KSA #	KSA STATEMENT	EXS 180 (3)	EXS 251 (4)	EXS/ EXL 262 (3,1)	EXS 370 (3)	EXS 375 (3)	EXS/ EXL 380 (3,1)	EXS 381 (4)	EXS 482 (4)	EXS 484 (3)	EXS 486 (3)	EXS 489 (4)	EXS 490 (6)	CPR/ 1st aid 0
1.1.1	Knowledge of the structures of bone, skeletal muscle, and connective tissues.						X						X	
1.1.2	Knowledge of the anatomy and physiology of the cardiovascular system and pulmonary system.						X					X	X	
1.1.3	Knowledge of the following muscle action terms: inferior, superior, medial, lateral, supination, pronation, flexion, extension, adduction, abduction, hyperextension, rotation, circumduction, agnonist, antagonist, and stabilizer.												X	
1.1.4	Knowledge of the plane in which movement action occurs and the responsible muscles.				X								X	
1.1.5	Knowledge of the interrelationships among center of gravity, base of support, balance, stability, posture, and proper spinal alignment.												X	
1.1.6	Knowledge of the curvatures of the spine including lordosis, scoliosis and kyphosis.				X								X	
1.1.7	Knowledge of the stretch reflex and how it relates to flexibility.			X			X						X	
1.1.8	Knowledge of biomechanics principles that underlie performance of the following activities: walking, jogging, running, swimming, cycling, weight lifting, and carrying or moving objects.			X									X	
1.1.9	Ability to describe the systems for the production of energy.						X						X	
1.1.10	Knowledge of the role of aerobic and anaerobic energy systems in the performance of various physical activities.						X		X				X	
1.1.11	Knowledge of the following cardiorespiratory terms: ischemia, angina pectoris, tachycardia, bradycardia, arrhythmia, myocardial infarction, claudication, dyspnea, hyperventilation.							X				X	X	
1.1.12	Ability to describe normal cardiorespiratory responses to static and dynamic exercise in terms of heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption.						X						X	
1.1.13	Knowledge of the heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption responses to exercise.						X						X	
1.1.14	Knowledge of anatomic and physiologic adaptations associated with strength training.								X				X	
1.1.15	Knowledge of the physiologic principles related to warm up and cool down.						X	X	X				X	
1.1.16	Knowledge of the common theories of muscle fatigue and delayed onset muscle soreness (DOMS).						X		X				X	
1.1.17	Knowledge of the physiologic adaptations that occur at rest and during submaximal and maximal exercise following chronic aerobic and anaerobic exercise training.						X						X	

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1.1.18	Knowledge of the differences in cardiorespiratory response to acute graded exercise between conditioned and unconditioned individuals.						X					X	X	
1.1.19	Knowledge of the structure and function of the skeletal muscle fiber.						X						X	
1.1.20	Knowledge of the characteristics of fast and slow twitch muscle fibers.						X		X				X	
1.1.21	Knowledge of the sliding filament theory of muscle contraction.				X		X						X	
1.1.22	Knowledge of twitch, summation, and tetanus, with respect to muscle contraction.						X						X	
1.1.23	Knowledge of the principles involved in promoting gains in muscular strength and endurance.							X	X				X	
1.1.24	Knowledge of muscle fatigue as it relates to mode, intensity, duration, and the accumulative effects of exercise.						X	X	X				X	
1.1.25	Knowledge of the response to the following variables to acute static and dynamic exercise: heart rate, stroke volume, cardiac output, pulmonary ventilation, tidal volume, respiratory rate, and arteriovenous oxygen difference.						X	X					X	
1.1.26	Knowledge of blood pressure responses associated with acute exercise, including changes in body position.		X				X	X					X	
1.1.27	Knowledge of and ability to describe the implications of ventilatory threshold (anaerobic threshold) as it relates to exercise training.						X	X					X	
1.1.28	Knowledge of and ability to describe the physiologic adaptations of the pulmonary system that occur at rest and during submaximal and maximal exercise following chronic aerobic and anaerobic training.						X						X	
1.1.29	Knowledge of how each of the following differs from the normal condition: dyspnea, hypoxia, and hyperventilation.						X						X	
1.1.30	Knowledge of how the principles of specificity and progressive overload relate to the components of exercise programming.						X	X					X	
1.1.31	Knowledge of the concept of detraining or reversibility of conditioning and its implications in exercise programs.								X				X	
1.1.32	Knowledge of the physical and psychological signs of overreaching/overtraining and to provide recommendations for these problems.				X								X	
1.1.33	Knowledge of and ability to describe the changes that occur in maturation from childhood to adulthood for the following: **skeletal muscle**, **bone**, recant time, coordination, posture, heat and cold tolerance, maximal oxygen consumption, strength, flexibility, body composition, resting and maximal heart rate, and resting and maximal blood pressure.								X				X	

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1.1.34	Knowledge of twitch, summation, and tetanus, with respect to muscle contraction.						X						X	
1.1.35	Knowledge of the effect of the aging process on the musculoskeletal and cardiovascular structure and function at rest, during exercise and during recovery.										X		X	
1.1.36	Knowledge of the following terms: progressive resistance, isotonic/isometic, concentric, eccentric, atrophy, hyperplasia, hypertrophy, set,s repetitions, plyometrics, Valsalva maneuver.				X			X	X				X	
1.1.37	Knowledge of and skill to demonstrate exercises designed to enhance muscular strength and/or endurance of specific major muscle groups.				X			X	X				X	
1.1.38	Knowledge of and skill to demonstrate exercises for enhancing musculoskeletal flexibility.							X	X				X	
1.1.39	Ability to identify the major muscles. Major muscles include, but are not limited to the following: trapezius, pectoralis major, latissimus dorsi, biceps, triceps, rectus abdominis, internal and external obliques, erector spinae, gluteus maximus, quadriceps, hamstrings, adductors, abductors, and gastrocnemius.								X				X	
1.1.40	Ability to identify the major bones. Major bones include, but are not limited to, the clavicle, scapula, sternum, humerus, carpals, ulnae, radius, femur, fibula, tibia, and tarsals.												X	
1.1.41	Ability to identify the major joints of the body.												X	
1.1.42	Knowledge of the primary action and joint range of motion for each major muscle group.							X					X	
1.1.43	Ability to locate the anatomic landmarks for palpation or peripheral pulses and blood pressure						X	X				X	X	
1.2.1	Knowledge of the physiologic and metabolic responses to exercise associated with chronic disease (heart disease, hypertension, diabetes mellitus, and pulmonary disease).										X		X	
1.2.2	Knowledge of cardiovascular, pulmonary, metabolic, and musculoskeletal risk factors that may require further evaluation by medical or allied health professionals before participation in physical activity.							X			X		X	
1.2.3	Knowledge of risk factors that may be favorably modified by physical activity habits.	X						X					X	
1.2.4	Knowledge to define the following terms: total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), TC/HDL-C ratio, low density lipoprotein cholesterol (LDL-C) , triglycerides, hypertension, and atherosclerosis.	X						X					X	
1.2.5	Knowledge of plasma cholesterol levels for adults as recommended by the National Cholesterol Education Program.	X						X					X	
1.2.6	Knowledge of the risk-factor threshold for ACSM risk stratification, which includes genetic and lifestyle factors related to the development of CAD.							X			X		X	

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1.2.7	Knowledge of the atherosclerotic process, the factors involved in its genesis and progression, and the potential role of exercise in treatment.	X											X	
1.2.8	Knowledge of how lifestyle factors, including nutrition and physical activity, influence lipid and lipoprotein profiles.	X	X				X	X					X	
1.3.1	Knowledge of and ability to discuss the physiologic basis of the major components of physical fitness: flexibility, cardiovascular fitness, **muscular strength, muscular endurance**, and body composition.	X	X					X	X				X	
1.3.2	Knowledge of the components of a health/medical history.		X					X		X	X		X	
1.3.3	Knowledge of the value of a medical clearance before exercise participation.		X					X		X	X		X	
1.3.4	Knowledge of and the ability to perform risk stratification and its implications towards medical clearance before administration of an exercise test or participation in an exercise program.		X					X		X	X	X	X	
1.3.5	Knowledge of relative and absolute contraindications to exercise testing or participation.		X					X			X	X	X	
1.3.6	Knowledge of the limitations of informed consent and medical clearance before exercise testing.		X					X		X	X		X	
1.3.7	Knowledge of the advantages/disadvantages and limitations of the various body composition techniques including, but not limited to, air displacement, dual energy x-ray absorptiometry (DEXA) skinfolds, plethysmography (BOD POD), bioelectrical impedance, hydrostatic weighing.		X					X					X	
1.3.8	Skill in accurately measuring heart rate and blood pressure, and obtaining rating of perceived exertion (RPE) at rest and during exercise according to established guidelines.		X				X	X				X	X	
1.3.9	Skill in measuring skinfold sites, skeletal diameters, and girth measurements used for estimating body composition.		X					X					X	
1.3.10	Knowledge of calibration of a cycle ergometer and a motor driven treadmill.		X					X				X	X	
1.3.11	Ability to locate the brachial artery and correctly place the cuff and stethoscope in position for blood pressure measurement.		X				X	X				X	X	
1.3.12	Ability to locate common sites for measurement of skinfold thicknesses and circumferences (for determination of body composition and waist-hip ratio)		X				X	X					X	
1.3.13	Ability to obtain a health history and risk appraisal hat includes past and current medical history, family history of cardiac disease, orthopedic limitations, prescribed medications, activity patterns, nutritional habits, stress and anxiety levels, and smoking and alcohol use.		X					X		X			X	
1.3.14	Ability to obtain informed consent.		X					X		X			X	

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1.3.15	Ability to explain the purpose and procedures and perform the monitoring (heart rate. RPE, and blood pressure) of clients before, during, and after cardiorespiratory fitness testing.		X					X					X	
1.3.16	Ability to instruct participants in the use of equipment and test procedures.		X					X				X	X	
1.3.17	Ability to explain purpose of testing, determine an appropriate submaximal or maximal protocol, and perform an assessment of cardiovascular fitness on the treadmill or the cycle ergometer.		X					X					X	
1.3.18	Ability to describe the purpose of testing, determine appropriate protocols, and perform assessments of **muscular strength, muscular endurance**, and flexibility.		X					X					X	
1.3.19	Ability to perform various techniques of assessing body composition.		X					X					X	
1.3.20	Ability to analyze and interpret information obtained from the cardiorespiratory fitness test and the **muscular strength and endurance**, flexibility, and body-composition assessments for apparently healthy individuals and those with controlled chronic disease.		X					X	X				X	
1.3.21	Ability to identify appropriate criteria for terminating a fitness evaluation and demonstrate proper procedures to be followed after discontinuing such a test.		X					X					X	
1.3.22	Ability to modify protocols and procedures for cardiorespiratory fitness test in children, adolescents, and older adults.		X								X		X	
1.3.23	Ability to identify individuals for whom physician supervision is recommended during maximal and submaximal exercise testing.							X			X	X	X	
1.4.1	Knowledge of each of the following arrhythmias differs from the normal condition; premature atrial contractions and premature ventricular contractions.											X	X	
1.4.3	Knowledge of the basic properties of cardiac muscle and the normal pathways of conduction in the heart.						X					X	X	
1.5.1	Knowledge of common drugs from each of the following classes of medications and ability to describe the principal action and the effects on exercise testing and prescription: antianginals, antihypertensives, antiarrhythmias, anticoagulants, bronchodilators, hypoglycemics, psychotropics, and vasodilators.										X	X	X	
1.5.2	Knowledge of the effects of the following substances on the exercise response: antihistamines, tranquilizers, alcohol, diet pills, cold tablets, caffeine, and nicotine.				X							X	X	
1.7.1	Knowledge of the relationship between the number of repetitions, intensity, number of sets, and rest with regard to strength training.							X		X			X	
1.7.2	Knowledge of the benefits and precautions associated with exercise **training** in apparently healthy and controlled disease.				X			X			X		X	
1.7.3	Knowledge of the benefits and precautions associated with exercise **training** across the lifespan (from youth to the elderly)										X		X	

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1.7.4	Knowledge of specific **group exercise leadership techniques** appropriate for working with participants of all ages												X	
1.7.5	Knowledge of how to select and/or modify appropriate exercise programs according to the age, functional capacity, and limitations of the individual.									X			X	
1.7.6	Knowledge of the differences in the development of an **exercise prescription** for children, adolescents and older participants										X		X	
1.7.7	Knowledge of and ability to describe the unique adaptations to exercise training in children, adolescents, and older participants with regard to strength, functional capacity, and motor skills.										X		X	
1.7.8	Knowledge of common orthopedic and cardiovascular considerations for older participants and the ability to describe modifications in exercise prescription that are indicated.										X		X	
1.7.10	Knowledge of the recommended intensity, duration, frequency, and type of physical activity necessary for development of cardiorespiratory fitness in an apparently healthy population.							X					X	
1.7.11	Knowledge of and the ability to describe exercises designed to enhance muscular strength and/or endurance of specific major muscle groups.						X	X	X				X	
1.7.12	Knowledge of the principles of overload, specificity, and progression and how they relate to **exercise programming**.							X	X				X	
1.7.13	Knowledge of the various types of interval , continuous, and circuit training programs.								X				X	
1.7.14	Knowledge of approximate METs for various sport, recreational, and work tasks				X							X	X	
1.7.15	Knowledge of the components incorporated into an exercise session and the proper sequence (i.e. pre-exercise evolution, warm-up, aerobic stimulus phase, cool-down, muscular strength and/or endurance, and flexibility).							X	X				X	
1.7.16	Knowledge of special precautions and modifications of **exercise programming** for participation at altitude, different ambient temperatures, humidity and environmental pollution.						X	X					X	
1.7.17	Knowledge of the importance of recording exercise sessions and performing periodic evaluations to assess changes in fitness status.								X	X			X	
1.7.18	Knowledge of the advantages and disadvantages of implementation of interval, continuous, and circuit **training programs**.							X	X				X	
1.7.19	Knowledge of the **exercise programs** that are available in the community and how these programs are appropriate for various populations.		X		X			X					X	
1.7.20	Knowledge of and ability to describe activities of daily living (ADLs) and its importance in the overall health of the individual.	X	X										X	
1.7.21	Skill to teach and demonstrate the components of an exercise session (i.e. warm-up, aerobic stimulus phase, cool-down, **muscular strength/endurance,** flexibility)							X	X				X	

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1.7.22	Skill to teach and demonstrate appropriate modifications in specific exercises for groups such as older adults, pregnant and postnatal women, obese persons, and persons with low back pain.							X				X	X	
1.7.23	Skill to teach and demonstrate appropriate exercises for improving range of motion of all major joints.							X					X	
1.7.24	Skill in the use of various methods for establishing and monitoring levels of exercise intensity, including heart rate, RPE and oxygen cost											X	X	
1.7.25	Ability to identify and apply methods used to monitor exercise intensity, including heart rate and RPE.		X					X					X	
1.7.26	Ability to describe modifications in exercise prescriptions for individuals with functional disabilities and musculoskeletal injuries.				X			X	X				X	
1.7.27	Ability to differentiate between amount of physical activity required for health benefits and/or for fitness development.				X			X	X				X	
1.7.28	Knowledge of and ability to determine target heart rates using two methods: percent of age-predicted maximum heart rate and heart rate reserve (Karvonen).	X					X	X					X	
1.7.29	Ability to identify proper and improper technique in the use of resistive equipment such as stability balls, weights, bands, resistance bars, and water exercise equipment.							X	X				X	
1.7.30	Ability to identify proper and improper technique in the use of cardiovascular conditioning equipment (e.g. stair-climbers, stationary cycles, treadmills, elliptical trainers, rowing machines).							X					X	
1.7.31	Ability to teach a progression of exercises for all major muscle groups to improve muscular strength and endurance.							X	X				X	
1.7.32	Ability to communicate appropriately with exercise participants during initial screening and exercise programming.							X		X			X	
1.7.33	Ability to **design, implement**, and evaluate individualized and group exercise programs based on health history and physical fitness assessments.							X	X			X	X	
1.7.34	Ability to modify exercises based on age, physical condition, and cognitive status.						X	X	X			X	X	
1.7.35	Ability to apply energy cost, VO2, METs, and target heart rates to an exercise prescription.						X	X				X	X	
1.7.36	Ability to convert between the US and metric systems for length/height (inches to centimeters), weight (pounds to kilograms) and speed (miles per hour to meters per minute)							X				X	X	
1.7.37	Ability to convert between absolute (mL * kg-1 * min-1, or L * min-1) and relative (mL *kg-1 *min-1 and/or METs) oxygen costs.		X					X				X	X	
1.7.38	Ability to determine the energy cost for given exercise intensities during horizontal and graded walking and running stepping exercise, cycle ergometry, arm ergometry and stepping							X				X	X	

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1.7.39	Ability to prescribe exercise intensity based onVO2 data for different modes of exercise including graded and horizontal running and walking, cycling and stepping exercise											X	X	
1.7.40	Ability to explain and implement exercise prescription guidelines for apparently healthy clients, increased risk clients and clients with controlled disease.							X			X		X	
1.7.41	Ability to adapt frequency intensity, duration, mode progression, level of supervision, and monitoring techniques in exercise programs for patients with controlled chronic diseases (e.g. heart disease, diabetes mellitus, obesity, hypertension), musculoskeletal problems (including fatigue) pregnancy and/or postpartum, and exercise induced asthma.							X			X		X	
1.7.42	Ability to design resistive exercise programs to increase or maintain muscular strength and/or endurance.							X	X				X	
1.7.43	Ability to evaluate flexibility and prescribe appropriate flexibility exercises for all major muscle groups.							X					X	
1.7.44	Ability to **design training programs** using interval, continuous and circuit training programs.								X				X	
1.7.45	Ability to describe the advantages and disadvantages of various commercial exercise equipment in developing cardiorespiratory fitness, **muscular strength, and muscular endurance**.								X				X	
1.7.46	Ability to modify exercise programs based on age, physical condition, and current health status.						X		X				X	
1.7.47	Ability to assess postural alignment and recommend appropriate exercise to meet individual needs and refer as necessary.						X	X					X	
1.8.1	Knowledge of the role of carbohydrates , fats, and proteins as fuels for aerobic and anaerobic metabolism.						X	X					X	
1.8.2	Knowledge of the following terms; obesity, overweight, proficient fat, BMI, lean body mass, anorexia nervosa, bulimia nervosa, metabolic syndrome, and body-fat distribution.	X					X	X					X	
1.8.3	Knowledge of the relationship between body composition and health.						X	X					X	
1.8.4	Knowledge of the effects of diet, exercise, and behavior modification as methods for modifying body composition.	X						X				X	X	
1.8.5	Knowledge of the importance of an adequate daily energy intake for healthy weight management.	X						X					X	
1.8.6	Knowledge of the difference between fat and water soluble vitamins	X											X	
1.8.7	Knowledge of the importance of maintaining normal hydration before, during, and after exercise.						X	X	X				X	
1.8.8	Knowledge of the USDA Food Pyramid and Dietary Guidelines for Americans.	X											X	

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1.8.9	Knowledge of the importance of calcium and iron in women's health.	X					X						X	
1.8.10	Knowledge of the myths and consequences associated with inappropriate weight loss methods (e.g. fad diets, dietary supplements, overexercising, starvation diets).	X					X						X	
1.8.11	Knowledge of the number of kilocalories in on gram of carbohydrate, fat, protein and alcohol.	X					X						X	
1.8.12	Knowledge of the number of kcals equivalent to losing one pound of body fat and the ability to prescribe appropriate amount of exercise to achieve weight loss goals	X										X	X	
1.8.13	Knowledge of the guidelines for caloric intake for an individual desiring to lose or gain weight	X										X	X	
1.8.14	Knowledge of common nutritional ergogenic aids, the purported mechanism of action, and any risk and/or benefits (e.g. carbohydrates, protein/amino acids, vitamins, minerals, herbal products, creatine, steroids, caffeine).								X				X	
1.8.15	Knowledge of nutritional factors related to the female athlete triAd syndrome (i.e. eating disorders, menstrual cycle abnormalities, and osteoporosis).	X						X					X	
1.8.16	Knowledge of the NIH consensus statement regarding health risks of obesity, Nutrition for Physical Fitness Position Paper of the American Dietetic Association and the ACSM position stand on proper and improper weight loss programs.	X					X						X	
1.8.17	Ability to describe the health implications of variation in body-fat distribution patterns and the significance of the waist-to hip ratio.	X											X	
1.8.18	Knowledge of the nutrition and exercise effects on blood glucose levels in diabetes.	X									X		X	
1.9.1	Knowledge of behavioral strategies to enhance exercise and health behavior change (e.g. reinforcement, goal setting, social support).				X	X							X	
1.9.2	Knowledge of the important elements that should be included in each behavior-modification session.					X							X	
1.9.3	Knowledge of specific techniques to enhance motivation (e.g. posters, recognition, bulletin boards, games, competitions).				X	X				X			X	
1.9.4	Knowledge of intrinsic and extrinsic reinforcement and ability to give examples of each					X							X	
1.9.5	Knowledge of the stages of motivational readiness.					X							X	
1.9.6	Knowledge of approaches that may assist less motivated clients to increase their physical activity.					X				X			X	
1.9.7	Knowledge of signs and symptoms of mental health states (anxiety, depression, eating disorders) that may necessitate referral to a medical or					X							X	

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	mental health professional													
1.9.8	Knowledge of the potential symptoms and causal factors of test anxiety (performance, appraisal threat during exercise) and how it may affect physiological responses to testing					X							X	
1.9.9	Ability to coach clients to set achievable goals and overcome obstacles through a variety of methods (e.g. in person, on phone, and on internet).					X				X			X	
1.10.1	Knowledge of and skill in obtaining basic life support, first aid, CPR and AED certifications												X	X
1.10.2	Knowledge of **appropriate emergency procedures** (i.e. telephone procedures, written emergency procedures, personnel responsibilities) in a health and fitness setting.									X			X	X
1.10.3	Knowledge of and skill in performing basic first aid procedures for exercise related injuries such as bleeding, strains/sprains, fractures and exercise intolerance												X	X
1.10.4	Knowledge of basic precautions taken in an **exercise setting** to ensure participant safety.								X	X			X	
1.10.5	Knowledge of the physical and physiologic signs and symptoms of overtraining and the ability to modify a program to accommodate this condition.								X				X	
1.10.6	Knowledge of the effects of temperature, humidity, altitude, and pollution on the physiologic response to exercise and the ability to modify the **exercise prescription** to accommodate for these environmental conditions.		X						X				X	
1.10.7	Knowledge of the signs and symptoms of the following conditions: shin splints, sprain, strain, tennis elbow, bursitis, stress fracture, tendonitis, patellar femoral pain syndrome, low back pain, plantar fasciitis, and rotator cuff tendonitis and the ability to recommend exercises to prevent these injuries												X	
1.10.8	Knowledge of hypothetical concerns and potential risks that may be associated with the use of exercises such as straight-leg sit ups, double leg raises, full squats, hurdler's stretch, yoga plow, forceful back hyperextension, and standing bent over toe touch.							X					X	
1.10.9	Knowledge of safety plans, emergency procedure and first aid techniques needed during **fitness evaluations, exercise testing and exercise training**												X	X
1.10.10	Knowledge of the Health Fitness Specialist's responsibilities and limitations and t he **legal implications** of carrying out **emergency procedures.**									X			X	
1.10.11	Knowledge of potential musculoskeletal injuries, CV/pulmonary complications and metabolic abnormalities										X		X	
1.10.12	Knowledge of the initial management and first aid techniques associated with open wounds, musculoskeletal injuries, CV/pulmonary complications and metabolic disorders												X	X
1.10.13	Knowledge of the components of an **equipment maintenance/repair program** and how it may be used to evaluate the condition of exercise equipment to reduce the potential risk of injury.				X					X			X	

KSA #	KSA STATEMENT	EXS 180 (3)	EXS 251 (4)	EXS/ EXL 262 (3,1)	EXS 370 (3)	EXS 375 (3)	EXS/ EXL 380 (3,1)	EXS 381 (4)	EXS 482 (4)	EXS 484 (3)	EXS 486 (3)	EXS 489 (4)	EXS 490 (6)	CPR/ 1st aid 0
1.10.14	Knowledge of the **legal implications of documented safety procedures**, the use of incident documents, and ongoing safety training documentation for the purposes of safety and risk management.									X			X	
1.10.15	Skill to **demonstrate exercises** used for people with low back pain; neck, shoulder, elbow, wrist, hip, knee and /or ankle pain; and the ability to modify a program for people with these conditions												X	
1.10.16	Skill in **demonstrating appropriate emergency procedures** during exercise testing and/or training.									X			X	
1.10.17	Ability to identify the components that contribute to the maintenance of a safe environment, **including equipment operation and maintenance**, **proper sanitation, safety and maintenance of exercise areas and overall facility maintenance.**									X			X	
1.10.18	Knowledge of basic ergonomics to address daily activities that may cause musculoskeletal problems in the workplace and the ability to recommend exercises to alleviate symptoms caused by repetitive movements.							X					X	
1.11.1	Knowledge of the Health Fitness Specialist's role in **administration and program management within a health/fitness facility**.									X			X	
1.11.2	Knowledge of and the ability to use the documentation required when a client shows signs or symptoms during an exercise session and should be referred to a physician.									X			X	
1.11.3	Knowledge of how to **manage a fitness department** (e.g. working within a budget, interviewing and training staff, scheduling, running staff meetings, staff development).									X			X	
1.11.4	Knowledge of the importance of **tracking and evaluating member retention.**									X			X	
1.11.6	Ability to **administer fitness-related programs within established budgetary guidelines**.									X			X	
1.11.7	Ability to **develop marketing materials** for the purpose of promoting fitness-related programs.									X			X	
1.11.8	Ability to **create and maintain records** pertaining to participant exercise adherence, retention and goal setting.									X			X	
1.11.9	Ability to **develop and administer educational programs** (e.g. lectures, workshops) and educational materials.									X			X	
1.11.10	Knowledge of **basic sales techniques** to promote health, fitness, and wellness services.									X			X	
1.11.11	Knowledge of **networking techniques** with other healthcare professionals for referral purposes.							X		X			X	
1.11.12	Ability to provide and administer appropriate **customer service**.									X		X	X	
1.11.13	Knowledge of the importance of **tracking and evaluating health promotion program results.**									X			X	

KSA #	KSA STATEMENT	EXS 180 (3)	EXS 251 (4)	EXS/ EXL 262 (3,1)	EXS 370 (3)	EXS 375 (3)	EXS/ EXL 380 (3,1)	EXS 381 (4)	EXS 482 (4)	EXS 484 (3)	EXS 486 (3)	EXS 489 (4)	EXS 490 (6)	CPR/ 1st aid 0
2.2.1	Knowledge of cardiovascular risk factors or conditions that may require consultation with medical personnel before testing or training, including inappropriate changes of resting or exercise heart rate and blood pressure; new onset discomfort in chest, neck, shoulder, or arm; changes in the pattern of discomfort during rest or exercise; fainting or dizzy spells; and claudication.										X		X	
2.2.2	Knowledge of the pathophysiology of myocardial ischemia and infarction.										X	X	X	
2.2.3	Knowledge of the pathophysiology of stroke, hypertension, and hyperlipidemia.										X		X	
2.2.3	Knowledge of the effects of the above diseases and conditions on the cardiorespiratory responses at rest and during exercise.										X		X	
3.2.1	Knowledge of pulmonary risk factors or conditions that may require consultation with medical personnel before testing or training, including asthma, exercise induced asthma/bronchospasm, extreme breathlessness at rest or during exercise, bronchitis, and emphysema.										X		X	
4.2.1	Knowledge of metabolic risk factors or conditions that may require consultation with medical personnel before testing or training, including obesity, metabolic syndrome, thyroid disease, kidney disease, diabetes, or glucose intolerance, and hypoglycemia.										X		X	
5.2.1	Knowledge of musculoskeletal risk factors or conditions that may require consultation with medical personnel before testing or training, including acute or chronic back pain, osteoarthritis, rheumatoid arthritis, osteoporosis, inflammation/pain, and low back pain.										X		X	
6.2.1	Knowledge of neuromuscular risk factors or conditions that may require consultation with medical personnel before testing or training, including spinal cord injuries and multiple sclerosis.										X		X	
7.2.1	Knowledge of immunologic risk factors or conditions that may require consultation with medical personnel before testing or training, including AIDS and cancer.										X		X	