8th GRADE LECTURES
LECTURE 1

INTRODUCTION TO THE FITNESS CENTER

MUSCLES: hamstrings (back of upper leg) & quadriceps (thigh)

1. Do not write on the equipment, floors, mats, etc.

2. Do not use the equipment without teacher supervision.

3. Use the equipment as instructed. The hip machine is not a swing.

4. Technique is more important than weight.
   A. good posture
   B. make proper seat adjustments
   C. full range of motion
   D. align pivot point to body's pivot point (joint)

5. Rep = repetition = lifting weight once = 3 seconds per rep

6. Set = number of reps done at one time

7. Do not max out. That can damage your joints.

8. Do not hold your breath; exhale when lift lifting (blow the weight up); inhale when the weight goes down

9. Fully insert the key making sure it points down. Do not remove key if weights are suspended. Do not attempt to release jammed weights. Notify teacher.

10. Do not drop the weights. They can break.

11. Do not put ANYTHING (pens, pencils, fingers, etc) in between the weights

12. Do not touch the machine while someone else is lifting.

LECTURE 2 (8th)

8 To Live By

MUSCLES: bicep (front of upper arm) & tricep (back of upper arm)

GET IN A GOOD FOOD MOOD

I. Always eat a healthy breakfast

A. get 3 out of the 5 food groups

1. eggs, whole grain, milk

2. peanut butter, apple, cereal

3. OJ, lunchmeat, cheese

B. whole grain *(including oatmeal)*

C. go low-fat, low-sugar *(milk, yogurt, cheese)*

D. cereal

1. *little or no sugar* - no more than 11 grams sugar per serving
2. at least 3 grams of fiber
3. *whole grain listed first on ingredients*
4. *ex. – Cheerios, Grape Nuts, Shredded Wheat, Wheat Chex, Kashi GoLean*
5. *add fruit*

E. Why?

1. improve memory, concentration, creativity and problem-solving

2. improves your mood

3. helps weight control and starts metabolism

II. More fruits and vegetables

A. 5 – 9 servings

B. rate your plate – half your plate is veggies @ lunch and dinner (eat first)

C. use fruit for dessert or when you crave sweets

D. make smoothies from fresh fruit, ice cubes and skim milk or low-fat yogurt

E. choose fruit or side salad rather than French fries

III. Limit or eliminate sweetened drinks

A. drink water

B. drink 2 – 3 cups of low-fat milk

C. drink 100% fruit juice, but only 6 oz. / day (better yet, eat the fruit)

D. aim for less than 12 oz. of soda, sports drinks, lemonade / week

Sports drinks needed only if exercise exceeds 90 min.

teaspoons of sugar/ 20 oz (total grams x servings) divided by 4 = tps sugar

Propel	*1.25*	
Gatorade	*8.75*	
SoBe	*12*	*(plus tons of caffeine)*
Sprite	*15.8*	
Coke	*16.3*	
Pepsi	*16.9*	
Dr. Pepper	*16.9*	
A&W Root Beer	*18*	

Min.MaidLemonade 18.8
Mountain Dew 19.4
A&W Cream 20.5
Sunkist Orange 21.7

1 can of soda/day for 1 year = 56,000 calories = 16 lbs.

JUST BE ACTIVE

IV. Limit screen time to 1-2 hours/day

A. move then out of the bedroom
B. balance TV and activity time
1. want to watch a 30-minute sit-com; go for a 30-minute walk
2. use a treadmill as you watch TV
C. set limits – use a timer
D. don't eat in front of TV
E. don't surf – schedule

V. Increase physical activity

A. aim for 60 minutes per day – playtime, sports, exercise, walking, movement
B. transport yourself – less time in car, walking school bus, stairs, far parking spot
C. play – ball, walk, jump rope, hula hoops, pogo stick, night/day games, rec center
D. make it a family activity – walk after dinner, Frisbee in the park, family rec pass

SUPPORT EACH OTHER

VI. Eat meals together as a family

A. 3 meals + 2 snacks = no grazing; drink water
B. help cook
C. limit fast food – 2 times/month
D. sit down and slow down

VII. Be positive about food

A. forget about forbidden foods– that's too restrictive; plan for an occasional treat
B. don't use food as reward, bride or punishment (comfort or emotional eating)
C. stay away from fad diets
D. learn more about nutrition – be food-friendly not food-phobic

VIII. Don't criticize about weight

A. watch what you say about your body; don't compare
B. don't make negative comments about others, either
C. be realistic about weight loss
D. focus on livelong, healthy habits

LECTURE 3 (8th)
CARDIOVASCULAR FITNESS

MUSCLES: pectoralis major (chest) & trapezius (upper back and neck)

Components of physical fitness

A. Cardiovascular fitness – how well the heart and lungs work in delivering oxygen to working muscles
B. Muscular strength – force a muscle can exert
C. Muscular endurance – ability of a muscle to continue working for a long time
D. Flexibility - moving a joint through a full range of motion
E. Body Composition – percent of body weight that is fat compared to that which is not fat such as muscles and bones

I. Definitions
   A. cardio = heart; vascular = vessels of the circulatory system
   B. CV system = heart + lungs + vessels (circulatory + respiratory systems)
   C. CV fitness – ability to provide oxygen to working muscles over a longer period of time
   D. CV disease – leading cause of death in the US; more deaths than all other causes combined
      1. CV disease risk factors
         a. high blood pressure
         b. high cholesterol
         c. sedentary lifestyle
         d. overweight
         e. smoking
         f. age
         g, gender
         h. heredity

II. Activities that reduce risk of CV disease
   A. Aerobic – with oxygen
      1. 50% - 80% intensity level
      2. continuous steady pace for longer period of time
   B. Anaerobic – without oxygen
      1. 90 – 100% intensity
      2. fast, powerful lasting for a short time

III. Continuum

power lifting, sprint, soft-ball, volley-ball, basket-ball, soccer, Distance run, bike, swim, ski

I-X---X-------X------X-----------X--------------X----------------------------X--I

Anaerobic **Aerobic**

IV. Parts of an aerobic workout

A. Warmup

1. prepares body for workout *by increasing heart rate which increases blood flow which increases muscle temperature*
2. improves performance
3. decreases injury

B. Aerobic workout

1. must involve the large muscles
2. breathe heavier but not out of breath (talk test)
3. heart must be in target heart rate zone of 130 – 180 beats per minute
4. continuous for at least 20 minutes 6 times per week
5. sweat

C. Cool down

1. *valves in legs help return blood to heart only when muscles are working*
2. *sitting right after exercise while heart rate is up causes blood to pool in legs*
3. continue walking until heart rate returns to normal to protect heart, brain and muscles of the legs
4. stretch warm muscles

LECTURE 4 (8th)
MUSCULAR STRENGTH AND ENDURANCE

MUSCLES: deltoid (shoulder) & latissimus dorsi (middle back)

I. Definitions
   A. Muscular strength – amount of force that a muscle can exert in one contraction; allows individual to lift heavy load (backpacks, furniture)
   B. Muscular endurance – ability of a muscle to continue working for a longer time; allows individual to keep going in an activity (long bike ride)

II. Continuum

	power lifting, sprint,	soft-ball	volley-ball	basket-ball	soccer	Distance run, bike, swim, ski	
Strength	I-X---X------X------X---------X-----------X---------------X-I						**Endurance**
Anaerobic							**Aerobic**

Compare to anaerobic/aerobic continuum

III. Benefits
   A. improves performance
   B. reduces fatigue
   C. reduces bone and muscle loss associated with aging
   D. assists in weight control as fat is burned in the muscle

LECTURE 5 (8th)
FLEXIBILITY

MUSCLES: hip adductors (inner thigh), hip abductors (outer hip), gluteus maximus (buns), hip flexors (hip flexors)

I. Flexibility is the ability to move the body's joints through a full range of motion

II. Benefits
- A. improves performance
- B. reduces risk of injury
- C. reduces muscle soreness
- D. decreases stress and tension – both physically and emotionally
- E. improves posture
- F. helps reduce lower back pain

III. Ways to stretch
- A. Dynamic
  1. with movement
  2. examples are warm-up throws, warm-up laps, warm-up set, form drills
  3. warm-up dynamically to avoid injury
- B. Static
  1. without movement
  2. hold for 15 seconds
  3. examples are quad stretch, butterfly, tricep stretch, heel cord stretch
  4. cool down statically when muscles are warm
- C. Ballistic
  1. bounce
  2. avoid as it can damage muscles

IV. Safety
- A. stretch within own limits to avoid injury caused by overstretching
- B. avoid outside hurdle stretch as it can cause knee damage; do inside hurdle
- C. avoid having knee tighter than a 90 degree angle when weight bearing

V. Treatment for injury

R I C E

Rest

Ice

Compression control swelling

Elevation

LECTURE 6 (8th)
NUTRITION

MUSCLES: gastrocnemius (calf) & anterior tibialis (shin)

I. Nutrients – food substances required for the growth and maintenance of cells

Nutrient	Source	Function
Carbohydrates	sugars & starches found in fruits, vegetables, grains	energy
Proteins	meats, poultry, fish, eggs, nuts, beans	builds, repairs, maintains cells
Fats	oils, dressings, nuts, meats TRANS FAT – bad fat (partially hydrogenated) Clogs arteries; goal – 0 SATURATED FAT – limit to 16 grams; Solid at room temperature; animal fats such as fatty meats, cheese, butter UNSATURATED FAT – Good fat; liquid at room temperature; plants such as corn oil, olive oil, sunflower oil, nuts	stored energy (twice that of carbohydrates)
Vitamins	variety of foods	helps cells function properly
Minerals	variety of foods	regulate cell activity
water	most important nutrient; avoid soft drinks	Carries nutrients to cells & waste away; regulates temp; 64 oz per day

III. Daily Calorie Intake
- A. Active boy – 2800 calories per day
- B. Active girl – 2200 calories per day
- C. Inactive teenager – 1600 per day

LECTURE 7 (8th)
BODY COMPOSITION

MUSCLES; rectus abdominus (stomach) & back extensors (lower back)

I. Body composition is the percentage of body weight that is fat compared to lean.
    A. Lean body mass – muscles, bones, organs, fluid
    B. Healthy body composition
        1. males – 9% - 20%
        2. females – 14% - 26%

II. Factors that influence body composition
    A. Heredity
    B. Metabolism
        1. the amount of energy your body needs to function at rest
        2. affected by age, heredity, muscle mass
    C. Gender
    D. Early fat composition
    E. Diet (See Lecture 6)
    F. Physical activity – 60 minutes/day