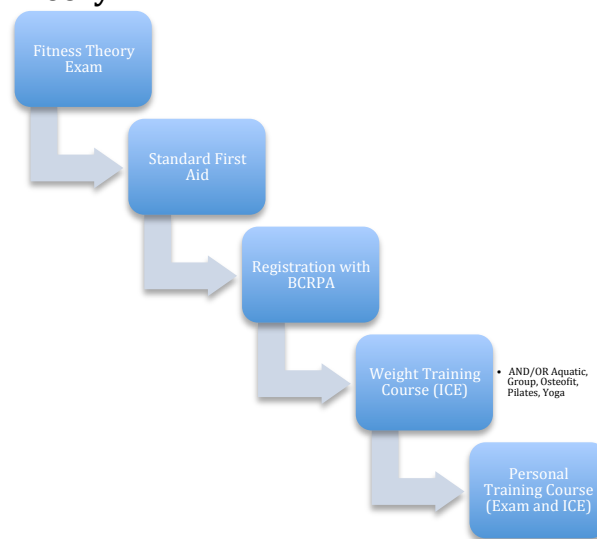


## 5.5 Fitness Basics + Core Muscles

### Related Careers

### BCRPA Fitness Theory



<https://www.bcrpa.bc.ca/>

### Components of Fitness

Health-related	Skill Related
1)	1)
2)	2)
3)	3)
4)	4)
5)	5)
	6)

## Fitness Planning

### Developing Goals

Before developing a fitness program, it helps to have goals. What are you training for?

- A specific sport?
- An event or contest?
- Weight loss?
- Body toning?
- General health?

Then you can break down goals into categories

Components of Physical Fitness	Sample Goals
1) Cardiorespiratory Fitness	
1) Muscular Strength	
2) Muscular Endurance	
3) Flexibility	
4) Body Composition	

The example goals provided are very general. It helps to be as specific as possible so that you can track your progress over time. Goals should be **SMART**

### Physical Fitness Formula = FITT

\_\_\_\_\_ **(How often)**

Most training programs include between 3 and 6 training session a week.

\_\_\_\_\_ **(How hard)**

Must be intense enough to create an overload that increases the body's capabilities

\_\_\_\_\_ **(How long)**

This will vary on the type of training, but cardiovascular fitness requires a minimum of 15-20 minutes per session in order to be effective

\_\_\_\_\_ **(What)**

Based on the goals of the program

FITT Formula

TRAINING FOCUS	FREQUENCY	INTENSITY	TIME	TYPE
<b>AEROBIC TRAINING</b>	3-6 times/week	60-90% MHR (4-9 RPE)	20+ mins (usually 20-30) in the target heart rate zone	Jogging, cycling, swimming—any large muscle group activity
<b>FAT LOSS</b>	3-6 times/week (ideally something each day)	60-70% MHR (4-5 RPE) (may need to start at 40% of MHR for obese or extremely unfit)	30+ mins in the target heart rate zone	Walking, jogging, stepping—any large muscle group activity
<b>MUSCULAR ENDURANCE</b>	2-6 times/week	40-70%	Sets: 1-3 Reps: 12-20 Time: 30-120 sec Rest Between Sets: 30 sec or less Rest Between Work-outs: 24-48 hrs	Dumbbells, tubing, machines, barbells, kettle bells, BOSU balls, stability balls
<b>MUSCULAR HYPERTROPHY</b>	2-4 times/week	60-85%	Sets: 1-5 Reps: 8-12 Time: 30-120 sec Rest Between Sets: 30-90 sec Rest Between Work-outs: 48 hrs	Dumbbells, machines, barbells, kettle bells
<b>MUSCULAR STRENGTH</b>	2-3 times/week	75-95%	Sets: 1-6 Reps: 3-6 Time: 30-120 sec Rest Between Sets: 1-5 min Rest Between Work-outs: 48-96 hrs	Dumbbells, machines, barbells, kettle bells

TABLE 10.1

## Principles

### 1) \_\_\_\_\_

Regular training at a load more than the body is presently used to will create an overload and stimulate body adaptations. The overload can be in the number of repetitions, resistance, time or amount of stretch. For example, an individual can complete one more push-ups each day, run a specific distance a little faster or lift a little more weight each week in the weight room. This training must be applied in a progressive overload fashion that gradually increases the workload over a long period of time. Overload is a combination of gradual increase in intensity and duration of exercise or stretch.

### 2) \_\_\_\_\_

SAID is the specific adaptation to imposed demand. The body responds in a specific manner to a specific type of training program. If you want to be powerful in athletic performance, then training must be done in a fast and explosive manner. Training with heavy weights at a low rate of speed will make an individual stronger at a low rate of speed. This principle forms the basis of periodization for elite athletes. In periodization, the training season is broken down into specific phases which attempt to focus in on one element of fitness (i.e. aerobic base followed by muscle hypertrophy, muscle strength and finally power development). Each phase represents a specific demand on the body and it responds in a specific manner.

### 3) \_\_\_\_\_

The first step in individualizing a training program is to determine the goals of the participant. Each individual will respond differently to a training program. An individual's fitness level at the start of exercise, age, gender, genetics, nutrition, effort and health status are a few of the variables that will impact the results of a training program.

### 4) \_\_\_\_\_

Keep training or the benefits and adaptations will be lost. This has been said in a number of ways: 'use it or lose it', 'use it or fuse it'. Regardless of how you cut it, 'detraining' can begin in as little as 1—2 weeks when exercise is stopped completely. Training a similar workload but at a reduced frequency will help delay the loss of fitness during a detraining time. For example, if a jogger heads off on a two-week holiday and lies on the beach and eats the entire time, considerable fitness may be lost. However, if the jogger could work in one workout a week at the normal intensity and duration, detraining would slow down considerably.

### 5) \_\_\_\_\_

Despite the continual efforts of coaches, athletes and fitness participants, improvements in training do not continue at the same rate forever. It may seem unfair, but the principle of diminishing returns states that, as you get fitter, adaptations to training will progress at a slower rate compared to when you first began. You have to work harder to get fewer results! Eventually, a ceiling may be reached when the body has adapted as much as possible for the genetic potential it has been given.

### Different Strength Goals

**Muscular \_\_\_\_\_**: The ability of muscle to exert force

**Muscular \_\_\_\_\_**: The increase in muscle size

**Muscular \_\_\_\_\_**: The muscle’s ability to resist fatigue during repetitive force production

### Intensity

In strength training, intensity is determined by three factors:

\_\_\_\_\_ : (% of one rep max)

\_\_\_\_\_ : (number of times the exercise is completed)

\_\_\_\_\_ : (how many times the prescribed number of repetitions is completed)

For aerobic training, intensity can be changed by altering the speed or duration of training.

### Exercise Sequence for Resistance Training

The exercise selection and sequence depends on the experience, background, present fitness level and goals of the participant.

### General Strength Training Guide

Variable	Strength	Strength Hypertrophy	Endurance
Repetitions			
% 1 RM			
Frequency			

### Minimum Recommendation for Resistance Training

1 Set

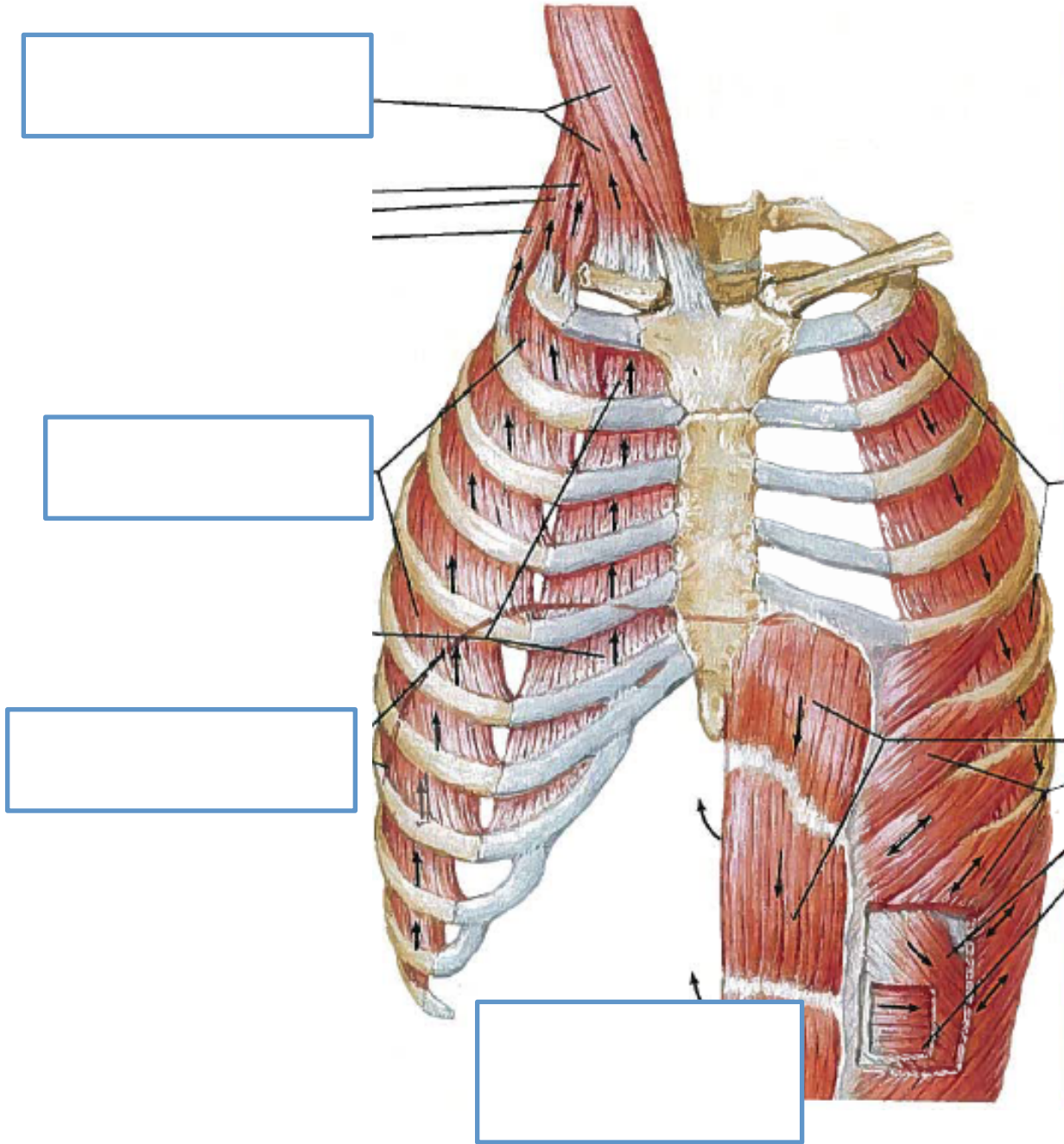
8-12 Repetitions

8-10 Exercises

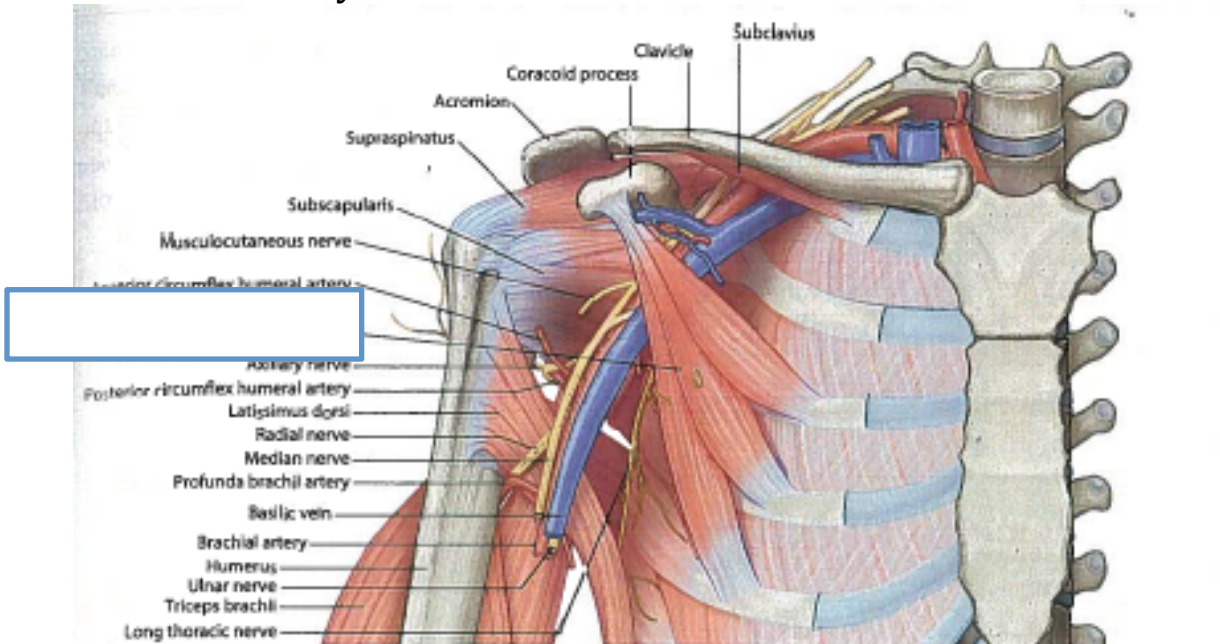
2-3 Times a week

## Chest and Abdomen “Core” Fitness

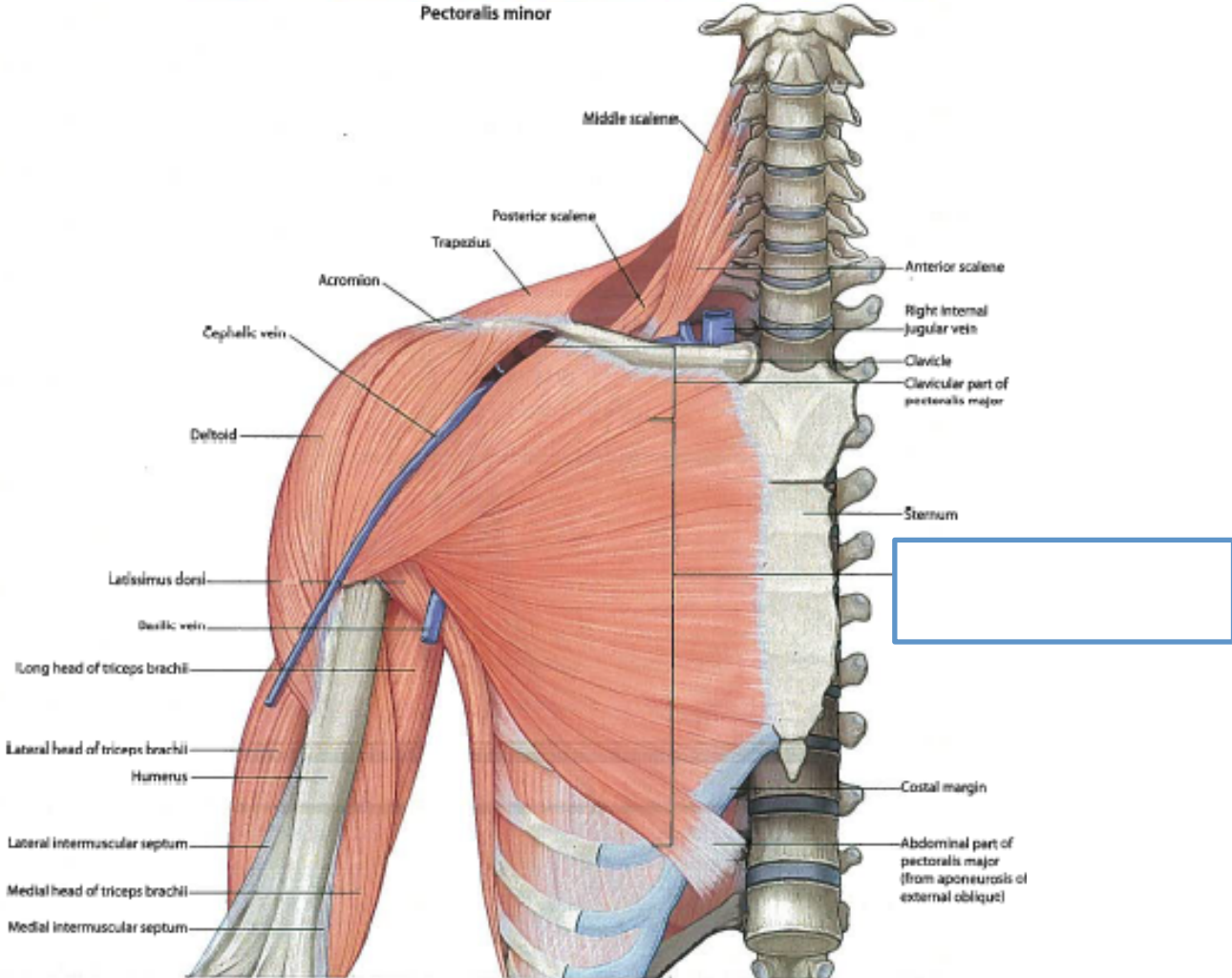
### Muscle Anatomy



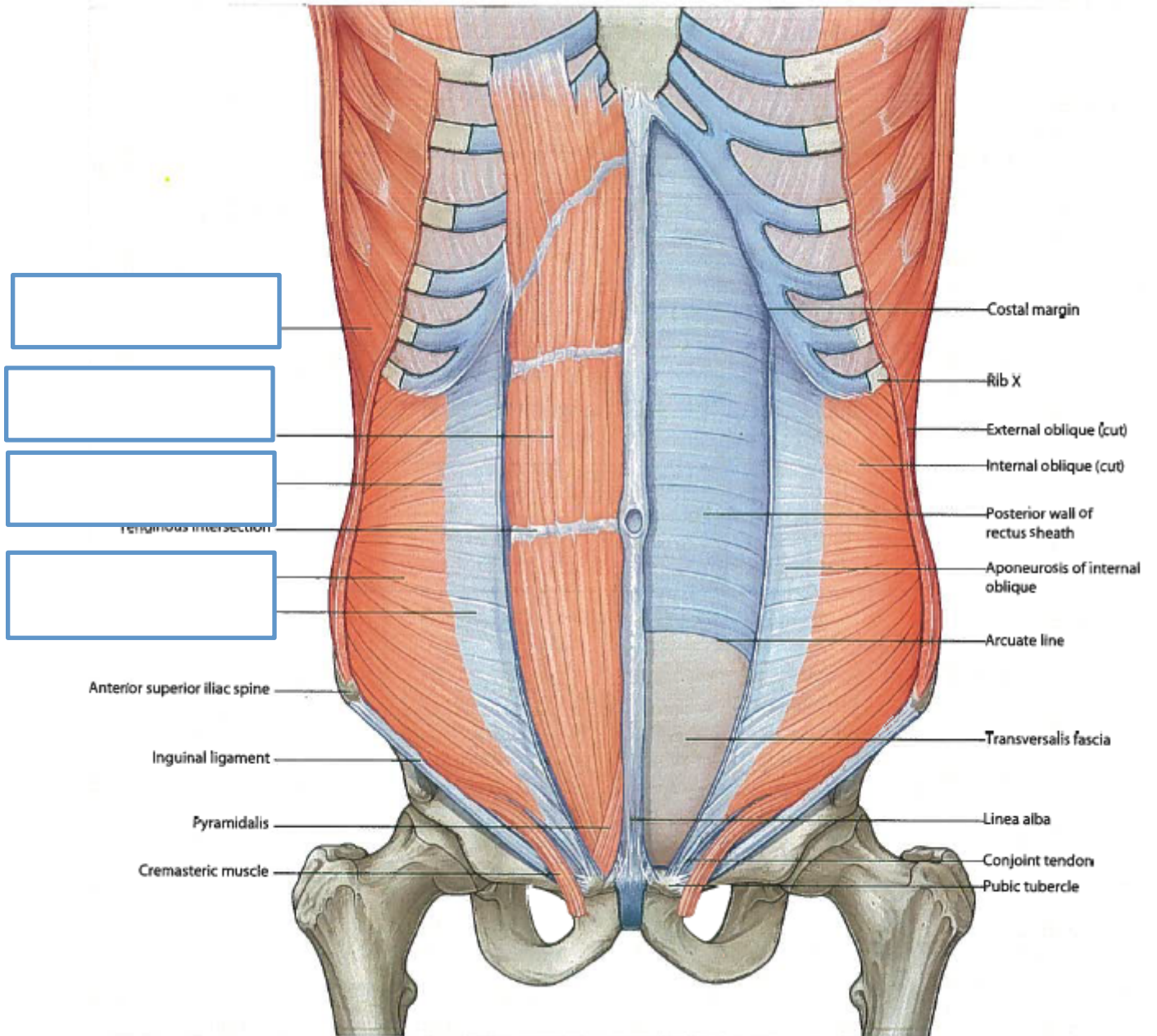
### Muscle Anatomy



Pectoralis minor

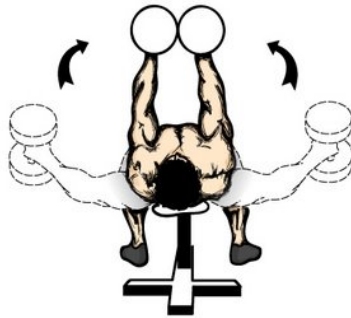
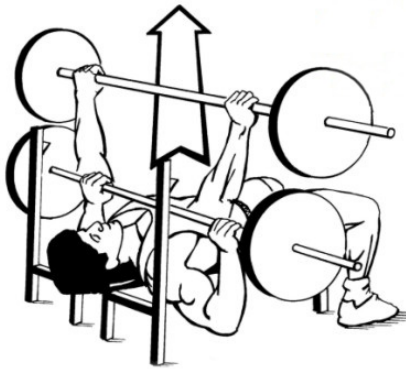
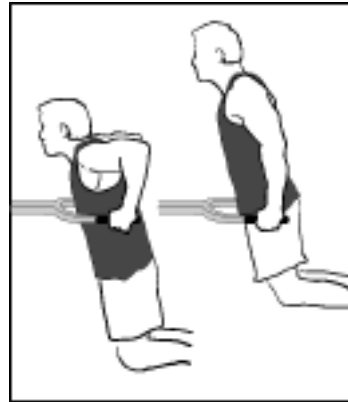
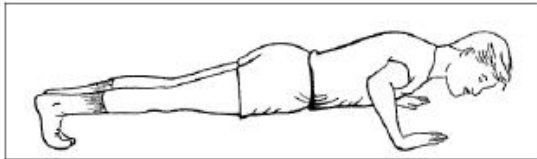


### Muscle Anatomy

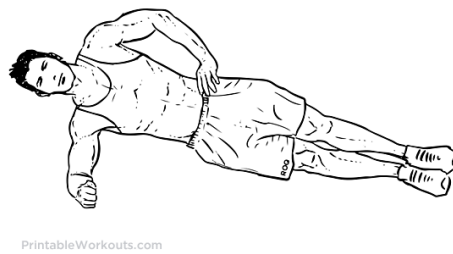
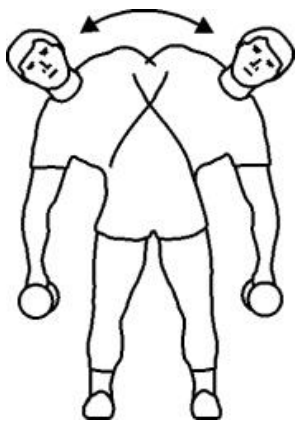
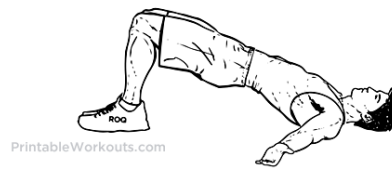
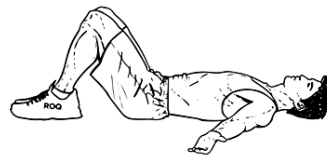
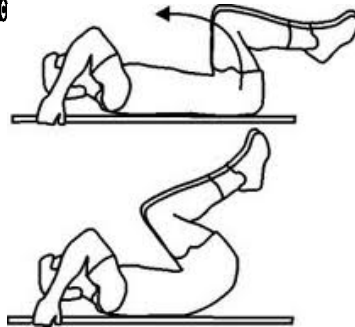
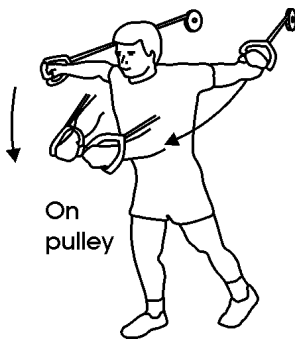
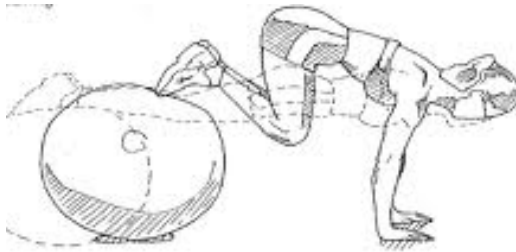
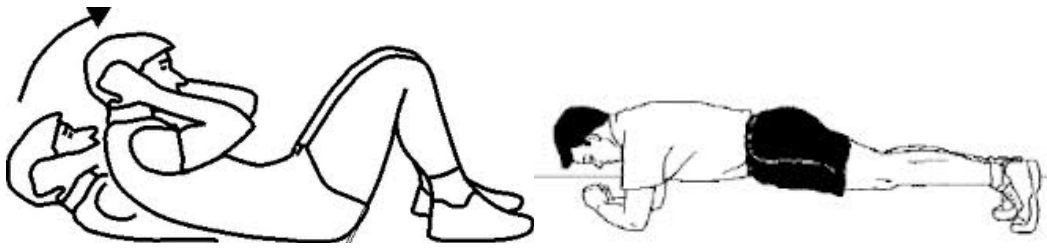




**Chest Exercises**



### Abdominal Exercises



## Contra-indicated Exercises

### Double Leg Raises

*Purpose:* Abdominal strengthening.

*Potential Hazards:* The double-leg raise can lead to serious low back injury if the abdominals are too weak to keep spinal alignment. This movement can create excessive force in the iliopsoas muscles (hip flexors) and pull the lumbar spine into an abnormal curve (increased lordosis).

*Alternatives:* Heel slide, crunch.



DIAGRAM 11.9

### Bicycle

*Purpose:* Abdominal strengthening (obliques).

*Potential Hazards:* Rapid twisting side to side can increase stress on the lower back.

*Alternatives:* Slow and controlled elbow to knee work obliques.

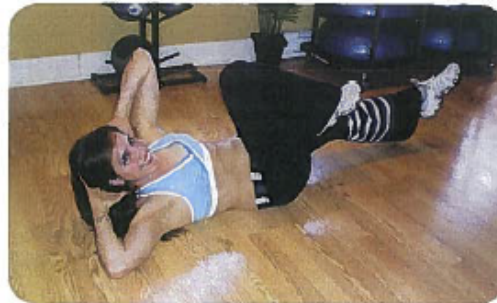


DIAGRAM 11.11

**Assignment**

Read the “physical activity guidelines” and “sedentary behavior guidelines” for each age group and note important points on the chart below.

Age	Time Guideline	Other Recommendations	Sedentary Behaviour
0-4			
5-11			
12-17			
18-64			
65+			

**Your fitness reflection:**

1) Are you following the recommended guidelines for your age? Why or why not?

a) 60 minutes moderate to vigorous activity daily?

b) Vigorous-intensity activities 3 days a week?

c) Strengthening activities 3 days a week?

d) Less than 2 hours of screen time per day?

2) Give yourself a grade in each category and create a SMART goal that you work towards:

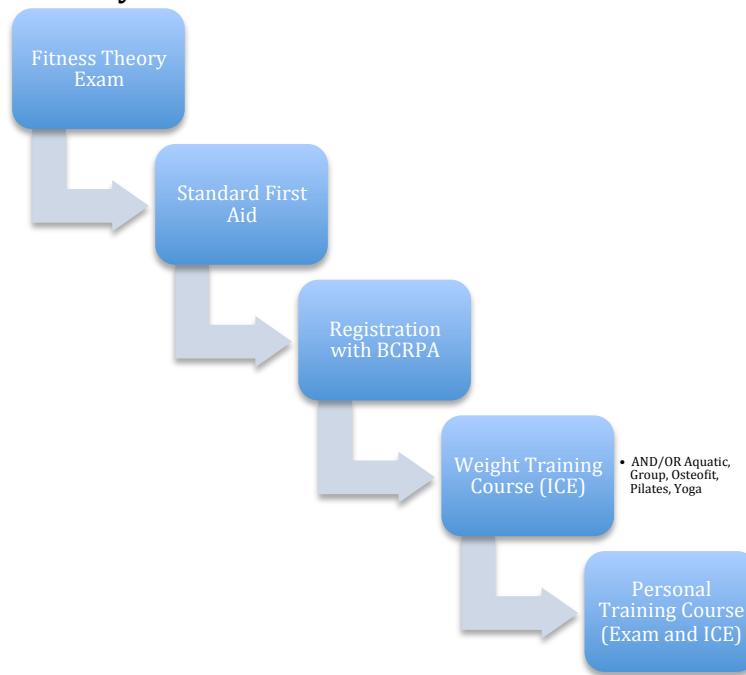
Fitness Component	Grade	SMART Goal
Cardiorespiratory Endurance		
Muscular Endurance		
Muscular Strength		
Flexibility		
Body Composition		

## 5.4 Fitness Basics (teacher)

### Related Careers

- Personal Trainer
- Massage Therapy
- Acupuncture, etc.
- Physiotherapy
- Chiropractor
- Sports Medicine

### BCRPA Fitness Theory



<https://www.bcrpa.bc.ca/>

### Components of Fitness

Health-related	Skill Related
Cardiorespiratory Endurance	Speed
Muscular Endurance	Power
Muscular Strength	Reaction Time
Flexibility	Agility
Body Composition	Balance
	Coordination

## **Program Planning**

### **Developing Goals**

Before developing a fitness program, it helps to have goals. What are you training for?

- A specific sport?
- An event or contest?
- Weight loss?
- Body toning?
- General health?

Then you can break down goals into categories

<b>Components of Physical Fitness</b>	<b>Sample Goals</b>
1) Cardiorespiratory Fitness	To be able to run faster without getting out of breath
1) Muscular Strength	To gain core body/major muscle strength for sport
2) Muscular Endurance	To maintain speed on a long-distance bike race
3) Flexibility	To prevent injury and have good posture
4) Body Composition	To maintain a healthy weight

The example goals provided are very general. It helps to be as specific as possible so that you can track your progress over time. Goals should be SMART

**S**pecific  
**M**easurable  
**A**ttainable  
**R**elevant  
**T**imed

### **Physical Fitness Formula = FITT**

#### **Frequency (How often)**

Most training programs include between 3 and 6 training session a week.

#### **Intensity (How hard)**

Must be intense enough to create an overload that increases the body's capabilities

#### **Time (How long)**

This will vary on the type of training, but cardiovascular fitness requires a minimum of 15-20 minutes per session in order to be effective

#### **Type (What)**

Based on the goals of the program

FITT Formula

TRAINING FOCUS	FREQUENCY	INTENSITY	TIME	TYPE
<b>AEROBIC TRAINING</b>	3-6 times/week	60-90% MHR (4-9 RPE)	20+ mins (usually 20-30) in the target heart rate zone	Jogging, cycling, swimming—any large muscle group activity
<b>FAT LOSS</b>	3-6 times/week (ideally something each day)	60-70% MHR (4-5 RPE) (may need to start at 40% of MHR for obese or extremely unfit)	30+ mins in the target heart rate zone	Walking, jogging, stepping—any large muscle group activity
<b>MUSCULAR ENDURANCE</b>	2-6 times/week	40-70%	Sets: 1-3 Reps: 12-20 Time: 30-120 sec Rest Between Sets: 30 sec or less Rest Between Workouts: 24-48 hrs	Dumbbells, tubing, machines, barbells, kettle bells, BOSU balls, stability balls
<b>MUSCULAR HYPERTROPHY</b>	2-4 times/week	60-85%	Sets: 1-5 Reps: 8-12 Time: 30-120 sec Rest Between Sets: 30-90 sec Rest Between Workouts: 48 hrs	Dumbbells, machines, barbells, kettle bells
<b>MUSCULAR STRENGTH</b>	2-3 times/week	75-95%	Sets: 1-6 Reps: 3-6 Time: 30-120 sec Rest Between Sets: 1-5 min Rest Between Workouts: 48-96 hrs	Dumbbells, machines, barbells, kettle bells

TABLE 10.1



## **Principles**

### **1) Progressive Overload**

Regular training at a load more than the body is presently used to will create an overload and stimulate body adaptations. The overload can be in the number of repetitions, resistance, time or amount of stretch. For example, an individual can complete one more push-ups each day, run a specific distance a little faster or lift a little more weight each week in the weight room. This training must be applied in a progressive overload fashion that gradually increases the workload over a long period of time. Overload is a combination of gradual increase in intensity and duration of exercise or stretch.

### **2) Specificity (SAID Principle)**

SAID is the specific adaptation to imposed demand. The body responds in a specific manner to a specific type of training program. If you want to be powerful in athletic performance, then training must be done in a fast and explosive manner.

Training with heavy weights at a low rate of speed will make an individual stronger at a low rate of speed. This principle forms the basis of periodization for elite athletes. In periodization, the training season is broken down into specific phases which attempt to focus in on one element of fitness (i.e. aerobic base followed by muscle hypertrophy, muscle strength and finally power development). Each phase represents a specific demand on the body and it responds in a specific manner.

### **3) Individual Differences**

The first step in individualizing a training program is to determine the goals of the participant. Each individual will respond differently to a training program. An individual's fitness level at the start of exercise, age, gender, genetics, nutrition, effort and health status are a few of the variables that will impact the results of a training program.

### **4) Reversibility**

Keep training or the benefits and adaptations will be lost. This has been said in a number of ways: 'use it or lose it', 'use it or fuse it'. Regardless of how you cut it, 'detraining' can begin in as little as 1—2 weeks when exercise is stopped completely. Training a similar workload but at a reduced frequency will help delay the loss of fitness during a detraining time. For example, if a jogger heads off on a two-week holiday and lies on the beach and eats the entire time, considerable fitness may be lost. However, if the jogger could work in one workout a week at the normal intensity and duration, detraining would slow down considerably.

### **5) Diminishing Returns**

Despite the continual efforts of coaches, athletes and fitness participants, improvements in training do not continue at the same rate forever. It may seem unfair, but the principle of diminishing returns states that, as you get fitter, adaptations to training will progress at a slower rate compared to when you first began. You have to work harder to get fewer results! Eventually, a ceiling may be reached when the body has adapted as much as possible for the genetic potential it has been given.

## Different Strength Goals

**Muscular Strength:** The ability of muscle to exert force

**Muscular Hypertrophy:** The increase in muscle size

**Muscular Endurance:** The muscle's ability to resist fatigue during repetitive force production

### Intensity

In strength training, intensity is determined by three factors:

**Resistance** (% of one rep max)

**Repetitions** (number of times the exercise is completed)

**Sets** (how many times the prescribed number of repetitions is completed)

For aerobic training, intensity can be changed by altering the speed or duration of training.

### Exercise Sequence for Resistance Training

The exercise selection and sequence depends on the experience, background, present fitness level and goals of the participant.

### General Strength Training Guide

Variable	Strength	Strength Hypertrophy	Endurance
Repetitions	1-5	6-12	13-30
% 1 RM	85-100%	70-84%	60-69%
Frequency	3-5 times/week	3-5 times/week	2-3 times/week

### Minimum Recommendation for Resistance Training

1 Set

8-12 repetitions

8-10 exercises

2-3 times each week

Muscles:

- 1) Sternocleidomastoid, Intercostals, Diaphragm, Rectus Abdominis
- 2) Pectoralis Minor, Pectoralis Major
- 3) External Oblique, Rectus Abdominis, Transverse Abdominis, Internal Oblique