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**International Network of Wrestling
Researchers (INWR) Annual Meeting
Istanbul, Turkey
Keynote Lecture**



INWR

Suitable diets for wrestlers, weight loss, supplements:

What makes sense, what doesn't?



Suitable diets for wrestlers



- What do these three wrestlers all have in common?
 - Billy Saylor (19 years old) - Campbell University, NC
 - Joseph LaRosa (22 years old) - University of Wisconsin - La Crosse
 - Jeff Reese (21 years old) - University of Michigan



Historical Overview



In late 1997, 3 college wrestlers died while attempting to rapidly lose excessive amounts of weight by intense exercise and dehydration

That set in motion a series of events that culminated in the rules we discuss today





The sport of Wrestling is changing.





“The new weigh-in policies have been a major move forward for the sport of wrestling. These changes have allowed the athletes to focus on the sport of wrestling rather than the sport of making weight.”

John Smith
Oklahoma State Head Coach



Picture Source: EAT, Wrestle and WIN, A Nutritional Guide for Wrestlers, Eileen G. Bower, M.A., ATC



Primary Factors that Affect Athletic Performance

- Genetics
- Training
- Nutrition

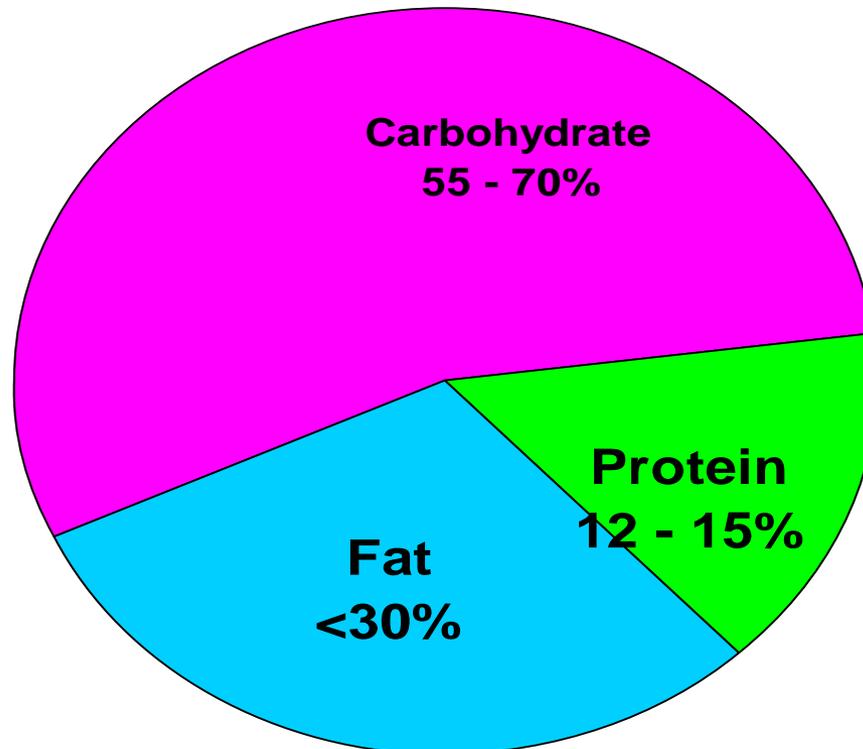


Rewards of High- Performance Nutrition

- Train longer and harder
- Delay fatigue
- Help your body recover faster after working out
- Perform much better overall



Eat a variety of high-carbohydrate, low-fat foods



The Road to Success

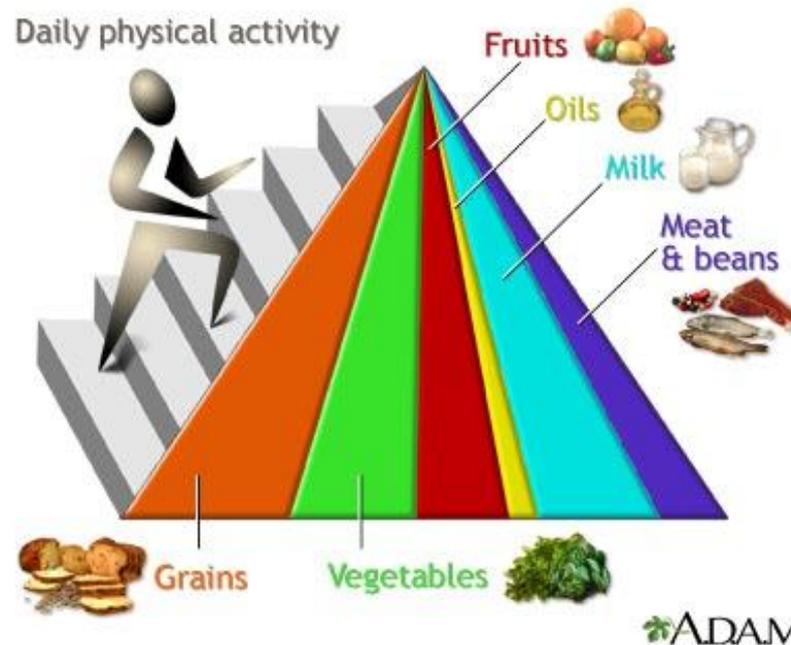
- Focuses on FUEL!

Carbohydrates

Fats

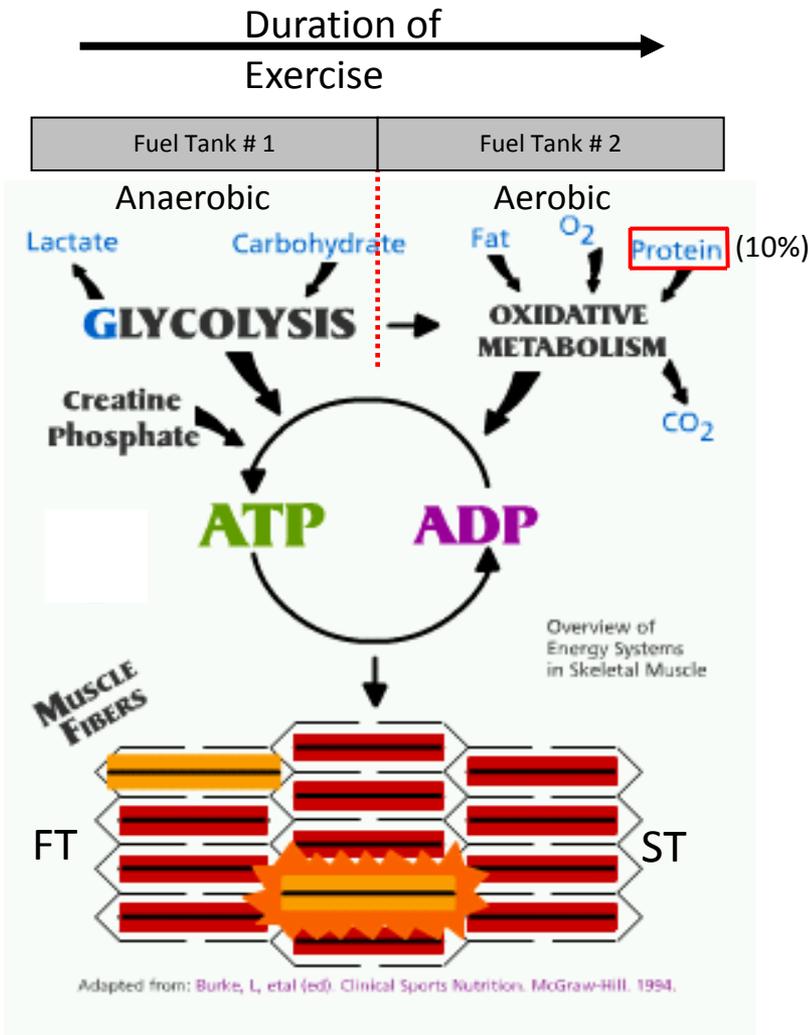
Protein

Fluids and
Supplements



Vitamins and
Minerals

Nutrition Fills Two Fuel Tanks



- Anaerobic = Without Oxygen Aerobic = With Oxygen
- ATP = Adenosine triphosphate ADP = Adenosine diphosphate
This is the chemical energy your food creates to move your muscles
- FT = Fast Twitch muscle fibers (Carbs) ST = Slow Twitch muscle fibers (Fats)

Diet should be based on the demands of the sport



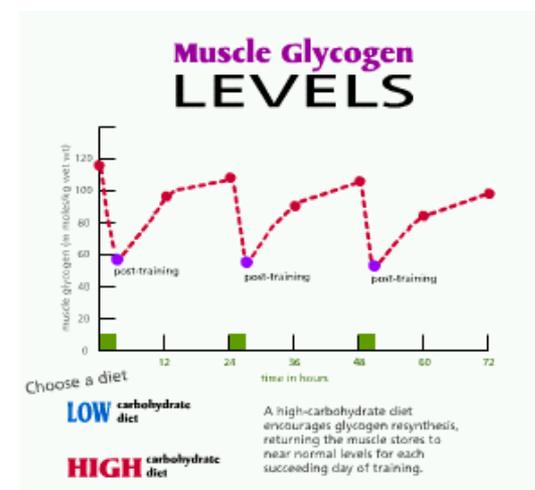
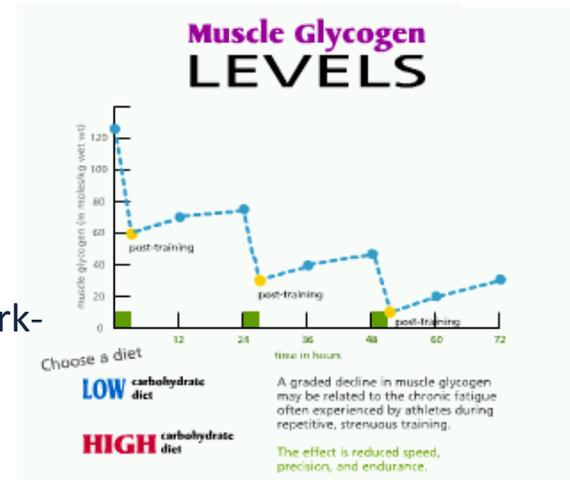
Why are high carbohydrate foods important to wrestlers?



Carbohydrates



- Adequate level of carbs are required daily to maintain the fuel tank for intense training
 - Carbohydrates stores are limited thus require daily replenishing
 - Inadequate recovery results in fatigue (fuel tank remains low)
 - Optimal replenishment is immediately after a workout
- Glycemic Index (GI) measures how fast carbs raise your blood sugar levels (glucose)
 - Carbs with High GI break down fast (70 or more)
 - Carbs with Low GI break down slower (55 or less)
 - Lowering blood sugar levels is a key ingredient in weight loss – stops cravings (Serotonin)
 - Goal is to stop body from fat storage so we can begin to burn it (www.glycemicindex.com)



Carb Foods

- **Carbs** are a main and immediate source of energy during exercise.
- **Glucose** comes from breaking down carbohydrate-rich foods
- **Glycogen** is a storage form of glucose (found in liver and muscles) that is used as an energy source for short-term exercise



Power Storage



- **Glycogen** is the major source of fuel the first 90 minutes of activity.



SPORTS BARS - Are they for wrestlers?

- ◆ Convenient snack
- ◆ Portable
- ◆ Promote pre-exercise eating from it's calories (150-300 calories/bar)
- ◆ Helps replete glycogen stores after exercise
- ◆ Most claim they are highly digestible... Trial & Error
- ◆ Expensive



About **15-20%** of a wrestler's calories should come from **protein**.



A wrestler should consume about **1,2 -1,4 grams** of protein daily for each kg of body weight. For example, a **90-104 kg** wrestler should consume about **74-90 grams** of protein per day.

The Purpose of Protein



To build, replace and repair muscles and body tissue cells in our body.



To make hemoglobin which carries oxygen to the cells.

To produce enzymes, hormones, and other substances.

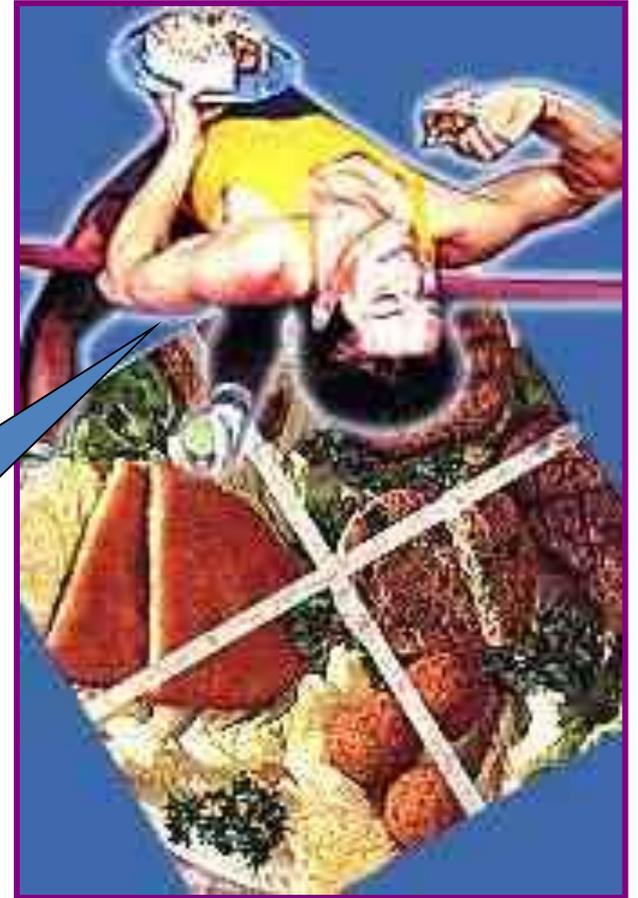
To help regulate water balance, transport nutrients, and make muscles contract.



Protein Power

- Teen wrestlers need more than the average person.

Most teens get plenty of protein through normal diet choices.



Good sources of protein include:



- **3 ounces** of lean meat, poultry or fish = 21 grams
- **½ cup** of beans or peas = 7 grams
- **1 egg** = 7 grams
- **1/4 cup** cottage cheese = 7 grams
- **1 ounce** of cheese = 7 grams
- **8 ounces** of low fat milk or yogurt = 8 grams.

Water and Fat are critical



- Water comprises about 70% of an athlete's body
 - 66 % of it is within the muscle tissue
 - Fat Tissue contains only 10% water
 - 3 % loss of water weight results in a 10% loss in strength
 - Too much ingested protein (excess) can increase risk of dehydration
 - Feeling thirsty is a late sign of dehydration
- Fat should not be feared
 - Fat helps absorb vitamins and make you feel full longer
 - Fat is also an aerobic energy source (Third Period)
 - Balance daily fat grams (1/3 saturated, 1/3 monounsaturated, and 1/3 polyunsaturated); Avoid trans fat
 - Olive oil, mixed nuts, flax seeds



Drinking fluids is the most important thing.

Water, or a sports drink containing no more than 8% carbohydrate, are both good choices.





The Dangers of Dehydration



- Wrestler can lose about 1% of their body weight through fluid loss with no apparent signs of dehydration.
- Thirst is NOT a good indicator of hydration. If you use thirst as your guide, only 50% of your fluid needs are replaced.
- Monitor the color of your urine. Light yellow means good hydration, dark yellow means dehydration.



Source: Eat to Compete: What You Should Know About Fluids, Iowa State University Extension PM 1965a February, 2006



Fluids, Carbohydrates,

and Protein!



- **Between matches, drink CHO-fluid replacement drinks to keep your energy levels up.**



- **Try to have snacks or small meals to keep you fueled for the entire day.**



Source: Eating for Wrestling Performance, Iowa High School Athletic Association



INGREDIENTS: WATER, **SUCROSE SYRUP, GLUCOSE SYRUP, GLUCOSE FRUCTOSE SYRUP**, CITRIC ACID, NATURAL LEMON AND LIME FLAVORS WITH OTHER NATURAL FLAVORS, SALT, SODIUM CITRATE, MONOPOTASSIUM PHOSPHATE, ESTER GUM, YELLOW 5.

The type of CHO (as well as the percent) affects the sweetness and can reduce fluid intake if too sweet. High fructose levels can cause gastrointestinal distress by slowing absorption. (Ingredients are listed from greatest amount to least amount.)



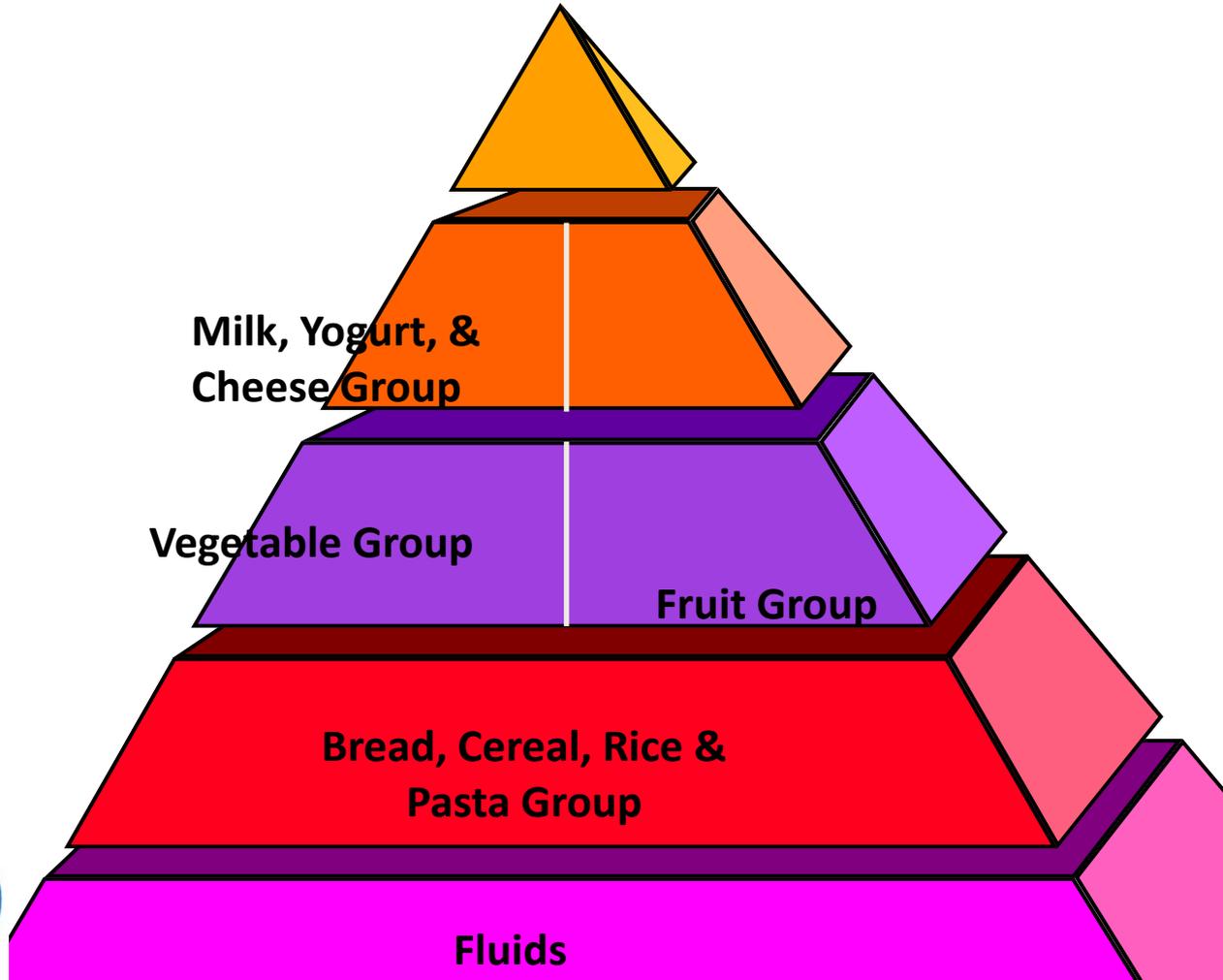
Potassium also replaces body losses in proportion to what is lost in sweat. A potassium level of 30 - 50 milligrams is recommended.



Nutrition Facts	
Serving Size 8 fl. Oz (240 ml)	
Servings per Container 2	
Amount Per Serving	
Calories 50	
	% Daily Value
Total Fat 0g	0%
Sodium 110mg	5%
Potassium 30mg	1%
Total Carbohydrate 14g	5%
Sugars 14g	
Protein 0g	
Not a significant source of Calories from Fat, Saturated Fat, Cholesterol, dietary Fiber, Vitamin A, Vitamin C, Calcium, Iron	
* Percent Daily Values are based on a 2,000 calorie diet.	



The Food Guide Pyramid



Why Weight Loss?

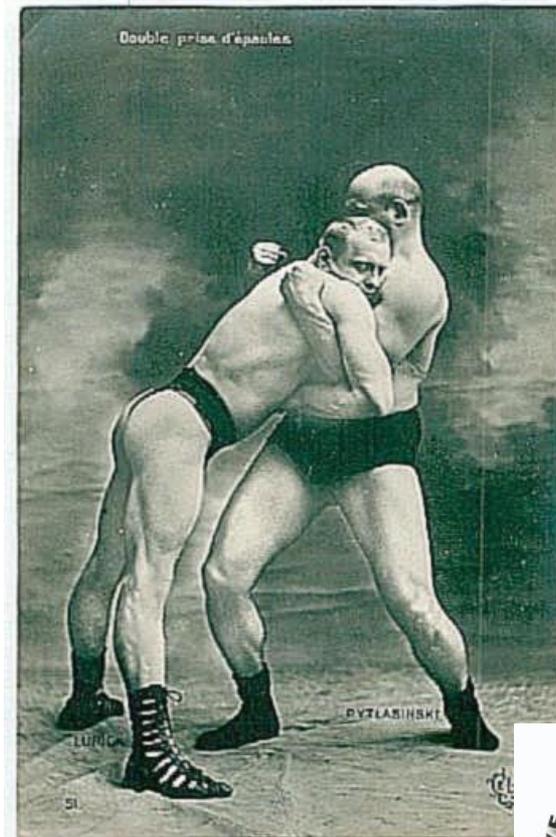


- Wrestlers lose weight to make weight classes
 - Leaner wrestlers are more effective
 - Weight loss is good when fat is lost but is detrimental when carried to abusive levels
- We need to make sports safe for the competitors



Goals

- Safe weight loss practices
 - Eliminate rapid fluctuation in weight
 - Focus the sport on competition not weight loss



Weight Management



- Body composition is more important than body weight
 - Wrestlers with the largest percentage of muscle weight are in the best condition to compete
 - 7 to 9 percent body fat is optimal for wrestling performance
 - Optimum body size and composition help wrestlers achieve greater success!
- Focus should be to lose body fat
 - Gradual weight loss will occur through the loss of body fat
 - To reduce 2lbs of body fat a week, you need to eliminate 7000 calories
 - Do you reduce 1000 calories per day; or
 - Eat 500 fewer calories a day and burn an additional 500 calories





Wrestlers Below 7% & 12% Body Fat

- Any male wrestler whose body fat percentage is below 7% or any female wrestler whose body fat percentage is below 12%, will not be allowed to wrestle below their actual weight at the time of the assessment



Most Common Weight Loss Methods



- Most wrestlers come into the season over weight, train the wrong way, and use extreme measures to make weight.

Activity	Wrestlers who utilize
Running/Jogging	73 %
Device Exercise (e.g, Bike)	59 %
Plastic/Rubber Suits	34 %
Sauna	14 %
Vomiting	8 %
Spitting	5 %
Fat-Burning Devices	2 %
Diuretics	2 %



Number One controlling factor = Nutrition



Lethal Weight Loss for Wrestlers



- 3 collegiate wrestlers died from rapid weight loss programs to qualify for competition.
- Common weight loss tactics used:
 - restricted food and fluid intakes, leading to dehydration.
 - vapor-impermeable suits, which can lead to hyperthermia
 - exercising in hot environments



Coaches and health care professionals who work with high risk wrestlers need to encourage weight loss **before the season begins** and promote a slow, steady, and safe weight loss during the season, if needed for participation for that sport.



- The goal during the competitive season should be weight maintenance, not weight loss.

Weight Loss Per Week

- A weight loss limit of 1.5 percent of body weight at the time of the assessment per week has been set
- The athlete's minimum weight will be listed on the alpha master roster
- The weight loss plan will determine the earliest date a wrestler may compete at his minimum weight

Weight Loss Winners



- Choose the best foods within calorie limits.
- Try to eat fewer processed foods.
- Choose nutrient dense and readily available foods
- Multi-vitamin/mineral supplement with 50-100% of RDA is recommended for those trying to cut weight.



Down the Drain With Quick Weight Loss Tricks....



- **Voluntary dehydration. This includes:**
 - excessive exercise
 - Saunas
 - rubber suits
 - not drinking fluids
 - using diuretics
- **Methods of quick weight loss, which cause dehydration, are unsafe and against the rules.**



Source: Eating for Wrestling Performance, Iowa High School Athletic Association



Eating fruit, chicken, on bread, or a cereal bar are good choices.



Say **NO** to Super Size!



Super sizing an order can easily double the fat content compared to a regular serving size.



In USA ;Weight certification is meant to discourage severe weight loss.



- But in our country ;Coaches or trainers should know where wrestlers are most effective !!!!!
- The **lowest** weight possible is not always the **strongest!!!!**
- Many wrestlers waste mental energy on weight loss.





to wrestlers

“If you have trained for a year, you have wasted your time if you enter a match without proper nutrition and hydration.”

Lincoln McClavy
Asst. Coach Iowa Univ.
3xNCAA, World Silver
2xWorld Bronze



SHOPPING for SUPPLEMENTS?



Should wrestlers use any nutritional supplements?



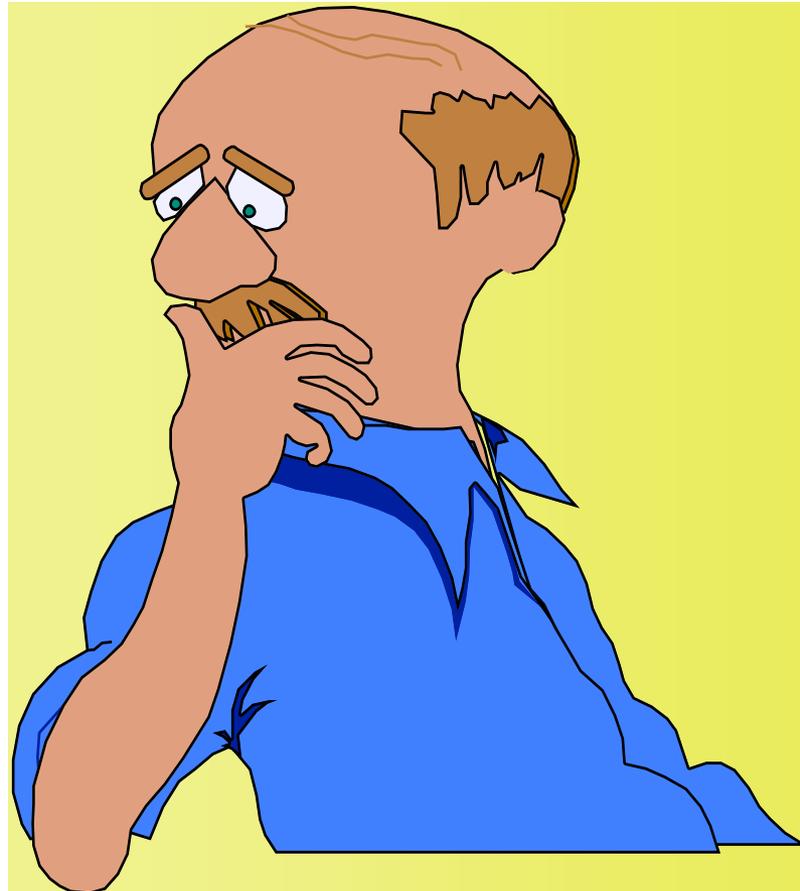
- If they are concerned about maintaining a healthy diet they may choose to take a multivitamin, but should not need any other supplements.



Source: Eating for Wrestling Performance, Iowa High School Athletic Association



Protein: The Great Debate



What About Protein Supplements?

- Danger in dehydration
- Unnecessary
 - Eat plenty of protein
 - Expensive
- Contain small amounts of protein compared to food
- Protein powder vs. cocoa puffs





The Power of Protein Supplements



- **98%** of surveyed college wrestlers think better performance means high protein diets.
- **80%** think that this will help increase muscle mass.
- **59%** of weight lifters take protein supplements although little information supports the effect that extra protein has on muscle mass and strength.

Most supplements are supposed to help build muscle but in reality they don't work

Amino Acid Supplements



	Amino 2000 Amino Acid Supplement	Chicken Breast	100% Whey Protein Supplement
Protein/Serving	30 g /18 tablets	31 g / 3.5 ounces	23 g / 1 scoop
Price/31g of Protein	\$4.03	\$0.62	\$0.93

Too much amino acid supplement may result in stomach cramps and diarrhea and may interfere with the absorption of other amino acids.

**More for your mealtime money
to EAT your protein – not just
pop it in a pill form!**

Source: Eat to Compete – Iowa State University Extension, Ruth Litchfield, PhD, RD, LD



Vitamins and Minerals: Help or Hype?



VITAMINS

In small amounts, vitamins function as catalysts - substances that increase the speed of a reaction without being used up by the reaction. The fact that vitamins are not used up explains why they are needed only in small amounts.

Is there some *magic* about vitamins and minerals?

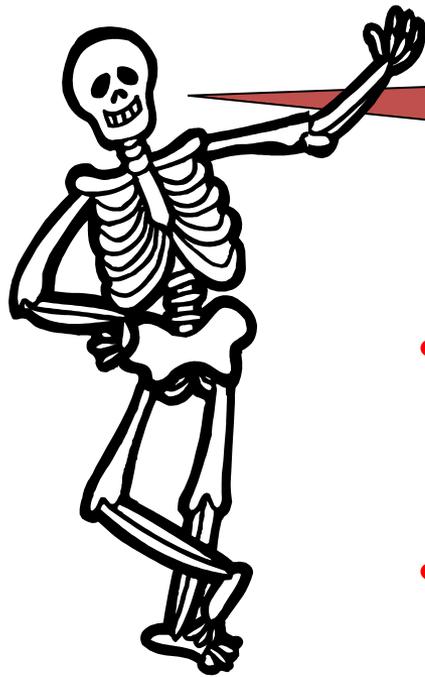
Muscular Minerals!

Vital Vitamins!

Vitamins and minerals do not provide energy. If one eats enough carbohydrates, fats, and protein, you will likely have the vitamins and minerals one needs to help convert these nutrients to energy.



Calcium helps build the strong bones athletes depend on!

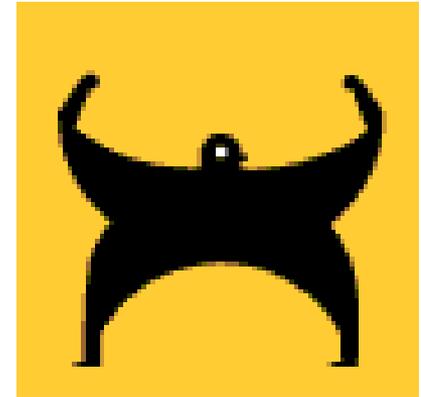
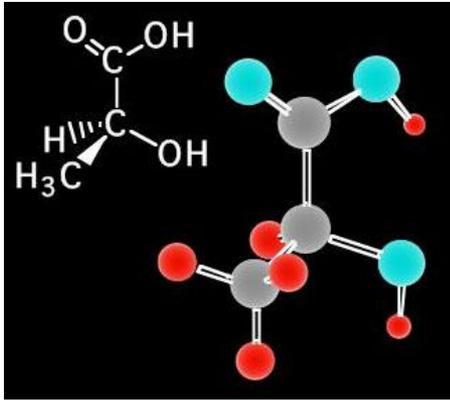


It also protects against stress fractures.

- Wrestlers can get what they need from dairy foods, such as low-fat milk, yogurt, and cheese.
- Two to three servings is a great way to start.
- Choose milk with your meals and you will help build a strong foundation!



Iron carries oxygen to the muscles!



- Eat red meat without a lot of fat, grains that are fortified with iron, and green, leafy vegetables.

Think about the last time you were out of breath and gasping for air. When your body doesn't have enough **iron**, you make **less hemoglobin**, and your body has **less oxygen**.



The A- Z's of Zinc



- **ZINC** is important for **healing injuries**.
- **ZINC** is important for **growth**.
- **ZINC** is important in **metabolism**.



\$upplement \$afety



Or is it money down the drain?

The TRUTH about performance-enhancing substances...

Supplements may give a false sense of security.



I took my supplement, so I can pig out the rest of the day!



This Power Pill made my muscles HUGE!



Kids may also assume that any progress they make is because of the supplement, and not because of hard work and training.

Megadoses of supplements do NOT make up for a lack of talent or training and can be dangerous.

Energizer Remedies?

ISTANBUL

Does caffeine improve performance?

It does not help with fat utilization.

It can help with ENDURANCE but does not spare GYLCOGEN (fuel).



It can cause dehydration, nausea, vomiting, muscle tremors, and headaches.



Herbal Supplements



- Supplements will not improve athletic performance.
- Usually used to reduce fatigue, lose weight or improve mental alertness.

Beware of health concerns, including strokes, seizures, heart attacks or even death.



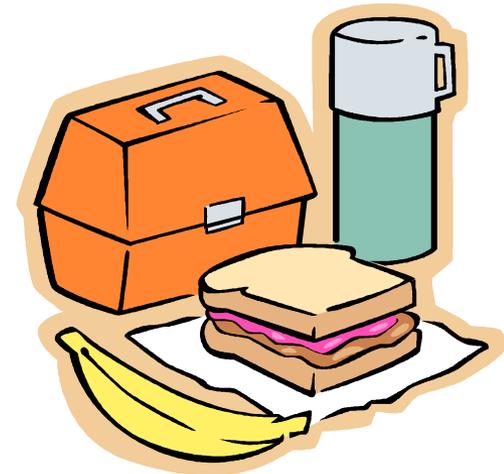
After the Finals...



Replace fluids first, then food.



Fresh fruits and veggies are a great electrolyte replacer!



Eat a light meal with protein to recharge muscles!

*“nothing tastes as good as
being a champion feels.”*



INWR

thanks...

