**Athletic Enhancement Syllabus**

**Class Description:** This course is based around weight training and athletic enhancement. You should plan to lift 3-4 days a week all semester. The goal of this class is to improve strength, power, and quickness, in the basic movements used in athletics. Most of the exercises and techniques learned can also be applied to students’ life-long exercise routines. Activities will include total body resistance training and power building exercises. Speed, agility, and cardiovascular endurance activities will also be incorporated. We repeat workouts, changing only the starting lift, weight, and rep scheme, in order to best use our limited class time and space so that everyone who works hard can complete the workouts and reap the benefits.

**Class Materials:** You must bring with you every day to class proper clothing: athletic shorts, appropriate t-shirt, socks, and athletic shoes. Cutoff shirts must be tight to the arm.

**Grading Breakdown per Quarter:**

Daily Participation and Dressing out = about 450 pts (50 per week)

Pacer Test = 50 pts

Weights Logged = 50 pts

Demonstrate Mastery of Technique in 5 Lifts (Bench, Squat, RDL, Clean, Shoulder Press) = 50 pts (3rd Qtr. Only)

Improvement on Bench, Squat, Clean = 10 points each / 30 points total

If you were in Weights 1st Semester, we will compare 2nd quarter to 3rd quarter. If you were not in Weights 1st Semester, you will not be scored in the 3rd quarter. All students will be graded on improvement from 3rd quarter to 4th quarter.

Grading Scale:

98 – 100 A+

93 – 97 A

90 – 92 A-

88 – 89 B+

83 – 87 B

80 – 82 B-

78 – 79 C+

73 – 77 C

70 – 72 C-

68 – 69 D+

66 – 67 D

65 D-

Daily Participation, Dressing Out, Expectations, and Procedures

Each week, every student starts with 50 points. Points will be deducted for the following reasons:

Unexcused Tardy = 5 point deduction.

1 No Dress / No Participate = 25 point deduction each time.

3 No Dress / No Participate in one quarter = Removal from Weights Class into General PE.

No Dress / Still Participate = 15 point deduction each day.

6 No Dress / Still Participate = Removal from Weights Class into General PE. You will be expected to complete the full warm up and workout.

Skip or don’t fully complete Warm Up in your prescribed area = 5 point deduction each time

Not on prescribed task or activity = 5 point deduction each time

\*If the teacher has to specifically redirect you to be on task, points will be deducted.

8. Not doing prescribed weight based on your last Projected Max = 5 point deduction each time.

9. Every student will be in the weight room and ready to start the warm up 4 minutes after the tardy bell. Failure to be in the weight room on time results in a 5 point deduction.

10. Every student will rotate when directed, usually based on the timer. Failure to rotate on time is a 5 point deduction.

\*If you are removed from class, you may earn your way back into the class by attending at least 10 morning workout sessions (5:30 a.m.) within 3 weeks of being removed from the class. Otherwise, a student who is removed from Athletic PE class will remain in Walking PE for the remainder of the semester.

Log Your Workout Weights. Keeping your log updated will be worth 50 points per quarter.

Pacer Test: All PE / Weights students will be required to complete the pacer test once each quarter for a grade.

50 points can be earned. Level 6-7=50, 5=40, 4=30, 3=20, 2=10, 1=5.

A Dr. Note is the only excuse for not participating. If ill, bring a note from a parent or Doctor. A parent may excuse you two days. On the 3rd day, you will need a doctor’s note. Your teacher may require you to do a make-up activity to earn points for an excused absence. YOU SHOULD ALWAYS DRESS OUT, EVEN IF YOU CANNOT FULLY PARTICIPATE. We can usually find something for you to do to improve.

**Strength Training Issues**

1. Lifting on Days of Competition

In order to continue to develop throughout the competitive season, it is necessary to continue to lift on the days of contests. Athletes who take days off tend to lose many of the benefits of the strength program as the season progresses (especially come tournament time) and put themselves at risk of injury. The five station lifting program requires approximately seven and a half minutes of work per day. Any athlete who has been a part of a lifting routine, and who is a part of an athletic team should be able to compete without any detrimental fatigue. Athletes participate in practice sessions that sometimes last even longer than the competitive events on a daily basis, yet are not negatively affected by the lifting workout that occurs earlier in the day. The most important factor is the mindset that the athlete takes. If an athlete understands the rationale for continuing the lifting program, and tells himself how much stronger he feels by staying on his normal routine then he can perform at a very high level. If the self-talk is negative, then the performance will suffer.

2. Female Issues

“Any fear that women may have regarding bulking up through resistance training is basically unfounded since they possess testosterone hormonal levels 10 – 20 times less than men. Essentially, for women to bulk up to the level exhibited in some popular magazines requires the use of artificial anabolic steroids such as testosterone injections. Women do adapt to resistance training in similar patterns as men just not to the same magnitude.”

NSCA Performance Training Journal Vol. 1 Number 3

“A common misconception among female athletes is that weight training will cause them to become larger and heavier to their disadvantage. A substantial amount of data has demonstrated the inaccuracy of this belief. Each of the studies demonstrated a reduction in fat weight, and increase in lean weight, and either no change or only a slight increase in total body weight. All demonstrated significant increases in strength, and in most cases these changes were associated with no change or a decrease in lower body girths and only minimal increases in upper body limb girth.”

NSCA Journal Vol.11 Number 4 “Strength Training For Female Athletes – A Position Paper”

“In reality, women don’t have the genetic potential to develop large muscles because, except in very rare instances, they don’t have enough of the hormone testosterone, which is needed for the development of muscle bulk.”

ACSM Health & Fitness Journal Jan. /Feb. 2000

“Strength Training improves body composition by helping to reduce body fat while increasing lean weight. Consequently, women should strength train in the same way as men, using the same program design, exercises, intensities, and volumes relative to body size and level of strength.”

Strength & Conditioning Dec. 1998

“It is difficult for women to add excessive muscle mass. Resistance training programs typically result in a reduction of the amount of fat over the existing muscles along with a moderate increase in muscle size. The overall effect is that more muscle definition is observed.”

Penn State Sports Medicine Newsletter Vol. 3 No. 5

3. Strength Training and the Long Distance Runner

“The objective of strength training for the distance runner is the same as for any athlete: to strengthen the area that are necessary to improve performance and prevent injury. Somehow the mistaken notion has developed over the years that it is not necessary for the distance runner to strengthen the legs. Nothing could be further from the truth. The legs are the main propulsive mechanism in running. Therefore, a good multi-joint leg program will significantly help performance and prevent injury by better preparing the body for the forces incurred, particularly landing. “Training & Conditioning October 2000

“Athletes who strength train appear to have a lower incidence of overuse injuries. These resistance-trained endurance athletes also seem better able to complete their events without dramatic decreases in speed as the event progresses.”

Strength and Conditioning Journal October 2000

“The results of this study suggest that implementing a vigorous strength training program in previously untrained (strength) female distance runners may yield positive results in running economy. Upper and lower body strength improvements are evident and expected in a program of this type. Also, this improved strength is not associated with significant changes in body composition. The improvement in running economy would be significant for a competitive distance runner. It could shave vital seconds off her time and it is these seconds that determine a runner’s placement in a race.”

Journal of Strength and Conditioning Research 1997 11(4)

“As an example of the benefits strength training can provide, recent studies have shown that as few as six weeks of proper weight training can significantly reduce or completely relieve knee cap pain or “runners knee.” It also reduces the recurrence of many other common injuries, including nagging hip and low back pain. By strengthening muscle, as well as bone and connective tissue, weight training not only helps to prevent injury but also helps to reduce the severity of injury when it does occur. In addition to injury prevention, weight training improves performance. Studies show that with as little as ten weeks of weight training, 10K times decrease by an average of a little over one minute. The research has also shown that running economy defined as the steady-state oxygen consumption for standardized running speed will be improved due to weight training. By improving running economy, a runner should be able to run faster over the same distance due to a decrease in oxygen consumption. Improved running economy could also increase a runner’s time to exhaustion.”

Running & Fit News Vol. 10 Number 6

4. Lifting Belts

Lifting belts have been a part of the strength training scene for some time. The purpose of the belt is to add support to the lumbar spine during heavy lifting. The main mechanism by which a belt supports the spine is the pressurization of the abdominal cavity. An increase in intra-abdominal pressure allows all of the contents within the abdominal cavity to share compressive loads on the spine. Wearing a weightlifting belt has been shown to increase intra-abdominal pressure by as much as 40%, which has been shown to reduce compressive forces acting on the spine by as much as 50%.

In the class, belts are only to be worn during the squat and the power clean. Wearing a belt during the other lifts would not allow the core musculature to develop, and if kept on and never loosened would elevate the blood pressure. There are a growing number of professionals within the strength training community that are questioning the ideal usage of lifting belts. Most would agree that during max attempts, during sub-maximal repetition ranges to failure, and during periods of back rehabilitation lifting belts are recommended. Research pertaining to the use of belts is still ongoing.

**Misc. Issues**

1. Dynamic Warm-up

The Dynamic flexibility routine that is used at Ben Davis goes from forward to lateral to backward movements, and includes the following:

1. High Knees
2. Glute Kicks
3. Lunge Walk
4. 45 Degree Lunge Walk
5. Side Shuffle (both directions)
6. Carioca (both directions)
7. Side Lunge (both directions)
8. Backward Run
9. Backward Lunge Walk

2. Nutritional Considerations

There has always been a search for the magic supplement, pill, diet, etc. that will allow an athlete to gain weight, lose weight, get stronger, look better, or play better. Many companies have taken advantage of the athlete looking for that “extra edge”. Most companies use a little bit of science, or research done by their company, to convince athletes of the need to use their product. Very few products hold up to actual scientific studies done by reputable researchers.

**Losing Weight**

 There are many myths and misconceptions about weight loss. The weight loss industry makes a lot of money off of the general population’s lack of knowledge about weight reduction and their desire to lose weight quickly and easily. Many diet aids contain speed in the form of caffeine or certain herb products. Athletes need to make sure that they are attempting weight loss for the right reasons. Many female athletes have developed eating disorders due to the pressure from unrealistic body image issues. In order to lose weight, an athlete needs to make weight loss a priority, and have the self-discipline to do it the correct way. Listed below are some basic concepts that should be understood by an athlete that is attempting to lose weight.

1. In order to lose weight you must reduce the amount of calories (food) that you consume and/or increase the amount of calories that you burn (through exercise).

2. Weight loss that occurs strictly by reducing how much you eat (without exercise) is not as likely to stay off and is more likely to cause both fat and muscle to be lost.

3. A reduction in caloric intake by too much can slow down the resting metabolism, which will slow down the weight loss and again, will also make the likelihood of muscle loss to occur.

4. Skipping meals will cause a drop in the metabolism, a loss of energy, and increase the likelihood of binge eating.

5. Muscle weighs more than fat, so a change in body composition (loss of inches) can occur without a resultant change on a scale.

6. A pound of fat consists of 3500 calories. In order to lose two pounds per week, the caloric change (diet restrictions combined with exercise) has to be 1000 calories per day.

7. Any change on the scale of one pound or more per day is most likely the result of the water loss that occurs when a restrictive diet is started. The water loss is not an indication of an actual loss of body fat.

8. The most efficient way to exercise to lose weight is to combine both strength training and aerobic activities. (Aerobic activities are those that are performed with a steady supply of oxygen – jogging, riding a bike, using a rowing machine or elliptical trainer, etc. Anaerobic activities are those that are performed without the need for oxygen – jumping, short sprints, throwing, hitting etc.) The muscle that is developed through strength training will cause a rise in the metabolism and will result in more calories being burned in everyday activities. Strength training will also help ensure that lean muscle will be maintained rather than lost. Aerobic activities are the most productive means of burning up calories.

9. Spot reducing is not possible. (as an example: people that want to lose the fat around their midsection cannot do a certain abdominal exercise that will get rid of the fat – once the muscles have been toned underneath the fat, the most efficient way to lose the fat is to do general aerobic activity)

**Additional suggestions for weight loss:**

-Don’t skip meals (as mentioned above, metabolism will slow down, energy will be lost, and binge eating is likely)

-Avoid drinking high calorie drinks (many people do not realize how many calories are in things like sport drinks, juices, milk, and soft drinks)

-Avoid eating late at night

-Avoid fast food, fried foods, and foods high in sugar

-When eating on the run, try to make healthy choices, or plan ahead and take healthy food with you)

-Learn proper portion sizing of food (moderation is important)

**Gaining Weight**

 Many of the concepts that are listed above for weight loss can be reversed for those trying to gain weight. More calories have to be consumed than are burned off. For many high school age athlete’s weight gain is very dependent on body type (which is influenced by genetics), maturity, having a typically high metabolism, and being very active. In order to gain good weight (muscle) there are some basic guidelines that should be followed.

-Increase the volume (number of exercises, sets, reps) of lifting –include after school or evening workouts to your advanced weight training program.

-Increase the amount of calories that are consumed throughout the day –eat snacks between meals and add an extra meal in the evening.

**Pre-game Meal**

 Different sports require different energy systems, and as a result, the significance of the eating habits of athletes varies from sport to sport. However, there are some basic pre-game meal strategies that should be followed by all athletes.

-Pre-game meals should be eaten 3-4 hours before the event (it takes 3-4 hours for food to be processed by the stomach)

-it takes fats and proteins longer to digest than carbohydrates, so a majority of the pre-game meal should consist of complex carbohydrates.

-avoid foods that are unfamiliar, or that are high in spices or difficult to digest

-eat moderate portions.

-drink plenty of liquid in the form of water or a sport beverage.

**Terminology**

 Listed below are some terms that are commonly used when discussing strength training:

Flexion- decreasing the angle of the joint (ex. the upward movement of the bicep curl)

Extension- increasing the angle of the joint (ex. the downward push of the tricep push down)

Abduction- moving a body segment laterally away from the body (ex. upward phase of the lateral raise)

Adduction- lateral movement of a body segment toward the center line of the body (ex. hip adduction machine)

Concentric Contraction- shortening of the muscle; bringing bony attachments closer together as in the lifting phase of the arm curl.

Eccentric Contraction- lengthening of the muscle as in the lowering phase of the arm curl.

Hypertrophy- an increase in the cross-sectional size of the muscle fiber.

Atrophy- a decrease in the cross-sectional size of the muscle fiber.

4. Lifetime Health Benefits

The use of weights or other resistance devices should not be limited to athletes. Weight training should be an integral part of anyone’s life time fitness plan. The use of resistance exercises should be combined with aerobic or cardiovascular work. Weight training has been shown to prevent much of the muscle atrophy that has long been associated with aging. Health groups are now coming to realize that the continued use of resistance exercises can change the quality of a person’s life and the amount of activity that they can continue to participate in.

5. Why do we do our program this way?

Our program was developed at Ben Davis High School in Indiana, one of the more successful athletic departments in the Midwest. It is a general athlete development program that is designed to help all athletes - male and female - in all sports, rather than be designed for one particular sport.

Why do we usually keep the weight the same for all 3 sets? For high school athletes, many set / rep schemes are effective. We keep the weight the same for all 3 work sets in order to make things as simple as possible when reading the weight chart and getting the bar ready for each set. With our limited time, and with a variety of experience among our athletes, this method is more effective than changing the weight for each set.

Why do we repeat the same workouts each week? We want to get good at the lifts. By performing and practicing the lifts consistently, our form improves and we get better strength gains. Additionally, by keeping the workouts the same (and simple), we don’t have to spend time explaining the workout each day. Instead, athletes can use more time doing what they want and need to do - work hard.

Our program addresses the basic movements involved in most sports with both a focus on strength and speed. It also includes extra injury prevention exercises for the shoulder and ankle, as well as exercises that students generally like to do for aesthetic purposes.