

Version 1.1A

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# Fitness Instructor Certification Seminar

# Foreword

- Please consult your doctor before starting a rigorous exercise program.
- Muscle soreness is normal, but pain is NOT.
- Working too many times a week is damaging to your muscles.
- Nutrition is important for fuel to work and repair.
- The material covered in this presentation will allow you to certify as an:
  - Group Fitness Instructor
  - Personal Trainer
  - Sports Nutritionist
  - Senior Fitness Instructor
  - Aqua Fitness Instructor
- Please use common sense when continuing your exercise program, for any questions or concerns please contact **IFA** at



407-579-8610

or

[www.ifafitness.com](http://www.ifafitness.com)

# Nutrition

- Macronutrients
- Micronutrients
- Daily Caloric Requirements
- USDA MyPyramid Food Table



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# Macronutrients

- Proteins
- Non-Essential Amino Acids
- Essential Amino Acids
- Carbohydrates
- Fats
- Water



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# Micronutrients

- Vitamins
- Minerals
- Additional Supplements



# Daily Caloric Requirements

- BMR
- Protein Dietary Requirements
- Carbohydrate Dietary Requirements
- Fat Dietary Requirements



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# USDA MyPyramid Food Table

<b>GRAINS</b> Make half your grains whole	<b>VEGETABLES</b> Vary your veggies	<b>FRUIT</b> Focus on fruits	<b>OILS</b>	<b>MILK</b> Get your calcium-rich foods	<b>MEAT &amp; BEANS</b> Go lean with protein
<p>Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day</p> <p>1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or 1/2 cup of cooked rice, cereal, or pasta</p>	<p>Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens</p> <p>Eat more vegetables like carrots and sweet potatoes</p> <p>Eat more dry beans and peas like pinto beans, kidney beans, and lentils</p>	<p>Eat a variety of fruit</p> <p>Choose fresh, frozen, canned, or dried fruit</p> <p>Go easy on fruit juices</p>	<p>↓</p> <p>↓</p>	<p>Go low-fat, or fat-free when you choose milk, yogurt, and other milk products</p> <p>If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages</p>	<p>Choose low-fat or lean meats and poultry</p> <p>Bake it, broil it, or grill it</p> <p>Vary your protein routine - choose more fish, beans, peas, nuts, and seeds</p>



# Physiology

- Muscle Fiber Types
- Energy Production
- Cardiovascular and Respiratory System





# Kinesiology

- Anatomy
- Muscle Action
- Joint Action



# Aerobic Training

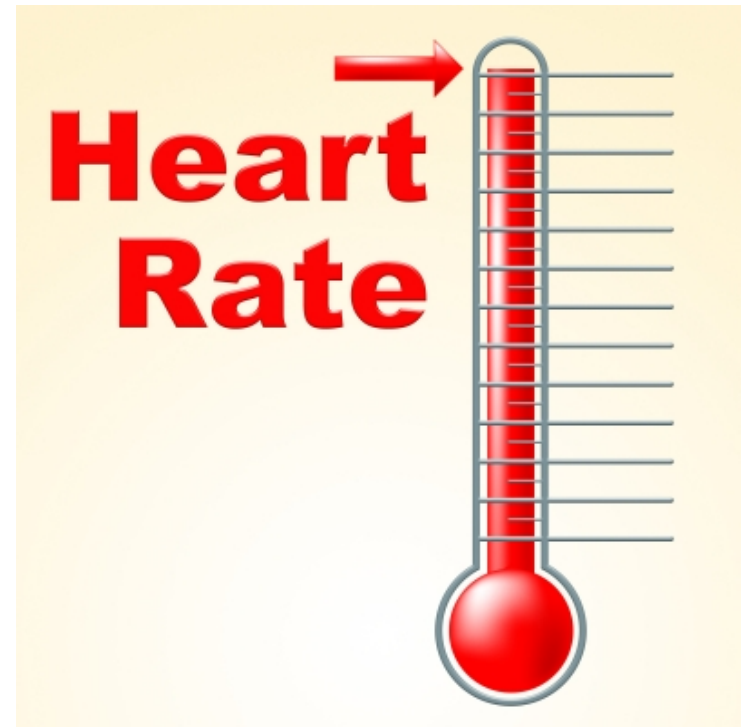
- Benefits
- Weekly Requirements and Limitations
- Diet Requirements
- Types of Aerobic Activities
- Pregnancy



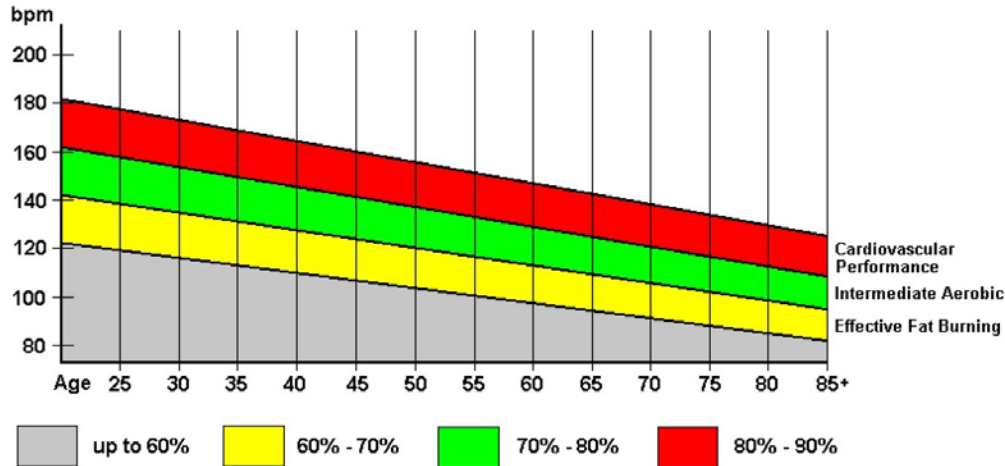
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# Aerobic Training

- Maximum Heart Rate (MHR)
- Resting Heart Rate
- Target Heart Rate
- Heart Rate Reserve
- Standard Metabolic Equivalent (MET)



# Target Heart Rate Chart/Table



AGE	BEGINNER 60% - 70%		INTERMEDIATE 70% - 80%		ADVANCED 80% - 90%	
	Beats/min	Beats/10 sec *	Beats/min	Beats/10 sec *	Beats/min	Beats/10 sec *
to 19	121 - 141	20 - 24	141 - 161	24 - 27	161 - 181	27 - 30
20 - 24	119 - 139	20 - 23	139 - 158	23 - 26	158 - 178	26 - 30
25 - 29	116 - 135	19 - 23	135 - 154	23 - 26	154 - 174	26 - 29
30 - 34	113 - 132	19 - 22	132 - 150	22 - 25	150 - 169	25 - 28
35 - 39	110 - 128	18 - 21	128 - 146	21 - 24	146 - 165	24 - 28
40 - 44	107 - 125	18 - 21	125 - 142	21 - 24	142 - 160	24 - 27
45 - 49	104 - 121	17 - 20	121 - 138	20 - 23	138 - 156	23 - 26
50 - 54	101 - 118	17 - 20	118 - 134	20 - 22	134 - 151	22 - 25
55 - 59	98 - 114	16 - 19	114 - 130	19 - 22	130 - 147	22 - 25
60 - 64	95 - 111	16 - 19	111 - 126	19 - 21	126 - 142	21 - 24
65 - 69	92 - 107	15 - 18	107 - 122	18 - 20	122 - 138	20 - 23
70 - 74	89 - 104	15 - 17	104 - 118	17 - 20	118 - 133	20 - 22
75 - 79	86 - 100	14 - 17	100 - 114	17 - 19	114 - 129	19 - 22
80 - 84	83 - 97	14 - 16	97 - 110	16 - 18	110 - 124	18 - 21
85 +	81 - 95	14 - 16	95 - 108	16 - 18	108 - 122	18 - 20



# Aerobic Training

- Recovery Heart Rate
- Rating of Perceived Exertion (RPE)
- Blood Pressure
- Proper Attire for Specific Activity



# Specific Aerobic Activities

- **Running**

- Use a good running shoe.
- Land on the heel and rotate to the toe, except when sprinting stay on toes.
- Use orthotic inserts if necessary.
- Restrict vertical movement, don't slam down, and glide.



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# Specific Aerobic Activities

- **Stair Master**
  - Use the handrails for balance only, not for support.
  - Keep back and head straight up in vertical alignment.
  - Using 8 to 10 inch step strokes uses 15% more energy.



# Specific Aerobic Activities

- **Stationary Bicycle**
  - Restrict side flex movement.
  - Assume upper body slightly forward with head upright.
  - Adjust seat for near full leg extension.



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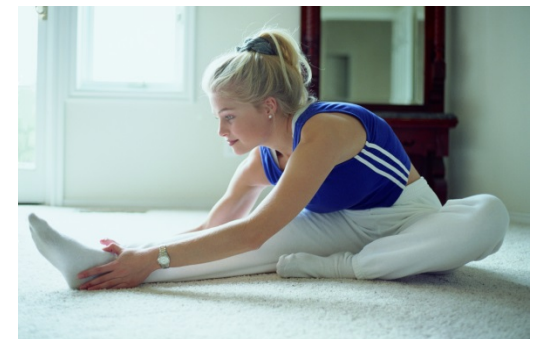
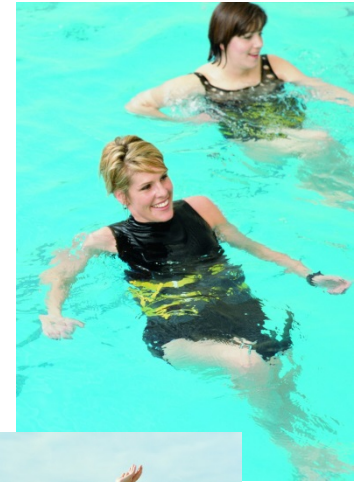
# Teaching Aerobics

- Class Preparation
- Intensity and Complexity
- Components of an Aerobics Class



# Types of Classes

- High Impact Aerobics
- Low Impact Aerobics
- Mid-Tempo Aerobics
- Step Aerobics
- Super Step Aerobics
- Interval
- Circuit
- Warm-up
- Cardio
- Post-Cardio
- Cool Down



# Choreography

## 32-Count Phrase

- To build a 32-count combination, choose 4 moves that go together

An example of 4 moves might be:

1. Step - touch
2. Step - hamstring
3. Grapevine
4. Jumping jacks



Now that you have 4 moves that go together, perform each move for 8 counts.



# Injury Prevention

- Watch for fatigue
- Watch for falls or injury
- Watch for cardiovascular or respiratory difficulty
- Sprains are treated with Rest, Ice, Compression and Elevation (RICE)
- Shin Splints





# Step Aerobics – The Basics

- Bring foot flat up and centered on board to avoid board instability.
- Do not hang heels off the board to avoid straining the Achilles tendon.
- Lower toes to the floor first then heel when coming off board to absorb shock.
- Keep within 12 inches of board when coming to floor, except during lunges.
- Keep heel off the floor when doing lunges, keep weight on the ball of the foot.
- Power up onto to the board only, don't jump off board.



# Step Aerobics – The Basics

- Lean from the ankles, not the hip.
- Keep abdominals tight to improve muscle tone and balance.
- Continue breathing, never hold the breath.
- Knees should be soft not locked to provide shock absorption and reduce back strain.
- Keep hands on waist until comfortable with leg movements, when learning coordination.



# Step Aerobics – The Class

- Warm-Up
- General Technique
- Safety



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## Discontinue stepping if:

- Legs become fatigued and uncoordinated.
- Any pain becomes evident.
- Dizziness occurs.
- Rapid heart rate

# Basic Step Moves

- Basic Left (Reverse for Basic Right)
- V-Step
- A-Step
- Turn-Step
- Z-Step
- X-Step



# Kickboxing Aerobics – The Class

- Warm-Up
- General Technique
- Boxer's Stance Technique
- Safety

## **Discontinue Kickboxing Aerobics if:**

- Legs become fatigued and uncoordinated.
- Any pain becomes evident especially joint pain.
- Shin area pain or discomfort.
- Dizziness occurs.
- Rapid heart rate.



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# Kickboxing Aerobics – Basic Moves

- The Jab Punch
- The Round House Punch
- The Power Punch
- The Left Hook Punch
- The Front Kick – Forward Leg
- The Front Kick – Rearward Leg
- The Side Kick – Left Kick (reverse for Right Kick)
- The Round House Kick





# Plyometric Training

- **Benefits**

- Improves muscle response time
- Increases muscle performance
- Tones muscles
- Improved balance and posture
- Increases flexibility, reducing capability for injury

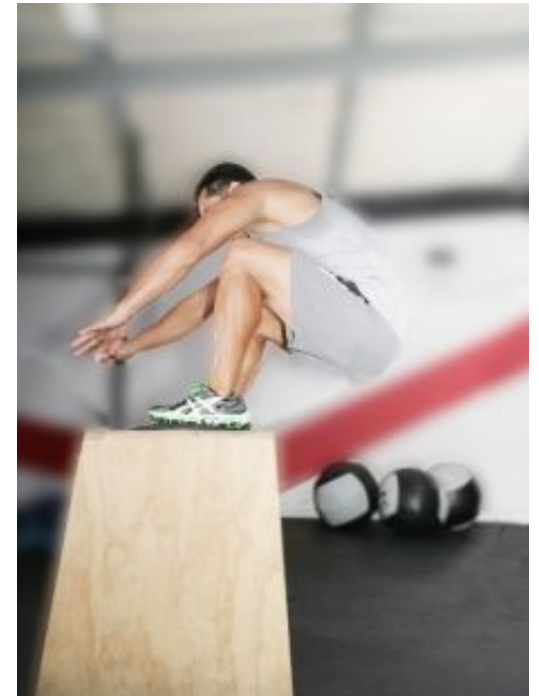


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# Aqua Training

- Land vs Water Exercise
- Benefits
- Cautions
- Teaching Style
- Technique



# Aqua Training

- Water
- Safety
- Heart Rates
- Equipment
- The Class



# Weight Training

- **Benefits**

- Helps control blood pressure
- Reduces body fat
- Improves posture
- Increases muscle strength
- Raises Basal Metabolic Rate
- Increases bone density
- Injury prevention from normal activities
- Physical appearance



# Weight Training

- Circuit Training
- Overload Principle
- Specificity Principle
- Free Weights vs. Machines
- Proper Lifting Technique
- Sets and Repetitions
- Variations of Sets and Repetitions
- Weekly Requirements
- Diet Requirements





# Muscle Exercise Cross Reference

Exercise sessions should be organized so that the larger muscle groups are exercised first, followed by the smaller muscle groups.

The order of groups should be as follows:

- |                        |              |
|------------------------|--------------|
| 1. Abdomen             | 7. Shoulders |
| 2. Hips and lower back | 8. Triceps   |
| 3. Upper Legs          | 9. Biceps    |
| 4. Calves              | 10. Waist    |
| 5. Chest               | 11. Neck     |
| 6. Upper back          |              |



# Sample Workout

Begin each workout with a warm-up. This can be 30 minutes of brisk paced walking or jogging, stair master, etc. Abdominals are done every day using 300 crunches with alternating movements.

- **Intermediate Workout:**
  - Do the following exercises in 3 sets of 12 reps.
- **Advanced Workout:**
  - Do the following exercises in 4 sets of 12 reps, with increasing weight each set.



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# Sample Workout

## Monday



### Legs:

- Squats
- Leg Extensions
- Hamstrings
- Abductor and Adductor Muscles
- Calf Raises

### Biceps:

- Straight Bar Curls
- Dumbbell Curls
- Drop Sets



## Tuesday



### Chest:

- Incline Dumbbell Press (upper)
- Decline Dumbbell Press (lower)
- Bench Press
- Dumbbell Flyes

### Triceps:

- Triceps Extensions
- Triceps Pull-downs
- Triceps Kickbacks
- Triceps Press

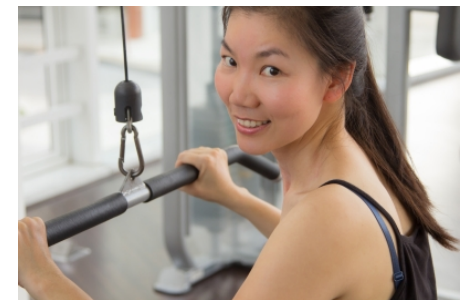


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# Sample Workout

## Wednesday



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### Shoulders:

- Military Press
- Dumbbell Rear Deltoid
- Dumbbell Lateral Raises
- Cable Raises

### Back:

- Seated Rows
- Lat Pull-downs Back
- Lat Pull-downs Front
- Dumbbell Lat Pulls



## Thursday



### Trapezius:

- Shrugs

### Forearms:

- Forearm Curls
- Any grip exercise

### Gluteus Maximus:

- Cable kick backs

# Sample Workout

## Friday

### Legs, Chest and Triceps:

- Legs: Sled
- Chest: Bench
- Triceps: Barbell Extensions

## Saturday

### Shoulders, Back and Biceps:

- Shoulders: Military Press
- Back: Sit-up Row Machine (rear deltoids)
- Biceps: Dumbbell Curls

For Friday and Saturday do four (4) sets of twelve (12) reps pyramiding the weight as heavy as you can.



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# Fitness Testing

- Flexibility Test
- One-Minute Sit-Up Test
- Pushup Test
- Three-Minute Step Test
- Body Composition
  - Durnan Method



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# Stretching

- Benefits
- Types of Stretching
- Precautions



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# Yoga

- Benefits
  - Relaxation
  - Increased Flexibility
  - Increased Respiration
  - Increased Circulation
  - Self-Awareness
- Requirements
- Guidelines



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# Pregnancy

- General Information
- Aerobic Training
- Weight Training
- Trimester Specific
- Exercises
- Nutrition
- Post Pregnancy



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# Senior Fitness

- The American College of Sports Medicine (ACSM) stresses the importance of strength training for older people. ACSM recommends that seniors begin an exercise program with strength training before they start an aerobic training program.
- The purpose of this section is to increase the Fitness Instructor's understanding of the physiological and as well as the psychological changes that occur during the aging process. This will allow the instructor to develop an effective and safe fitness program specifically for the senior population. Senior classification varies according to who you ask.
- Generally, seniors are considered to be those that are 55 and older.



# Physiological Effects of Aging

- Cardiovascular Effects
- Respiratory Effects
- Muscular Effects
- Skeletal Effects
- Digestive System Effects
- Endocrine System Effects
- Nervous System Effects
- Immune System Effects



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# Senior Fitness Testing

- Balance Testing
- Cardiovascular Testing
- Strength Testing
- Flexibility Testing



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# Senior Training

- Warm-up exercise
- Aerobic Training
- Strength Training
- Balance Training
- Flexibility Training



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# Exercise Injury

- Introduction
  - This following information is not to be used for self-diagnosis. It's primary intent here is for identification purposes in order to provide first-aid care or to help understand a medical professional's diagnosis. A medical professional always should be consulted in all cases of injury or suspected injury. Symptoms may appear to indicate one type of injury but may in fact be an indication of a more serious injury.
- Acute Injury
- Chronic Injury
- Overuse Injuries
- Chondromalacia and Patellofemoral Syndrome
- Plantar Fasciitis and Neuromas
- Tendonitis, Arthritis, Bursitis
  - Shin Splints and Compartment Syndromes
  - Breathing Reactions
  - Environmental Concerns



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# Heat Related Injuries

- Heat Index

		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	-
	50	81	83	85	88	91	95	99	102	108	113	118	124	131	137	-	-
	55	81	84	86	89	93	97	101	106	112	117	124	130	137	-	-	-
	60	82	84	88	91	95	100	105	110	116	123	129	137	-	-	-	-
	65	82	85	89	93	98	103	108	114	121	128	136	-	-	-	-	-
	70	83	86	90	95	100	106	112	119	126	134	-	-	-	-	-	-
	75	84	88	92	97	103	109	116	124	132	-	-	-	-	-	-	-
	80	84	89	94	100	106	113	121	129	-	-	-	-	-	-	-	-
	85	85	90	96	102	110	117	126	130	-	-	-	-	-	-	-	-
	90	86	91	98	105	113	122	131	-	-	-	-	-	-	-	-	-
	95	86	93	100	108	117	127	-	-	-	-	-	-	-	-	-	-
	100	87	95	103	112	121	132	-	-	-	-	-	-	-	-	-	-
		Caution				Extreme Caution				Danger				Extreme Danger			

Source: NOAA's National Weather Service



# Heat Related Injuries

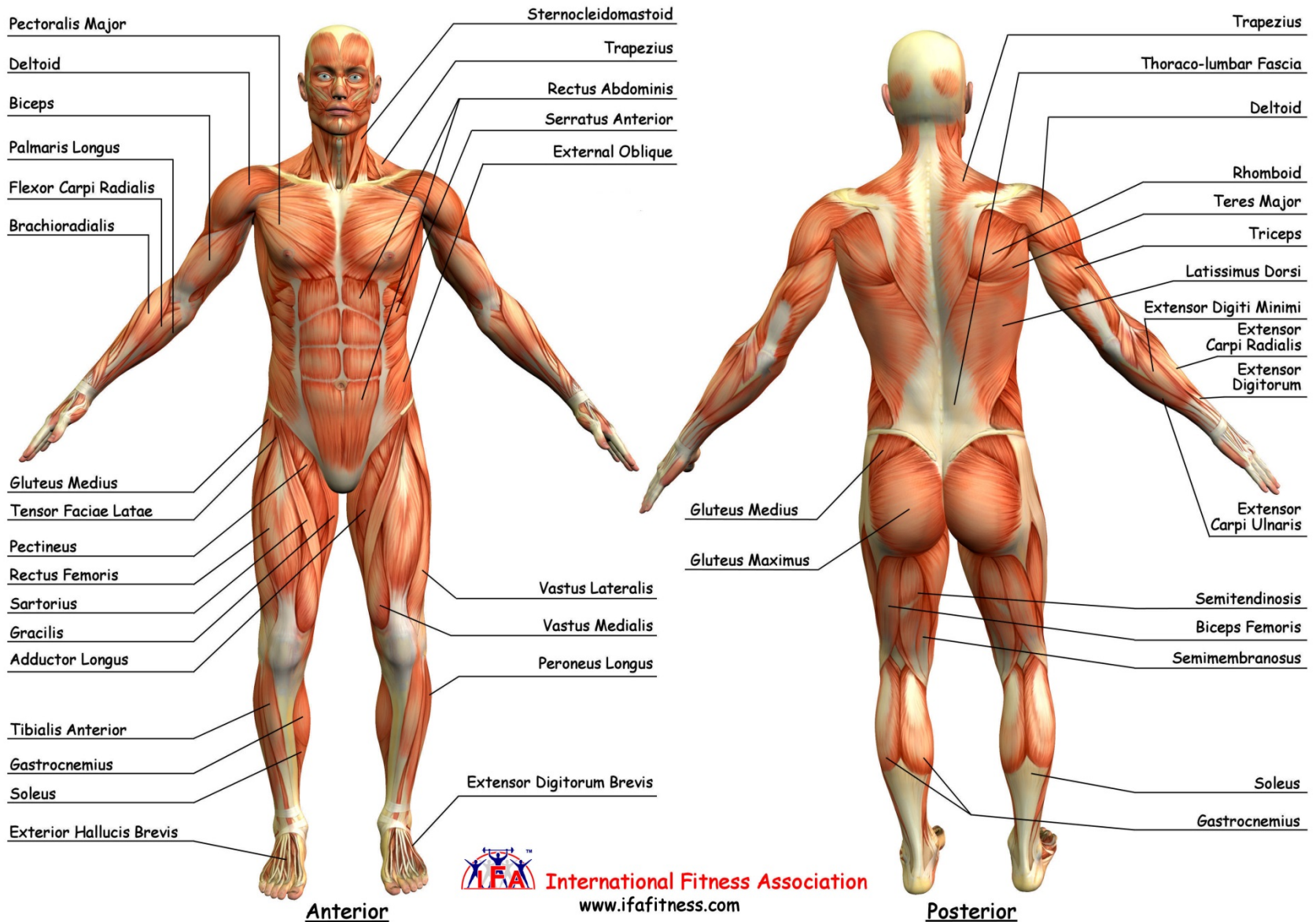
- Heat Cramps
- Heat Exhaustion and Heat Stroke
- Emergency Response
- Temperature and Humidity
- Hypothermia and Frostbite



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# Anatomy Chart



International Fitness Association

[www.ifafitness.com](http://www.ifafitness.com)

Anterior

Posterior

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