BASIC NUTRITION FOR ATHLETES
What makes an Athlete?

• Genetics
• Motivation
• Training
• Recovery and Stress
• FUEL – DIET AND FLUIDS
Fuel the Machine

- F-15
- $30 million (1998)
- Special Fuel(s)

Figure 4-3. Identification of jet fuels.
Bobby

- LOVES TO PLAY!
  - HUGE!
  - >99% ON ALL GROWTH SCALES!
- LOVES TO EAT!
- Priceless
- Special Fuel(s)
Lifespan

F-15  HUMAN

16 yr Lifespan  79.8 Year Lifespan
Fig. 172.
Why is nutrition so important?

• Food provides energy for workouts
  – This energy is crucial for peak performance
• There is no substitute for a healthy diet
  – You cannot out train a poor diet
  – You cannot out-supplement a poor diet.
• Poorly fueled athletes experience early fatigue
• Food provides materials critical for recovery

**Bottom Line**
YOU GET MORE OUT OF YOUR WORKOUT
IF YOU EAT RIGHT
Fuel the Machine
During Exercise

- Body first uses blood glucose for energy, but uses it up quickly
  - FOOD, DRINKS FROM THE PAST 3-4 HOURS
- Then the body relies on muscle glycogen for energy
  - MORE GLYCOGEN = MORE ENERGY
  - MORE GLYCOGEN = BETTER ATHLETIC PERFORMANCE
Glycogen Depletion

• 1 – 30 sec. sprint can deplete up to 35% of your glycogen
• Multiple sets of lifts can deplete up to 40% of your glycogen (on avg. we do 16 sets)

FASTED TRAINING
CAN CAUSE POOR PERFORMANCE,
COMPLETE DEPLETION OF STORES,
AND MUSCLE BREAKDOWN FOR ENERGY.
GLYCOGEN

PROPER FUELING/REFUELING/RECOVERY

GLUCOSE

PRACTICE

ABSENCE OF

PROPER FUELING/REFUELING/RECOVERY

PERFORMANCE DECREASES
Optimal Glycogen Storage

- Consistent carbohydrate levels in daily diet
- Consume carbohydrates before workout
- Consume some combination of carbohydrate/protein shortly after a workout
- EAT BREAKFAST!
Find your performance edge!

If you do the bare minimum, expect bare minimum results. You want to be great, work to be great. Nothing just happens.

JJ Watt
Recovery – Post Exercise

THE SCIENCE OF WHY (ANABOLIC RECOVERY WINDOW)

“15 MINUTES – 2 HOURS”

• Protein synthesis begins quickly. Recover. Rebuild.
  — Improves ability to grow lean muscle mass for up to 48 hours
• “Glycogen Gates” stay open for roughly 2 hours following exercise.
• You must replenish your glycogen stores during this time period to insure proper refueling and recovery before your next training session.
Recovery – Post Exercise

THE SCIENCE OF WHAT

- Protein/carbohydrate combinations are recommended
- Stay away from fatty, fried foods (esp. certain fast foods)
- Current research recommends a high protein moderate carbohydrate intake within **30 minutes** of training.
- I.E. CHOCOLATE MILK OR A PROTEIN SHAKE
- In addition, ingest a good, larger meal within **2 hours** of training.
SOMETHING TO THINK ABOUT

• We always talk about refueling after
  – Working out
  – Lifting
  – Training

What about after a game?
What about after practice?
What about during?
What is the best diet for an athlete?

- A well-balanced diet with a variety of healthy foods
- Plenty of water/healthy fluids
- NO FAD DIETS

Adolescents have different dietary needs than adults
Basic Ideas

• 60% Carbohydrates
• 25% Fat
• 1 Gram of Protein per lbs of bodyweight
• 3000 calories per average athlete
• HS athletes may require more energy/calories
• Proper Hydration
• Sodium is OK

KEYS
BALANCE
EAT OFTEN
LOW IN JUNK FOOD
NO FAD DIETS
B.E.A.S.T.

• BREAKFAST
• EAT OFTEN
• ALWAYS HYDRATE
• SLEEP, REST, RECOVER
• TYPES OF FUEL
Breakfast

• Must refuel your body
  – the level of glycogen in your liver is considerably lower in the morning

• Kick starts your day and keeps you alert.
• Enhances mental performance
• Speeds up metabolism.
• Hydration is important at breakfast
Eat Often

- Maintain/build muscle mass
- Increased metabolism
- Prevents catabolic states
- Blood sugar control
- Improves concentration and mood

Simple strategies to eat often
- Eat Breakfast Every Day
- Plan Meals
- Snacks
Always Hydrate
## Always Hydrate

<table>
<thead>
<tr>
<th>BODY PART/ORGAN</th>
<th>% OF WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>64</td>
</tr>
<tr>
<td>Skeleton</td>
<td>31</td>
</tr>
<tr>
<td>Muscles</td>
<td>75</td>
</tr>
<tr>
<td>Brain</td>
<td>80</td>
</tr>
<tr>
<td>Liver</td>
<td>71</td>
</tr>
<tr>
<td>Heart</td>
<td>73</td>
</tr>
<tr>
<td>Lungs</td>
<td>83</td>
</tr>
<tr>
<td>Kidneys</td>
<td>79</td>
</tr>
</tbody>
</table>
2007 National Soft Drink Study

Adolescents

• Average consumption 30 oz per day
• 400 calories +
• 108 grams of sugar (RDA 12-36 grams)
• NO nutritional value---
  – NO Protein
  – NO Vitamins
  – NO Minerals
• Leads to less intake of healthy fluids (milk, water, etc.)
• Increase diabetes, obesity probability
• Can effect calcium absorption
Always Hydrate

**WATER**

• Most effective dietary ingredient
  – Water is cheap
  – Water is accessible

• No supplements to counter dehydration

Dehydration can lead to reduced athletic performance

***Studies show up to 10%***

300 lbs Bench Press ------ 270 lbs Bench Press
Always Hydrate

Dehydration and Performance

- 3-5% Drop in Bodyweight
- 8-10% in Performance

Heart
- Reduced Stroke Volume
- Reduced Cardiac Output

Muscles
- Less Oxygen
- Electrolyte Inbalance (cramping)
Always Hydrate

**WATER**

- Helps rid the body of waste
- Helps the body to metabolize fat
- Can act as an appetite suppressant in some cases
- Amount needed can vary based on weight and gender
- **GENERAL RULE:** 100 oz/1 gallon per day
  - Sip
- Measure hydration by urine color (light/clear)
## AM I HYDRATED?

### Urine Color Chart

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>If your urine matches the colors 1, 2, or 3, you are properly hydrated.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Continue to consume fluids at the recommended amounts.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>If your urine color is below the RED line, you are DEHYDRATED and at risk for cramping and/or a heat illness!!</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>YOU NEED TO DRINK MORE WATER!</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
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<td>7</td>
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<tr>
<td>8</td>
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</tbody>
</table>

Always Hydrate
Always Hydrate

**ELECTROLYTES**

- Sodium
- Potassium
- Cramping
- Diet
- Water, Salt, Lemon

*Water 1\textsuperscript{st}*

*Sports Drinks 2\textsuperscript{nd} (only when training)*
Sleep, Rest, Recover

- memory lapses
- unable to concentrate
- unable to calculate
- mood swings
- hallucinations
- irritability
- feeling drowsy
- neurons begin to malfunction
- neuronal connections begin to deteriorate

Effects Of Sleep Deprivation On Our Human Body

- constant yawning
- impaired immune system
- causes heart rate variability
- affect cell growth, repair & renewal
- hampered physical performance
Sleep, Rest, Recover

**Sleep guidelines**

Sufficient sleep has been found to help prevent chronic disease. The amount of sleep needed varies, based on person’s age and health. Recommended sleep amounts by age group:

<table>
<thead>
<tr>
<th>AGE</th>
<th>SLEEP NEEDED (IN HOURS)</th>
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</thead>
<tbody>
<tr>
<td>Birth to 2 months</td>
<td>12 to 18</td>
</tr>
<tr>
<td>3 to 11 months</td>
<td>14 to 15</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>12 to 14</td>
</tr>
<tr>
<td>3 to 5 years</td>
<td>11 to 13</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>10 to 11</td>
</tr>
<tr>
<td>10 to 17 years</td>
<td>8.5 to 9.5</td>
</tr>
<tr>
<td>17 or older</td>
<td>7 to 9</td>
</tr>
</tbody>
</table>

Source: National Sleep Foundation
Sleep, Rest, Recover

Sleep Cycle

1. Interim between consciousness and sleep
   Move to Stage 2 after 5-15 mins

2. Heart rate slows, brain does less complicated tasks

3. After another 15 mins, move into non-REM sleep, the Delta stage

4. (3, 2, 4) Body temperature & BP decreases

5. REM
   Increase in eye movement, heart rate, breathing, BP & temperature

Move into REM sleep approx 90 mins after first feeling sleepy

BP = Blood Pressure
Types of Fuel
Types of Fuel
Carbohydrates

• They don’t “make” you fat
• Best fuel for activity
  – Duration
  – Concentration
• Fuel
  – BLOOD – GLUCOSE
  – MUSCLES – GLYCOGEN
• Look for “Whole Grain”
• Check for sugar content
• Watch the sauces
• Fiber

Examples

– BREAD
– BAGELS
– CRACKERS
– FRUITS
– *JUICES*
– VEGGIES (colors)
– RICE
– PASTA
– TORTILLAS
– *CEREAL*
– OATMEAL
– *SPORTS DRINKS*
Types of Fuel

Fats

• A no fat diet is not healthy
• Energy source
• Help you feel full
• Taste good
• Helps absorb certain vitamins
  – Vitamin deficiencies
• > 30% of diet is not healthy
  – Obesity
  – Heart disease
  – Body fat increases

Examples

– BUTTER
– OILS
– MARGARINE
– SAUCES
– GRAVIES
– SALAD DRESSING
– HIDDEN FATS...
Types of Fuel

Protein

- Building blocks
- An absolute necessity for recovery
- Must be consumed post workout
- 1 gram per lbs of bodyweight
- 30 grams per serving is OK
- Whey protein
- Soy protein

Examples

- BEEF
- CHICKEN
- TURKEY
- PORK
- FISH
- MILK
- CHEESE
- YOGURT
- PEANUT BUTTER
- EGGS
- BEANS
- NUTS
Types of Fuel

Building Lean Muscle

• Extra 500 calories per day can lead to 1 lbs of body weight gain per week
• Maximum of 5 lbs per month
• Set realistic goals
  – SMART goals

DON’T VALUE SUPPLEMENTS OVER REAL FOODS
Types of Fuel

Getting Extra Calories

• EAT BREAKFAST
  – Something is better than nothing!
• Impossible to get enough calories when you skip meals
• Snack often
• Make good caloric choices
• “White foods”
• Supplements
HAND: Breads
PALM: Meats
FIST: Veggies, Rice, Pasta, Fruits
FINGERTIP: Fats (butter)
Supplements

• Not regulated by the FDA
  – Proprietary Blends
  – False claims and misinformation
  – $$$$$$$

• Studies not conducted on teens

• Not a substitute for diet and/or training

SOME, NOT ALL CAN CAUSE HARM
* Our products are manufactured in compliance with NSF International’s GMP for Sport™ Registration, including semi-annual audits, verifying that no NSF 306-Certification Guideline Annex A List banned substances exist in our facility.
What happens if I’m not a BEAST?

• Limited gains
• Decreased performance
• Increased injury potential
• What can I fix first?
  – Hydration issues…. 
  – Sleep, rest, recovery…. 

DO WHAT WE TELL YOU TO DO
DEVELOP GOOD HABITS
Break the Barriers

• Time
• Money
• Schedule
• Importance
• Environment

Let your education and motivation drive you towards your goal
Injury Nutrition

• Consider the psychological effects of injury
• Physically caloric/protein needs still very high
• Eating is often crucial for recovery and weight maintenance
• Avoid high sugars/fats
• Inflammation prevention and control
Concussion Nutrition

• Should be considered in protocol
• Reduce inflammation
  – Increase intake of berries and vitamin C
• Reduce sugar intake
• Reduce fried food intake
• Increase green vegetable intake
• Increase omega 3 intake
  – Salmon
  – Tuna
  – Olive oil
ONE "BAD" MEAL WONT MAKE YOU FAT.

JUST LIKE...

ONE "GOOD" MEAL WONT MAKE YOU SKINNY
QUESTIONS