnostic exercise testing with applications to exercise prescription  
*NOTE: Text change to "basic" interpretation*
- b. developing an exercise prescription based on a patient's clinical status and goals
- c. applying metabolic calculations
- d. applying strategies to reduce risk of adverse events during exercise (for example, gait belt, blood glucose monitoring)
- e. individualizing exercise programs based on an individual's resources and environment
- f. optimizing patient compliance and adherence to an exercise prescription  
*NOTE: Text change (changed "of" to "to an")*

**B. Communicate the exercise prescription, the proper use of exercise equipment, and the importance of promptly reporting any adverse reactions or symptoms.**

1. Knowledge of:

- a. normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases
- b. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring, occupational exercise), the effect on exercise training in patients with chronic diseases and how to communicate this information to the patient  
*NOTE: Text change to include "occupational exercise"*
- c. lay terminology for explanation of an exercise prescription
- d. the operation of various exercise equipment/modalities
- e. proper biomechanical techniques for exercise (for example, gait assessment, proper weightlifting form)
- f. muscle strength/endurance and flexibility and mobility modalities and their safe application and instruction

2022 Outline (continued)

2024 Outline (continued)

- g. principals and application of exercise session organization
- h. proper protocol to report adverse symptoms per facility policy
- i. fitness technology (e.g., wearable devices, apps), user function and application to communication of the exercise prescription

- g. principals and applications of exercise session organization
- h. fitness technology (for example, wearable devices, apps), user function and application to communication of the exercise prescription

2. Skill in:

- a. communicating exercise prescription, exercise techniques and organization of exercises
- b. demonstration of exercises, analysis of technique and appropriate recommendations to correct form and/or alternatives to meet patient needs and goals
- c. using, teaching and problem-solving fitness technology options (e.g., wearable devices, apps) to support patient engagement in exercise prescription

2. Skill in:

- a. communicating exercise prescription, exercise techniques and organization of exercises
- b. demonstration of exercises, analyses of technique and appropriate recommendations to correct form and/or alternatives to meet patient needs and goals
- c. using, teaching and problem-solving fitness technology options (for example, wearable devices, apps) to support patient engagement in exercise prescription

**C. Explain and confirm patient understanding of exercise intensity and measures to assess exercise intensity (e.g., target heart rate, RPE, signs/symptoms, talk test).**

**C. Explain and confirm patient understanding of exercise intensity and measures to assess exercise intensity (for example, target heart rate, RPE, signs/symptoms, talk test).**

1. Knowledge of:

- a. tools to guide exercise intensity (e.g., heart rate, RPE, dyspnea scale, pain scale, talk test)
- b. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- c. clear communication using patient learning style and/or health literacy to explain exercise intensity assessment
- d. clear communication through effective communication techniques (e.g., active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills)

1. Knowledge of:

- a. tools to guide exercise intensity (for example, target heart rate, RPE, signs/symptoms, talk test)  
*NOTE: Text change to consolidate examples*
- b. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- c. clear communication using patient learning style and/or health literacy to explain exercise intensity assessments
- d. clear communication through effective communication techniques (for example, active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills)

2. Skill in:

- a. teaching methods used to guide exercise intensity

2. Skill in:

- a. teaching patients how to monitor exercise intensity based on the individual's resources and environment  
*NOTE: Text change to focus on instruction of individuals*

**D. Evaluate and modify the exercise prescription based on the patient's compliance, signs/symptoms and physiologic response to the exercise program, as needed.**

1. Knowledge of:

- a. physiologic effects due to changes in medical therapies for chronic diseases and their impact on exercise training
- b. typical responses to aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- c. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases
- d. disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease
- e. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- f. mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease
- g. commonly used medications in patients with chronic diseases, their mechanisms of action and side effects
- h. modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease
- i. systems for tracking patient progress in both preventive and rehabilitative exercise programs
- j. patient progress in a preventive and rehabilitative exercise program given sex, age, clinical status, pre-program fitness level, specifics of the exercise program (e.g., walking only vs. comprehensive monitored program) and rate of program participation

**D. Evaluate and modify the exercise prescription based on the patient's compliance, signs/symptoms and physiologic response to the exercise program, as needed.**

1. Knowledge of:

- a. physiologic effects due to changes in medical therapies for chronic diseases and their impact on exercise training
- b. typical responses to aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- c. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring, occupational exercise) and their effect on exercise in patients who have chronic diseases  
*NOTE: Text change to include "occupational exercise"*
- d. disease-specific strategies or tools (for example, breathing techniques, assistive devices, medications) to improve exercise tolerance in patients who have chronic disease  
*NOTE: Text change to expand example to "medications"*
- e. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- f. frequency, intensity, type, time [FITT], specificity, and progression of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease  
*NOTE: Text change to focus on FITT*
- g. commonly used medications in patients who have chronic disease, their mechanisms of action and side effects  
*NOTE: Text change*
- h. modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease
- i. systems for tracking patient progress in both preventive and rehabilitative exercise programs
- j. patient progress in a preventive and rehabilitative exercise program given sex, age, clinical status, pre-program fitness level, specifics of the exercise program (for example, walking only vs. comprehensive monitored program) and rate of program participation

2. Skill in:
a. helping patients identify barriers and providing strategies to overcome them
b. assessing adequacy of patient's progress in a preventive or rehabilitative exercise program given age, sex, clinical status, specifics of the exercise program and rate of program participation
c. developing an individualized exercise prescription
d. using patient feedback and developing individualized exercise prescription and/or care plan
e. active listening
f. modifying an exercise prescription specifically to meet a patient's individual needs and goals
g. demonstrating exercises, analysis of technique and appropriate recommendations to correct form and/or alternatives to meet patient needs and goals

#### Domain IV: Exercise Training and Leadership

##### A. Discuss and explain exercise training plan, patient and clinician expectations and goals.

1. Knowledge of:
a. health counseling techniques (e.g., the patient-centered approach) and nonjudgmental positive regard in creation of collaborative partnership
b. effective communication techniques, while using clear, patient-friendly terms (e.g., active listening, body language, motivational interviewing)
c. factors related to health literacy skills and capacity
d. cardiovascular, pulmonary metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic, and hematologic disorders, their clinical progression, diagnostic testing and medical regimens/procedures
e. the FITT principle (frequency, intensity, time, type) for aerobic, muscular fitness/resistance training and flexibility/mobility exercise prescription

2. Skill in:
a. helping patients identify barriers and providing strategies to overcome them
b. assessing adequacy of patient's progress in a preventive or rehabilitative exercise program given age, sex, clinical status, specifics of the exercise program and rate of program participation
c. developing an individualized exercise prescription
d. using patient feedback in developing an individualized exercise prescription and/or care plan <i>NOTE: Text change (from 'and' to 'in')</i>
e. active listening
f. modifying an exercise prescription specifically to meet a patient's individual needs and goals
g. demonstrating exercises, analysis of technique and appropriate recommendations to correct form and/or alternatives to meet patient needs and/or physiological responses to exercise modifying exercise/physical activity program in response to medication use, timing and side effects <i>NOTE: Text change to focus on patient needs rather than correction</i>

#### Domain IV: Exercise Training and Leadership

##### A. Discuss and explain exercise training plan, patient and clinician expectations and goals.

1. Knowledge of:
a. health counseling techniques (for example, the patient-centered approach) and nonjudgmental positive regard in the creation of a collaborative partnership
b. effective communication techniques using clear, patient-friendly terms (for example, active listening, body language, motivational interviewing)
c. factors related to health literacy skills and capacity
d. cardiovascular, pulmonary metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic, and hematologic disorders, their clinical progression, diagnostic testing and medical regimens/procedures
e. the FITT principle (frequency, intensity, time, type) for exercise prescription <i>NOTE: Text change to make it more general</i>



2022 Outline (continued)

2024 Outline (continued)

f. the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise training in patients with chronic disease

f. the timing of daily activities (for example, medications, dialysis, meals, glucose monitoring, occupational exercise) and their effect on exercise training in patients who have chronic disease

**NOTE: Text change to include “occupational exercise”**

g. disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease

g. disease-specific strategies or tools (for example, breathing techniques, assistive devices, medications) to improve exercise tolerance in patients who have chronic disease

**NOTE: Text change to expand example to “medications”**

h. exercise training concepts specific to industrial or occupational rehabilitation, such as work hardening, work conditioning, work fitness and job coaching

h. exercise training concepts such as work hardening, work conditioning, work fitness and basic workplace ergonomics

**NOTE: Text change to remove specific reference to “industrial or occupational rehabilitation”**

i. commonly used medication for cardiovascular, pulmonary and metabolic diseases

i. commonly used medications for cardiovascular, pulmonary and metabolic diseases

j. the unique barriers to participation of patients who have chronic disease (for example, transportation)

**NOTE: New**

2. Skill in:

2. Skill in:

a. identifying unique needs of those with chronic diseases in exercise prescription

a. identifying the unique needs of patients who have chronic diseases in exercise prescription

**NOTE: Text change (added “the”)**

b. communicating the exercise prescription

b. communicating the exercise prescription

c. educating patients following the observation of problems with comprehension and performance of their exercise program

c. educating patients following the observation of problems with comprehension and performance of their exercise program

d. applying techniques to reduce risks of adverse events during exercise (e.g., gait belt, blood glucose monitoring)

d. applying techniques to reduce risk of adverse events during exercise (for example, gait belt, blood glucose monitoring)

e. educating patients on the use and effects of medications

e. educating patients on the basic use and effects of medications

**NOTE: Text change to add basic**

f. communicating with patients from a wide variety of educational backgrounds

f. communicating with patients from a variety of educational backgrounds

g. using patient feedback to develop individualized exercise prescription and/or care plan

g. using patient feedback to develop an individualized exercise prescription and/or care plan

h. active listening

h. active listening

**B. Identify, adapt and instruct in cardiorespiratory fitness, muscular strength and endurance, flexibility, coordination and agility exercise modes.**

## 1. Knowledge of:

- a. the selection, operation and modification of exercise equipment/modalities based on the disease, condition and ability of the patient
- b. proper biomechanical technique for exercise (e.g., gait, weight lifting form)
- c. exercise techniques to reduce risk and maximize the development of cardiorespiratory fitness, muscular strength and flexibility/mobility
- d. mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease
- e. disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease
- f. counseling techniques to optimize patient's disease management, risk reduction and goal attainment
- g. modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease
- h. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease

## 2. Skill in:

- a. identifying unique needs and goals of a patient and adapting/modifying an exercise program
- b. supervising and leading patients during exercise training
- c. communicating the exercise prescription
- d. educating patients following the observation of problems with comprehension and performance of their exercise program

**B. Instruct and modify in cardiorespiratory fitness, muscular strength and endurance, flexibility, coordination and agility exercise modes.**

## 1. Knowledge of:

- a. the selection, operation and modification of exercise equipment/modalities based on the disease, condition and ability of the patient
- b. proper biomechanical technique for exercise (for example, gait, weightlifting form)
- c. exercise techniques to reduce risk and maximize the development of cardiorespiratory fitness, muscular strength and flexibility/mobility
- d. frequency, intensity, time, and type of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease  
**NOTE: Text change**
- e. disease-specific strategies or tools (for example, breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients who have chronic disease
- f. counseling techniques to optimize patient's disease management, risk reduction and goal attainment
- g. modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease
- h. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease

## 2. Skill in:

- a. identifying the unique needs and goals of a patient and modifying an exercise program  
**NOTE: Text change to add "adapting"**
- b. supervising and leading individual patients and groups of patients during exercise training  
**NOTE: Text change to include both "individuals" and "groups"**
- c. communicating the exercise prescription
- d. educating patients following the observation of problems with comprehension and performance of their exercise program
- e. providing cues to optimize performance and safety based on observation of their exercise program  
**NOTE: New**

**C. As indicated, provide patient monitoring (e.g., pulse oximetry, biometric data) and supervision during exercise.**

## 1. Knowledge of:

- a. normal and abnormal exercise responses, signs and symptoms associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders)
- b. normal and abnormal 12-lead and telemetry ECG interpretation
- c. exercise program monitoring (e.g., telemetry, oximetry, glucometry)
- d. disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease
- e. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- f. the components of a patient's medical history necessary to screen during program participation
- g. commonly used medications in patients with chronic diseases, their mechanisms of action and side effects
- h. the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring)
- i. how medications or missed dose(s) of medications impact exercise and its progression
- j. psychological issues associated with acute and chronic illness (e.g., depression, social isolation, suicidal ideation)
- k. health counseling techniques and nonjudgmental positive regard

## 2. Skill in:

- a. monitoring and supervising patients during exercise training
- b. interpreting ECG rhythms and 12-lead ECGs
- c. recognizing adverse effects of exercise in apparently healthy individuals or those with pathologies of acute and/or chronic disease

**C. Provide patient monitoring (for example, pulse oximetry, biometric data) and supervision during exercise.**

## 1. Knowledge of:

- a. normal and abnormal exercise responses, signs and symptoms associated with different pathologies (including cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders)
- b. normal and abnormal 12-lead and telemetry ECG interpretation
- c. exercise program monitoring (for example, telemetry, oximetry, glucometry)
- d. disease-specific strategies or tools (for example, breathing techniques, assistive devices, medications) to improve exercise tolerance in patients who have chronic disease  
*NOTE: Text change to expand example to "medications"*
- e. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- f. the components of a patient's medical history necessary to screen during program participation
- g. commonly used medications in patients who have chronic disease, their mechanisms of action and side effects  
*NOTE: Text change*
- h. the timing of daily activities with exercise (for example, medications, meals, insulin/glucose monitoring)
- i. how medications or missed dose(s) of medications impact exercise and its progression
- j. psychological issues associated with acute and chronic illness (for example, depression, social isolation, suicidal ideation)
- k. health counseling techniques and nonjudgmental positive regard

## 2. Skill in:

- a. monitoring and supervising individual patients and groups of patients during exercise training  
*NOTE: Text change*
- b. interpreting ECG rhythms and 12-lead ECGs
- c. recognizing adverse effects of exercise in apparently healthy individuals or those with pathologies of acute and/or chronic disease

2022 Outline (continued)

- d. applying and interpreting tools for clinical assessment (e.g., telemetry, oximetry and glucometry, perceived rating scales)
- e. modifying exercise/physical activity in response to medication use, timing and side effects

**D. Evaluate the patient's contraindications to exercise training and associated risk/benefit and modify the exercise/activity recommendations accordingly.**

1. Knowledge of:

- a. the contraindications to exercise training and factors associated with complications in apparently healthy individuals and those with chronic disease
- b. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- c. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
- d. the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- e. cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders, diagnostic testing and medical management regimens and procedures

2. Skill in:

- a. identifying contraindications to exercise training
- b. modifying the exercise recommendations based on patient's signs and symptoms, feedback and exercise responses

2024 Outline (continued)

- d. applying and interpreting tools for clinical assessment (for example, telemetry, oximetry and glucometry, perceived rating scales)
- e. modifying exercise/physical activity in response to medication use, timing and side effects

**D. Evaluate the patient's contraindications to exercise training and associated risk/benefit and modify the exercise/activity recommendations accordingly.**

1. Knowledge of:

- a. the relative and absolute contraindications to exercise training and factors associated with complications in apparently healthy individuals and those with chronic disease  
*NOTE: Text change to include both "individuals" and "groups"*
- b. indications to stop exercise training  
*NOTE: New*
- c. the benefits and risks of aerobic, resistance and flexibility/mobility training in apparently healthy individuals and those with chronic disease
- d. abnormal signs and symptoms in apparently healthy individuals and those with chronic disease
- e. the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals
- f. cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders, diagnostic testing and medical management regimens and procedures

2. Skill in:

- a. identifying relative and absolute contraindications to exercise training while working with individuals and groups  
*NOTE: Text change to include both "individuals" and "groups"*
- b. modifying the exercise recommendations based on patient's signs and symptoms, feedback and exercise responses

**E. Evaluate, document and report patient's clinical status and response to exercise training in the medical records.**

1. Knowledge of:

- a. the techniques (e.g., lab results, diagnostic tests) used to diagnose different pathologies, their indications, limitations, risks, normal and abnormal results
- b. the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, neoplastic, endocrine, immune and cognitive systems in trained and untrained individuals.
- c. normal and abnormal exercise responses, signs and symptoms associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic, cognitive, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders)
- d. how chronic diseases may affect the acute and chronic responses to exercise training
- e. abnormal signs or symptoms which may be associated with worsening of a chronic disease
- f. proper medical documentation according to generally accepted principles and individual facility standards
- g. regulations relative to documentation and protecting patient privacy (e.g., written and electronic medical records, HIPAA, HITRUST)

2. Skill in:

- a. summarizing patient's exercise sessions, outcomes and clinical status into patient's medical record
- b. proficiency in medical charting

**E. Evaluate, document and report patient's clinical status and response to exercise training in medical records.**

1. Knowledge of:

- a. assessment tools (for example, lab results, diagnostic tests) used to diagnose different pathologies, their indications, limitations, risks, normal and abnormal results  
*NOTE: Text change from "the techniques" to "assessment tools"*
- b. the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, neoplastic, endocrine, immune and cognitive systems in trained and untrained individuals.
- c. normal and abnormal exercise responses, signs and symptoms associated with different pathologies (including cardiovascular, pulmonary, metabolic, cognitive, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders)
- d. how chronic diseases may affect the acute and chronic responses to exercise training
- e. abnormal signs or symptoms which may be associated with worsening of a chronic disease
- f. proper medical documentation according to generally accepted principles  
*NOTE: Text change to remove "and individual facility standards"*
- g. regulations relative to documentation and protecting patient privacy (for example, written and electronic medical records, Health Insurance Portability and Accountability Act [HIPAA], Health Information Trust Alliance [HITRUST])  
*NOTE: Text change to spell out acronyms*

2. Skill in:

- a. summarizing patient exercise sessions, outcomes and clinical status in their medical record  
*NOTE: Text change*
- b. basic medical charting  
*NOTE: Text change*

**F. Discuss clinical status and response to exercise training with patients and adapt and/or modify the exercise program, as indicated.**

1. Knowledge of:

- a. common barriers to exercise compliance and adherence (e.g., physical, environmental, demographic)
- b. effective communication techniques (e.g., active listening, body language)
- c. techniques to adapt/modify exercise program based on a patient's needs
- d. assess patient's individual progress based on known cardiorespiratory fitness, muscular strength, and flexibility/mobility improvements expected within a given population
- e. assess patient's tolerance to exercise modality and suggest comparable alternative modalities

2. Skill in:

- a. communicating health information based on a patient's learning style and health literacy
- b. modifying the exercise program based on patient's signs and symptoms, feedback and exercise responses
- c. summarizing patient's exercise sessions, outcomes and clinical status into patient's medical record

**F. Discuss clinical status and response to exercise training with patients and modify the exercise program, as indicated.**

**NOTE: Text change**

1. Knowledge of:

- a. common barriers to exercise compliance and adherence (for example, physical, environmental, demographic)
- b. effective communication techniques (for example, active listening, body language)
- c. techniques to modify exercise program based on patient needs
- d. assess patient progress based on known cardiorespiratory fitness, muscular fitness, and flexibility/mobility improvements expected within a given population population  
**NOTE: Text change (removed "individual")**
- e. assess patient tolerance to exercise modality and suggest comparable alternative modalities
- f. communicating health information based on patient learning style and health literacy  
**NOTE: Moved from IV.F.2.a**

2. Skill in:

- a. modifying an exercise program based on patient signs and symptoms, feedback and exercise responses using patient data to inform adjustments to the program  
**NOTE: Text change**
- b. summarizing patient exercise sessions, outcomes and clinical status in their medical record  
**NOTE: Text change**

**G. Promptly report new or worsening symptoms and adverse events in the patient's medical record and consult with the responsible health care provider.**

1. Knowledge of:

- a. proper medical documentation according to generally accepted principles and individual facility standards
- b. the scope of practice of health care professionals (e.g., physical therapist, nurse, dietitian, psychologist, health coaches)
- c. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- d. the effects of chronic diseases on the acute and chronic responses to exercise training

2. Skill in:

- a. assessing normal and abnormal response to exercise
- b. educating patients following the observation of problems with comprehension and performance of their exercise program
- c. evaluating and prompt reporting of a patient's adverse response to an exercise program in accordance with a facility policy and procedures

**G. Promptly report new or worsening symptoms and adverse events in the patient's medical record and consult with the responsible health care provider.**

1. Knowledge of:

- a. proper medical documentation according to generally accepted principles  
*NOTE: Text change*
- b. the basic scope of practice of health care professionals (for example, physical therapist, nurse, dietitian, psychologist, health coach)  
*NOTE: Text change*
- c. abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease
- d. the effects of chronic diseases on the acute and chronic responses to exercise training

2. Skill in:

- a. assessing normal and abnormal response to exercise
- b. educating patients following the observation of problems with comprehension and performance of their exercise program
- c. evaluating and prompt reporting of a patient's adverse response to an exercise program in accordance with a facility policy and procedures
- d. collaborating with interdisciplinary healthcare team members, including physicians, nurses, and other allied health professionals, to coordinate patient care  
*NOTE: New*
- e. educating patients about the importance of reporting symptoms and adverse events and seeking timely medical attention  
*NOTE: New*

**Domain V: Education and Behavior Change****A. Continually evaluate patients using observation, interaction and industry-accepted tools, to identify those who may benefit from counseling or other behavioral health services using industry-accepted screening tools.**

## 1. Knowledge of:

- a. establishment of rapport through use of open-ended questions, active listening and attention to nonverbal behavior, interest and empathy
- b. the psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, hostility, aggression, suicidal ideation)
- c. theories of health behavior change (e.g., Social Cognitive Theory, Health Belief Model, Transtheoretical Model)
- d. industry-accepted screening tools to evaluate behavioral health status (e.g., SF-36, Beck Depression Index)
- e. signs and symptoms of failure to cope during personal crises (e.g., job loss, bereavement, illness)
- f. accepted methods of referral to behavioral health or other specialists as needed

## 2. Skill in:

- a. administering commonly used screening tools to evaluate behavioral health status
- b. applying and interpreting psychosocial assessment tools
- c. identifying patients who may benefit from behavioral health services

**Domain V: Education and Behavior Change****A. Continually evaluate patients using observation, interaction and industry-accepted tools to identify those who may benefit from counseling or other behavioral health services using industry-accepted screening tools.**

## 1. Knowledge of:

- a. methods to establish rapport through the use of open-ended questions, active listening and attention to nonverbal behavior, compassion and empathy  
*NOTE: Text change*
- b. the psychological issues associated with acute and chronic illness (for example, anxiety, depression, social isolation, hostility, aggression, suicidal ideation)
- c. theories of health behavior change (for example, Social Cognitive Theory, Health Belief Model, Transtheoretical Model)
- d. industry-accepted screening tools to evaluate behavioral health status (for example, SF-36, Beck Depression Index, PHQ9)  
*NOTE: Text change to add PHQ9 to parenthetical reference*
- e. signs and symptoms of failure to cope during personal crises (for example, job loss, bereavement, illness)
- f. accepted methods of referral to behavioral health or other specialists  
*NOTE: Text change to remove “as needed”*

## 2. Skill in:

- a. identifying patients who may benefit from behavioral health services
- b. recognizing signs of distress or behavioral health concerns during patient interactions and screenings  
*NOTE: New*
- c. motivating and empowering patients to set and achieve realistic health goals through behavior change strategies  
*NOTE: New*
- d. collaborating effectively with other healthcare professionals to coordinate patient care and recognize when to facilitate referrals to qualified professionals (for example, psychologist, health well-being coach, social worker)  
*NOTE: New*



**B. Assess patient's understanding of their disease and/or disability and conduct education to teach the role of lifestyle in the prevention, management and treatment of the disease.**

1. Knowledge of:

- a. active listening, open-ended questioning, reflective listening skills
- b. patient-centered health counseling techniques (e.g., Five-A's Model, Motivational Interviewing).
- c. factors related to health literacy skills and capacity
- d. barriers to exercise compliance (e.g., physical/disease state, psychological, environmental, demographic)
- e. social ecological model
- f. psychological issues associated with acute and chronic illness (e.g., anxiety, depression, suicidal ideation)
- g. theories of health behavior change (e.g., Social Cognitive Theory, Health Belief Model, Transtheoretical Model)
- h. tools to determine a patient's knowledge and their readiness to change (e.g., scoring rulers, decisional balance)
- i. the benefits and risks of aerobic, resistance, flexibility/mobility and balance training in apparently healthy individuals and those with chronic disease
- j. the health benefits of a physically active lifestyle, the hazards of sedentary behavior and current recommendations from U.S. national reports on physical activity (e.g., U.S. Surgeon General, National Academy of Medicine)
- k. abnormal signs and symptoms during rest and exercise in apparently healthy individuals and those with chronic disease
- l. the epidemiology, pathophysiology, progression, risk factors, key clinical findings and treatments of chronic disease
- m. education content and program development based on patient's medical history, needs and goals

**B. Assess patient understanding of their disease and/or disability and conduct education to teach the role of lifestyle in the prevention, management and treatment of the disease/disability.**

1. Knowledge of:

- a. active listening, open-ended questioning, reflective listening skills
- b. patient-centered health counseling techniques (for example, Five-A's Model, motivational interviewing)
- c. factors related to health literacy skills and capacity
- d. barriers to exercise compliance (for example, physical/disease state, psychological, environmental, demographic)
- e. psychological issues associated with acute and chronic illness (for example, anxiety, depression, suicidal ideation)
- f. theories of health behavior change (for example, Social Cognitive Theory, Health Belief Model, Transtheoretical Model, Social Ecological Model)  
*NOTE: Text change to add Social Ecological Model*
- g. tools to determine patient knowledge and readiness to change (for example, scoring rulers, decisional balance)
- h. the benefits and risks of aerobic, resistance, flexibility/mobility and balance training in apparently healthy individuals and those with chronic disease
- i. the health benefits of a physically active lifestyle, the hazards of sedentary behavior and current recommendations from U.S. national reports on physical activity (for example, U.S. Surgeon General, National Academy of Medicine)
- j. abnormal signs and symptoms during rest and exercise in apparently healthy individuals and those with chronic disease
- k. the epidemiology, pathophysiology, progression, risk factors, key clinical findings and treatments of chronic disease
- l. education content and program development based on patient medical history, needs and goals
- m. medical therapies and commonly used medications for chronic diseases and their effect on resting vital signs, clinical measurements and the response to exercise

2022 Outline (continued)

2024 Outline (continued)

n. medical therapies and commonly used medications for chronic diseases and their effect on resting vital signs, clinical measurements and the response to exercise

n. disease-specific strategies and tools to improve exercise tolerance (for example, breathing techniques, insulin pump use, prophylactic nitroglycerin)

o. disease-specific strategies and tools to improve exercise tolerance (e.g., breathing techniques, insulin pump use, prophylactic nitroglycerin)

o. risk factor reduction strategies (for example, healthy nutrition, weight management/BMI, body composition, smoking cessation, stress management)

**NOTE: Text change to remove back care and substance abuse**

p. risk factor reduction strategies (e.g., healthy nutrition, weight management/BMI, body composition, smoking cessation, stress management, back care, substance abuse)

2. Skill in:

2. Skill in:

a. assessing a patient's educational needs

a. using current educational materials and programs on disease and the role of lifestyle intervention that are specific to the patient's need

**NOTE: Text change - items linked to these four statements should be reviewed to ensure they are aligned to the correct statement.**

b. communicating health information based on a patient's learning style and health literacy

b. teaching health information to patients in individual and group settings

c. developing educational materials and programs on disease and the role of lifestyle intervention

c. delivering health information in a clear, accessible manner tailored to patient preference and comprehension level

**NOTE: Text change**

d. teaching health information to patients in individual and group settings

d. assessing a patient's ability to learn and comprehend health information

**NOTE: Text change**

e. communicating exercise techniques, prescription and progression

e. using assessment tools, such as scoring rulers and decisional balance assessments, to evaluate patient knowledge and readiness to change regarding lifestyle behaviors and disease management **New**

f. engaging patient in collaborative discussions to explore motivations, barriers, and goals related to behavior change

**NOTE: New**

g. understanding the epidemiology, pathophysiology, progression, risk factors, clinical findings, and treatments of chronic diseases, and integrating this knowledge into patient education and lifestyle interventions

**NOTE: New**

h. understanding the effects of medical therapies and commonly used medications for chronic diseases on patient exercise response and overall health

**NOTE: New**

i. implementing risk factor reduction strategies, including diabetes education, weight management, and stress management techniques

**NOTE: New**

**C. Apply health behavior change techniques (e.g., motivational interviewing, cognitive behavioral therapy) based upon assessment of readiness to change.**

## 1. Knowledge of:

- a. active listening, open-ended questioning, reflective listening skills
- b. barriers to exercise compliance and adherence (e.g., physical/disease state, psychological, environmental, demographic, vocational)
- c. known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, sex, socioeconomic status, education, ethnicity)
- d. characteristics associated with poor adherence to healthy behaviors
- e. health counseling techniques (e.g., the patient-centered approach)
- f. goal setting (e.g., SMART goals), reviewing and constructive feedback in support of patient for best likelihood of achieving goals
- g. theories of health behavior change (e.g., Social Cognitive Theory, Health Belief Model, Transtheoretical Model)
- h. application of behavior-change techniques (e.g., motivational interviewing, cognitive behavioral therapy, health coaching)
- i. eliciting patient change through motivational interviewing technique
- j. development of self-efficacy (task and barriers) in exercise behaviors

## 2. Skill in:

- a. effective use of behavior-change techniques
- b. active listening of patient feedback and consideration with decision making of exercise prescription and/or care plan
- c. promoting patient engagement in process of fitness and health improvement
- d. creating clear communication using medical terminology suitable for patient's health literacy and/or learning style

**C. Use motivational interviewing techniques to engage patients in collaborative conversations, exploring and strengthening their motivation for behavior change.**

## 1. Knowledge of:

- a. active listening, open-ended questioning, reflective listening skills
- b. barriers to exercise compliance and adherence (for example, physical/disease state, psychological, environmental, demographic, vocational)
- c. known demographic factors related to likelihood of adherence and maintenance of exercise (for example, age, gender identity, socioeconomic status, education, ethnicity)  
*NOTE: Text change to parenthetical reference*
- d. characteristics associated with poor adherence to healthy behaviors
- e. health counseling techniques (for example, the patient-centered approach)
- f. goal setting (for example, SMART goals), reviewing and providing constructive feedback in support of patient for best likelihood of achieving goals
- g. theories of health behavior change (for example, Social Cognitive Theory, Health Belief Model, Transtheoretical Model)
- h. application of behavior-change techniques (for example, motivational interviewing, health coaching)
- i. eliciting patient change through motivational interviewing  
*NOTE: Text change to remove "technique"*
- j. development of self-efficacy (task and barriers) in exercise behaviors

## 2. Skill in:

- a. assessing a patient's readiness for change  
*NOTE: New*
- b. using behavior-change techniques  
*NOTE: Text change to remove "effective"*
- c. active listening of patient feedback and consideration with decision making of exercise prescription and/or care plan
- d. promoting patient engagement in the process of fitness and health improvement
- e. creating clear communication using medical terminology suitable for patient's health literacy and/or learning style

**D. Promote adherence to healthy behaviors through a patient-centered approach (e.g., addressing barriers, engaging in active listening, expressing interest and empathy, increasing self-efficacy, teaching relapse prevention techniques and identifying support).**

1. Knowledge of:

- a. establishment of rapport through use of open-ended questions, active listening and attention to nonverbal behavior, interest and empathy
- b. health counseling techniques (e.g., the patient-centered approach) and nonjudgmental positive regard in creation of collaborative partnership
- c. theories of health behavior change (e.g., Social Cognitive Theory, Health Belief Model, Transtheoretical Model, Five-A's Model).
- d. barriers to exercise compliance and adherence (e.g., physical/disease state, psychological, environmental, demographic, vocational)
- e. known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, sex, socioeconomic status, education, ethnicity)
- f. tools for measuring clinical exercise tolerance (e.g., heart rate, glucometry, subjective rating scales) and consideration of affect regulation in determining exercise prescription
- g. risk factor reduction programs and alternative community resources (e.g., wellness coaching, smoking cessation, physical therapy/back care, dietary counseling)
- h. goal setting (i.e., SMART goals), reviewing and constructive feedback in support of patient for best likelihood of achieving goals
- i. eliciting change talk by patient through motivational interviewing techniques
- j. development of self-efficacy (task and barriers) in exercise behaviors
- k. promotion of patient-intrinsic motivation (e.g., supporting feelings of autonomy and competence, positive feedback, enjoyment) in facilitating long-term adherence to exercise
- l. community resources (exercise and/or health support) available for patient use following program conclusion and/or discharge

**D. Promote adherence to healthy behaviors through a patient-centered approach (for example, addressing barriers, engaging in active listening, expressing interest and empathy, increasing self-efficacy, teaching relapse prevention techniques and identifying support).**

1. Knowledge of:

- a. establishing rapport through open-ended questions, active listening and attention to nonverbal behavior, interest and empathy  
*NOTE: Text change*
- b. health counseling techniques (for example, the patient-centered approach) and nonjudgmental positive regard in the creation of collaborative partnership
- c. theories of health behavior change (for example, Social Cognitive Theory, Health Belief Model, Transtheoretical Model, Five-A's Model)
- d. barriers to exercise compliance and adherence (for example, physical/disease state, psychological, environmental, demographic, vocational)
- e. known demographic factors related to likelihood of adherence and maintenance of exercise (for example, age, gender identity, socioeconomic status, education, ethnicity)  
*NOTE: Text change in parenthetical reference*
- f. tools for measuring clinical exercise tolerance (for example, heart rate, glucometry, subjective rating scales) and consideration of affect regulation in determining exercise prescription
- g. risk factor reduction programs and alternative community resources (for example, wellness coaching, smoking cessation, physical therapy/back care, dietary counseling)
- h. goal setting (including SMART goals), reviewing and constructive feedback in support of patient for best likelihood of achieving goals
- i. eliciting change talk by patient through motivational interviewing techniques
- j. development of self-efficacy (task and barriers) in exercise behaviors
- k. promotion of patient-intrinsic motivation (for example, supporting feelings of autonomy and competence, positive feedback, enjoyment) in facilitating long-term adherence to exercise
- l. community resources (exercise and/or health support) available for patient use following program conclusion and/or discharge

2022 Outline (continued)

m. relapse prevention techniques (e.g., proactive problem solving, managing lapses, maintaining high self-efficacy in health behaviors, identifying social support)

n. guidance of social support (e.g., reassurance, nurturance, supportive exercise groups)

2. Skill in:

a. effective use of behavior-change techniques

b. active listening and receptiveness to patient feedback in decision-making of exercise prescription and/or care plan

c. effective communication with patients from a wide variety of backgrounds

d. promoting patient engagement in process of fitness and health improvement

**Domain VI: Legal and Professional Responsibilities**

**A. Evaluate the exercise environment and perform regular inspections of any emergency equipment and practice emergency procedures (e.g., crash cart, activation of emergency procedures) per industry and regulatory standards and facility guidelines.**

1. Knowledge of:

a. government and industry standards and guidelines (e.g., American Association of Cardiovascular and Pulmonary Rehabilitation [AACVPR], American College of Sports Medicine [ACSM], Academy of Nutrition and Dietetics, Health Insurance Portability and Accountability Act [HIPAA], Joint Commission: Accreditation, Health Care, Certification [JCAHO], Occupational Health and Safety Act [OSHA], Americans with Disabilities Act, American Diabetes Association [ADA])

b. the operation and routine maintenance of exercise equipment

c. current practice guidelines/recommendations for facility layout and design

d. standards of practice during emergency situations (e.g., American Heart Association, American Red Cross)

e. local and institutional procedures for activation of the emergency medical system

2024 Outline (continued)

m. relapse prevention techniques (for example, proactive problem solving, managing lapses, maintaining high self-efficacy in health behaviors, identifying social support)

n. guidance of social support (for example, reassurance, nurturance, supportive exercise groups)

2. Skill in:

a. effective use of behavior-change techniques

b. active listening and receptiveness to patient feedback in decision-making of exercise prescription and/or care plan

c. effective communication with patients from a wide variety of backgrounds

d. promoting patient engagement in process of fitness and health improvement

**Domain VI: Legal and Professional Responsibilities**

**A. Evaluate the exercise environment and perform regular inspections of any emergency equipment and practice emergency procedures (for example, crash cart, activation of emergency procedures) per industry and regulatory standards and facility guidelines.**

1. Knowledge of:

a. professional standards and practice for patient care (for example, American Association of Cardiovascular and Pulmonary Rehabilitation [AACVPR], American College of Sports Medicine [ACSM], Academy of Nutrition and Dietetics [AND], American Diabetes Association [ADA])  
*NOTE: Text change - VI.A.1.a from 2022 outline split into a and b on 2024 outline*

b. government and industry standards and guidelines (for example, Joint Commission Accreditation, Health Care, Certification [JCAHO], Occupational Health and Safety Act [OSHA], Americans with Disabilities Act, Health Insurance Portability and Accountability Act [HIPAA])

c. the operation, routine maintenance, and calibration of exercise equipment  
*NOTE: Text change to add calibration*

d. current practice guidelines and recommendations for facilities  
*NOTE: Text change*

e. standards of practice during emergency situations (for example, American Heart Association [AHA], American Red Cross [ARC])  
*NOTE: Text change to add acronyms*

2022 Outline (continued)

2024 Outline (continued)

f. standards for inspection of emergency medical equipment

f. local and institutional procedures for activation of the emergency medical system

g. risk-reduction strategies, universal precautions, basic life support, emergency equipment and standard emergency procedures

g. standards for inspection of emergency medical equipment  
h. risk-reduction strategies, universal precautions, basic life support, emergency equipment and standard emergency procedures

2. Skill in:

2. Skill in:

a. adhering to legal guidelines and documents

a. adhering to legal guidelines and documents

b. implementing facility safety policies and procedures

b. implementing facility safety policies and procedures

c. the use of medical terminology

c. using medical terminology

**B. Follow industry-accepted scopes of practice, ethical, legal (e.g., data privacy, informed consent) and business standards.**

**B. Follow industry-accepted scopes of practice, ethical, legal (for example, data privacy, informed consent) and business standards.**

1. Knowledge of:

1. Knowledge of:

a. professional liability and common types of negligence seen in exercise rehabilitation and exercise testing environments

a. professional liability and common types of negligence seen in exercise rehabilitation and exercise testing environments

b. the legal implications of documented safety procedures, the use of incident documents and ongoing safety training

b. the legal implications of documented safety procedures, the use of incident documents and ongoing safety training

c. the scope of practice of health care professionals (e.g., physical therapist, nurse, dietitian, psychologist)

c. the basic scope of practice of health care professionals (for example, physical therapist, nurse, dietitian, psychologist)

**NOTE: Text change**

d. current practice guidelines/recommendations (e.g., National Heart, Lung and Blood Institute, Arthritis Foundation, National Multiple Sclerosis Society) for the prevention, evaluation, treatment and management of chronic diseases

d. current practice guidelines and recommendations (for example, National Heart, Lung and Blood Institute [NHLBI], Arthritis Foundation [AF], National Multiple Sclerosis Society [NMSS]) for the prevention, evaluation, treatment and management of chronic diseases

**NOTE: Text change to add acronyms**

e. regulations relative to documentation and protecting patient privacy (e.g., written and electronic medical records, Health Insurance Portability and Accountability Act [HIPAA])

e. regulations relative to documentation and protecting patient privacy (for example, written and electronic medical records, Health Insurance Portability and Accountability Act [HIPAA])

2. Skill in:

2. Skill in:

a. proficiency in medical charting

a. basic medical charting

**NOTE: Text change**

b. applying industry and regulatory standards

b. applying industry and regulatory standards

c. adhering to legal guidelines and documents

c. adhering to legal guidelines and documents

d. the use of medical terminology

d. using medical terminology