



# Fundamentals of Fitness and Nutrition

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IN ORDER TO GET WHERE WE ARE GOING IT HELPS TO UNDERSTAND  
WHERE WE HAVE BEEN!

# The Journey

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## As we grow

### Patterns of Growth - Changes in Size

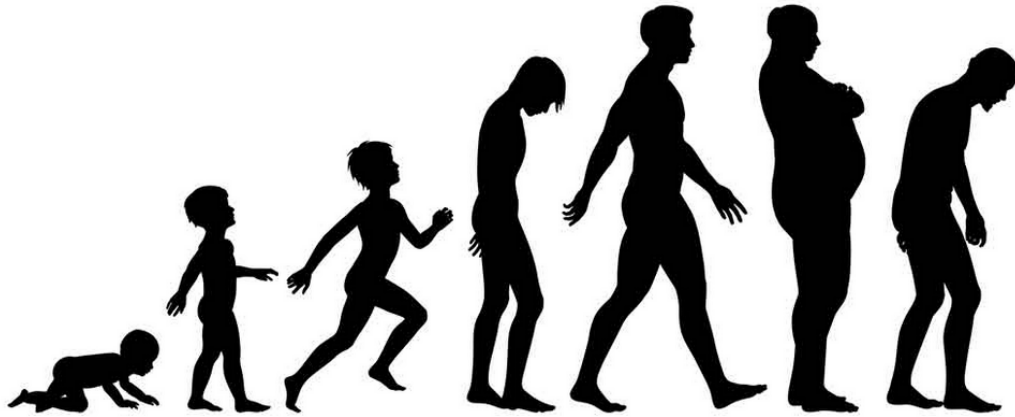
There are four characteristic stages of growth from birth to adult:

- ❑ Rapid growth in infancy and early childhood
- ❑ Slow, steady growth in middle childhood
- ❑ Rapid growth during puberty
- ❑ Gradual slowing down of growth in adolescence until adult height is reached

### Calories

Teenagers need lots of calories to support rapid growth. Girls need approximately 2200 calories, while boys need 2500-2900 calories.

Before puberty, females have approximately 19% body fat, which increases to about 22% after puberty. Males maintain body fat percentage of approximately 15%, but during adolescence, males gain two times more muscle mass than females.



According to science, there's a difference between chronological age and biological age, which means you can be 50 years old and literally have a body of a 40 year old. I'm sure you've met someone that not only looks 10 years younger, but has boundless energy and stamina. That being said, I'm sure you've seen the exact opposite as well, someone that looks and acts much too OLD for their actual age.



# Chronological Age vs Biological age

# From then till Now!

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## AS We Age

- ❑ BMR Basal Metabolic Rate slows down.
- ❑ What is your BMR? The number of calories you'd burn if you stayed in bed all day.
- ❑ Lose bone density (Osteoporosis)
- ❑ Lose muscle density and strength become **Hypotonic** moving toward a **state of atrophy**
- ❑ Increase body fat both **Intermuscular vs. Subcutaneous**
- ❑ Slower metabolism..... directly related to muscle density

### What are the Contributing Factors:

- ❑ Sedentary Lifestyle vs. Active Fit Lifestyle
- ❑ Use it or lose it!

# Aerobic vs. Anaerobic Activity

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## Cardio Equipment..... Burning Fat vs Targeted Heart Rate Training

**Aerobic** with oxygen utilizes fat as primary energy source

**Anaerobic** activity in the absence of oxygen taps into mitochondria or stored energy carbohydrates within the muscle cells.

### Interval Training

- ☐ Increased oxygen uptake VO2Max
- ☐ Build stored energy reserves

**VO2 max** refers to the maximum amount of oxygen that an individual can utilize during intense or maximal exercise.

**Stroke volume** The amount of blood pumped out of the left ventricle of heart with each contraction is called the stroke volume. Although some conditions can affect a person's stroke volume, endurance and high intensity cardiovascular exercise training often increases stroke volume. A larger stroke volume results in a lower (resting) heart rate.

# Balance Stability Sensory-Motor Function

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**Flexibility Balance & Stability** --- Functional Training into your workouts!

Incorporating specific functional exercises that ***challenge the body's nervous system to improve sensory-motor function*** is advised for optimal performance and quality of life.

**Proprioception** refers to a sense of joint positioning. This is a subconscious understanding the brain has of its joints and limbs.

**Kinesthetic** sense is the ability to sense where you are in 3-dimensional space. Both of these require a sensory understanding that depends on a strong relationship between the parietal lobe in the brain, spinal cord & peripheral nerves, and the muscle/joint receptors of the body.

An individual's "proprioceptive tone" refers to their ability to sense and continually adapt to where they are in space.

# Fast Twitch vs. Slow Twitch Muscle Fibers

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## Slow Twitch Muscle fibers

Marathon Runner Engages Slow twitch helps to pump out miles

## Fast Twitch Muscle Fibers

Sprinter Fast Twitch fibers provide Strength and Power

## EPOC effect

## Excess Post-exercise Oxygen Consumption

Otherwise known as the EPOC effect. Combining activity that includes both slow and fast twitch muscle fibers will help you burn calories even after you've finished working out.

# Circuit Weight Training vs. Free Weights

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## Primary Muscle

*(Weight training increases muscle density, strength and stabilizes joints)*

## Secondary Muscle (supports the movement)

- ❑ Circuit one plane of movement vs Free weights several planes of movement (full range of motion) joint rotation exist on a three dimensional plane
- ❑ Free weights engage neuromuscular movement ***sensory-motor function***
- ❑ Muscle groups vs. Individual muscles .....examples: Shoulders Triceps

## High Intensity Short duration

- Heavier Weight few repetitions = Increased strength and muscle gains

## Low intensity Long duration

- Lighter weight more repetitions = Muscle endurance and maintenance



## Increase BMR

3500 Calories = 1lb  
Theoretically, about  
3500 calories equals one  
pound of body weight

Eating several meals daily  
There is good evidence that  
frequency of food intake  
and proper hydration H<sub>2</sub>O  
Consumption has effects on  
metabolism.

Increased lean  
muscle: Muscle tissue  
is about 8 times more  
metabolically  
demanding than fat.

Three factors that  
have an impact on  
your energy  
expenditure are:

Basal metabolic rate -  
the number of calories  
the body needs to  
maintain body functions  
while at rest.

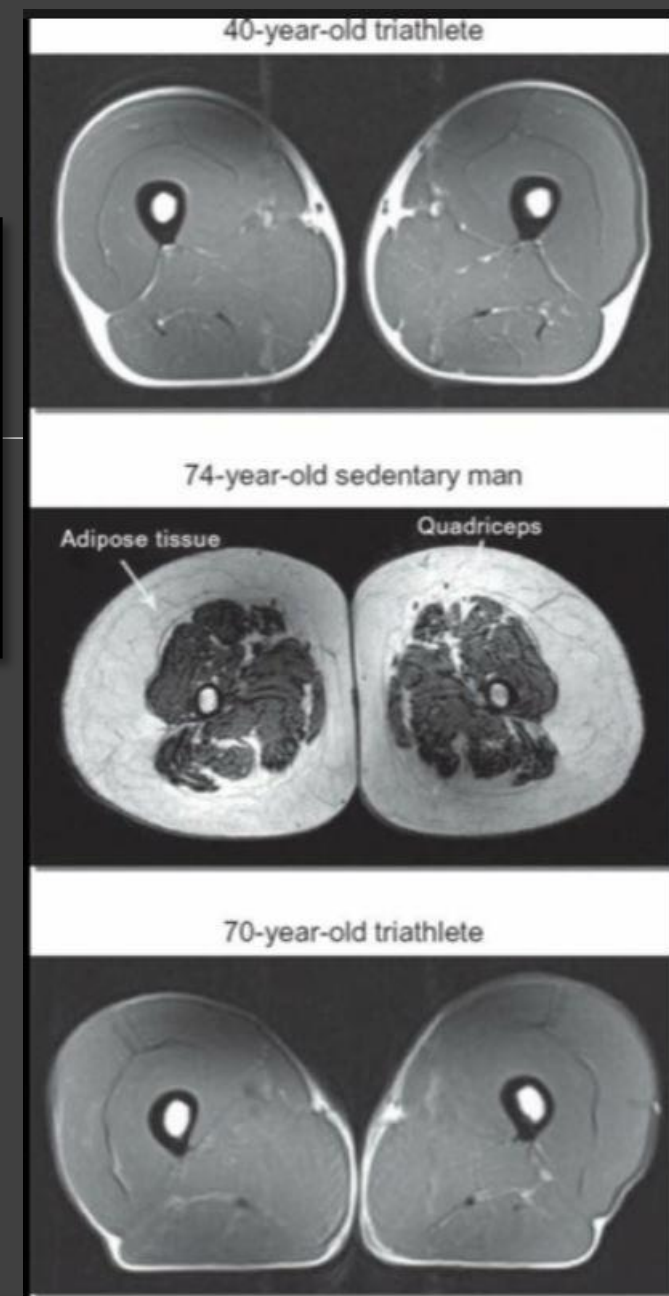
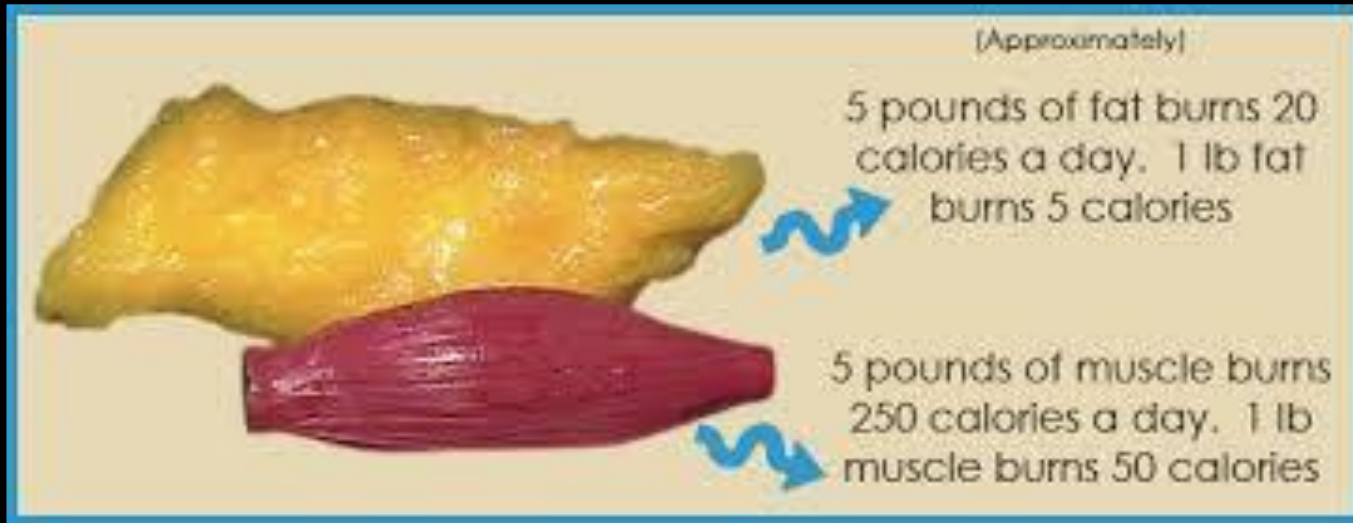
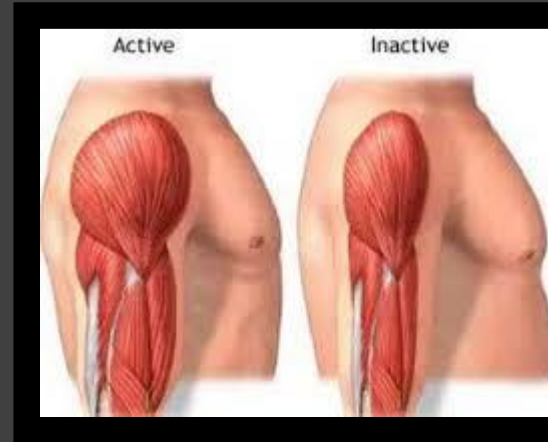
Thermic effect of food -  
the number of calories  
required to digest,  
absorb, transport, and  
store food.

Physical activity - the  
number of calories  
expended during daily  
activity, lifestyle and  
exercise.

BMR Basal Metabolic rate

# Fat vs. Muscle

Common sense tells us a pound of **muscle** and a pound of **fat** have to **weigh** the same, but they do differ in density. This means if you look at five pounds of **muscle** and five pounds of **fat** side by side, the **fat** takes up more volume, or space, than the **muscle**. It's possible to get visibly slimmer without a significant drop in **weight**. With inactivity we lose muscle density and strength. Muscles become **Hypotonic** moving toward a **state of atrophy**.



# How and Why to Use All 3 Planes of Motion to Improve Your Mobility



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The body exists on a three-dimensional plane, but so often we stretch in only a one-dimensional way. By incorporating all three planes of movement into your mobility time, you will increase your range of motion, prevent injuries, and provide greater stability for your body.

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**The Sagittal Plane** divides the body into left and right. When we move along this plane, we are using the strength of our muscles to move parts of the body forward or backward. Extension and flexion happen along the sagittal plane. This means most running, biking, rowing, and lifting movements make use of this plane. For example, in a squat, both hips move from extension into flexion, and back into extension. The hips and knees in particular spend a lot of time in flexion, so mobility work should involve extending both joints. **One area of the body we often forget to extend? The back.**

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**The Coronal Plane** divides the body into front and back. When we move along this plane, we are moving toward or away from the midline. Adduction and abduction are movements along this plane. Many of our daily movements and exercises involve very little abduction. We tend to stay fairly neatly hugged in toward the middle. **Pulling your limbs away from the midline helps to both functionally strengthen and open the abductor muscle groups of**

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**The Transverse Plane** (or horizontal) plane divides the body into top and bottom, but it is a little less straightforward. Any time we rotate a joint we are moving along the transverse plane. In daily life, this is the action we do least frequently, particularly with the large joints in the hips, shoulders, and spine. **For this reason, yoga incorporates a lot of twisting and rotating**



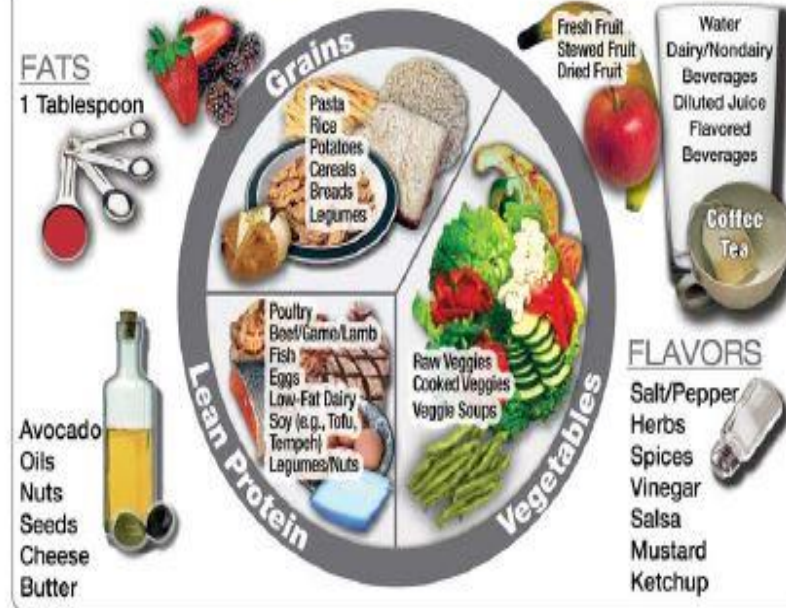
# Nutrition Basics

Watch the 3 USA Hockey Nutrition Videos : <http://www.admkids.com/page/show/944942-nutrition>

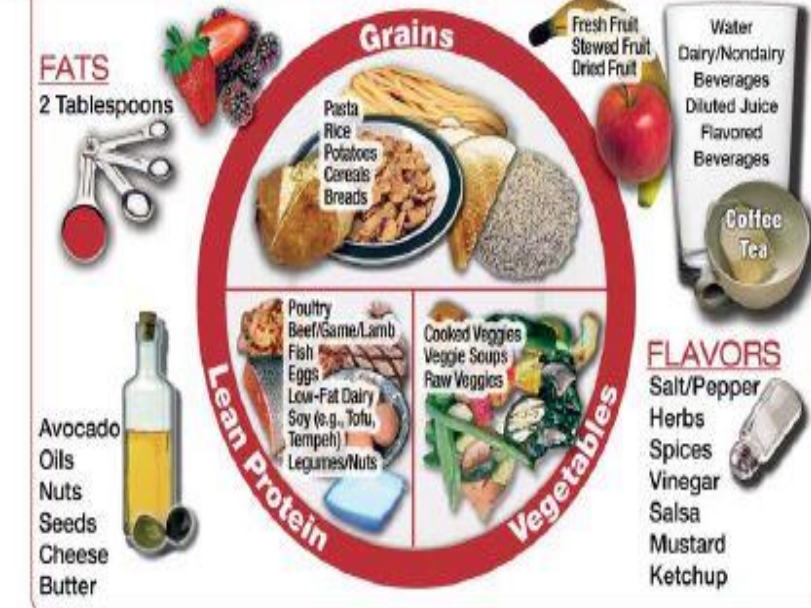
## EASY TRAINING / WEIGHT MANAGEMENT:



## MODERATE TRAINING:



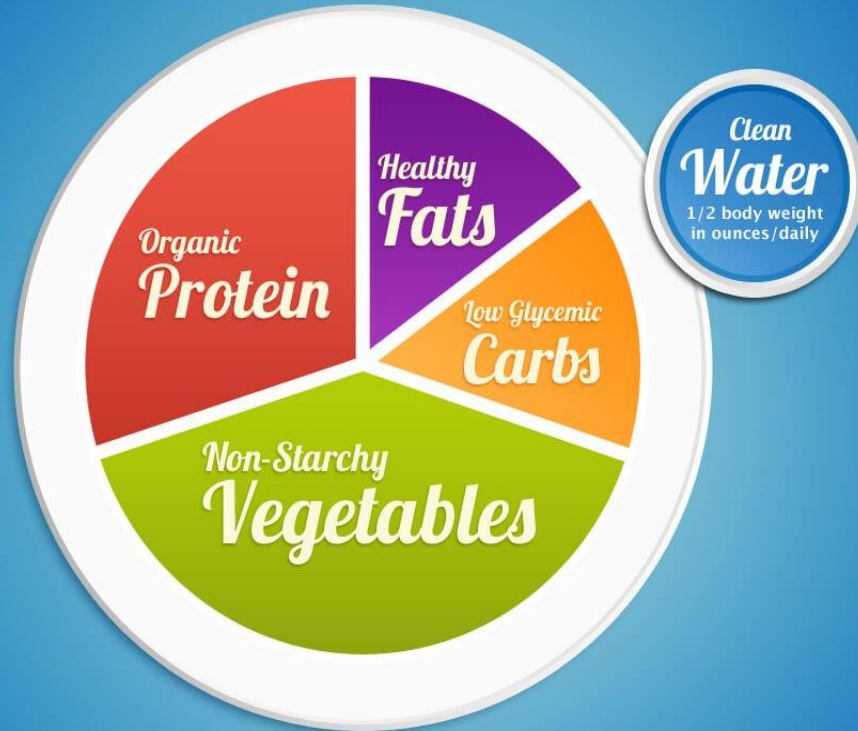
## HARD TRAINING / RACE DAY:



The Athlete's Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCCS) Sport Nutrition Graduate Program.

# OTHER CONSIDERATIONS

THE SUPERFOOD PLATE



## Vegetables

- Leafy Greens
- Red Cabbage
- Carrots
- Red Bell Pepper
- Broccoli
- Spinach
- Kale
- Onion
- Cucumber
- Cauliflower
- Asparagus
- Eggplant
- Zucchini
- Beets

## Protein

- Meat (Grass Fed)
- Eggs
- Wild Salmon
- Beef
- Venison
- Chicken
- Turkey

## Healthy Fat

- Avocado
- Raw Dairy
- Flax Seeds
- Pumpkin Seeds
- Almonds
- Pecans
- Cashews
- Coconut Milk

## Carbs

- Fruit
- Blueberries
- Raspberries
- Strawberries
- Apples
- Beans
- Kidney
- Black
- Carbanzo
- Gluten Free Grains
- Sweet Potato
- Quinoa
- Brown/Wild Rice

## Whey Protein

### Found in:

Milk  
Yogurt  
Meal replacement products  
Cheese

### Benefits of Whey Protein

Whey protein is one of the most popular proteins used by athletes and bodybuilders alike for its muscle enhancing effects. It is theorized to help not only build muscle and enhance body composition but also to speed the recovery of broken down and stressed muscles (as occurs from exercise). This is attributed to the **leucine** found in whey protein.

## Soy protein

Derived from the soybean that has been dehulled and defatted. These dehulled and defatted soybeans are then processed into three forms:

1. Soy flour
2. Soy concentrates
3. Soy isolates

Soy protein has many uses and was not originally used as a food product but for paper coatings used as a pigment binder. Today, soy is used in many foods and other products as well.

### Health Concerns with Soy Protein

These concerns have to do with the *phytoestrogens* found in soy proteins, especially the concentrated soy proteins. Phytoestrogens mimic estrogen. The concern with this is that **many people today are becoming estrogen dominated** and this can be potentially hazardous to our health



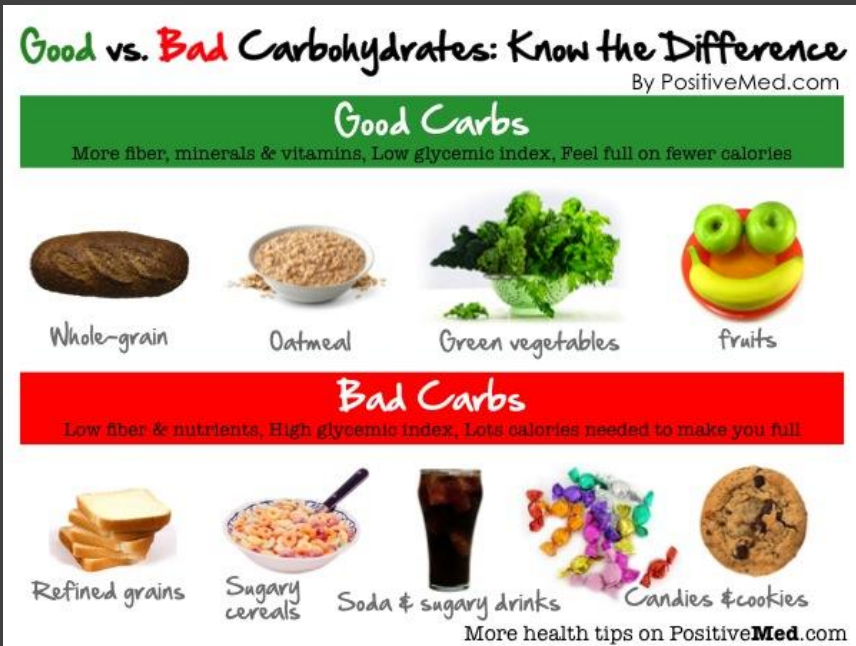
<https://vimeo.com/onde mand/whatthehealth>

A Netflix documentary on becoming a vegan

*Take in all information with an open mind food is fuel and medicine for your body, do what is right for you!*



# Carbohydrates



- ❑ Stored in the liver and muscles as **glycogen** for use when energy is needed.
- ❑ Fuel during high intensity exercise
- ❑ Spares protein (to preserve muscle mass during exercise)
- ❑ Fuel for the Central Nervous System (your brain!)

## Recommended Allowance

Sedentary Individuals: 40-50% of your total daily calories should be carbohydrates

Exercises Regularly: 60% of your total daily calories should be carbohydrates

Athletes or persons involved in heavy training: 70% of your total daily calories should be carbohydrates (3.5-4.5 grams of carbohydrate per pound of body weight)

## Food Sources

Grains (choose mostly whole grains for added benefits) Fruit (choose whole fruits more often than fruit juices) Vegetables

NOTE: 1 gram of carbohydrate = 4 Calories Food Sources

# Proteins

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**Proteins** often called the building blocks of the body.

- ❑ Protein consists of combinations of structures called **amino acids** that combine in various ways to make Tissue structure (part of organ tissues, muscle, hair, skin, nails, bones, tendons, ligaments and blood plasma)
- ❑ Part of cell plasma membranes involved in metabolic, transport, and hormone systems
- ❑ Make up enzymes that regulate metabolism Involved in acid/base balance to maintain a neutral environment in our bodies

NOTE: 1 gram of protein = 4 Calories

## **Food Sources**

Examples of complete protein sources include soy, dairy products, meat, and seafood.



# Fats

GOOD FATS	BAD FATS
<b>MONOUNSATURATED FATS (OMEGA-9)</b> Monounsaturated fats are liquid at room temperature and naturally occur in many foods.	<b>TRANS FATS</b> Most trans fats are artificially produced as a result of partial hydrogenation, which is a process used to convert liquid oil to a solid.
<b>POLYUNSATURATED FATS (Omega-3)</b> Polyunsaturated fats also are liquid at room temperature and naturally occur in many foods.	<b>SATURATED FATS</b> Saturated fats are typically solid at room temperature and naturally occur in foods such as meat.

- ❑ Energy reserve
- ❑ Protects vital organs
- ❑ Insulation
- ❑ Transport fat soluble vitamins

## Saturated vs Polyunsaturated Fats ???

- ❑ 20-35% of your total daily calories should come from fat
- ❑ Less than 10% of total daily calories should come from Saturated Fat (coconut and palm kernel oil, shortening, butter, cream cheese, full fat dairy products)
- ❑ NOTE: 1 gram of fat = 9 Calories Food Sources Oils, Nuts Seeds Meat, fish, dairy Micronutrients



# Hydration

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## Hydration

Are you hydrated? Dehydration is the first sign of fatigue in activity

Moistens tissues such as those in the mouth, eyes, and nose

Protects body organs and tissues. Helps prevent constipation

Helps dissolve minerals and other nutrients to make them accessible to the body

Regulates body temperature Lubricates joints

Lessens the burden on the kidneys and liver by flushing out waste products

Carries nutrients and oxygen to cells

HOW MUCH? General rule of thumb half your weight in ounces.

# Meeting Fitness Goals seem out of reach?

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**We have inherent goals laid out for us in all of our daily lives out of necessity.**

Time to get to work . Get the kids ready for school . Schedules after schools and work . Our jobs have built in deadlines and goals that need to be met in order for the company to be productive and profitable for security . Plans and timelines for loved ones and family members. Schedules for social events with dates and times. We have goals every single day!

**FITNESS GOALS are the only ones that are elective not placed on us by others or our environment.**

To achieve them *it's the absolute test of self discipline like no other*. 30 years of health club operations and helping members, I understand the psychology of what it takes *or not* to get past the first few weeks until you reap the benefits of fitness and make the permanent lifestyle change. The next few pages will help only if you get your butt to the gym and take advantage of programming.

# Plan your Work ....Work your Plan

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Your new mantra:

## If it's to be it's up to me!

**Why do you feel better?** Scientists say that the **endorphins** released by exercise improve natural immunity, reduce the perception of pain, and improve mood. Exercise may also stimulate the **neurotransmitter norepinephrine**, another mood lifter. Plus your commitment to *your* self development builds **self confidence** fulfilment and positively impacts your outlook and quality of life!

RAY KROC

Whenever I feel a bead of sweat come off my skin I have a habit of saying "Take that to **the** bank." To me each drop of sweat is an investment in feeling healthy and happy. You have a twenty-four to forty-eight-hour grace period after a workout to feel **the** benefits in your bloodstream and in your state of mind. After twenty-four hours, blood levels return to a sedentary, dyspeptic mode. Ideally, you should be working out within a thirty-**six**-hour window as you move through **the** week. If you work out on a Monday night, you can feel **the** benefits all day Tuesday, but by Wednesday morning they will be wearing off. Use this knowledge to motivate you not to let more than forty-eight hours pass without exercising.

# Goal Setting: *If not now then when?*

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It's not a secret to make change; You are where you are supposed to be based on what you did up till now. You can be where you want to be based on what you do today!

**GOAL SETTING:** Key factor = Set individual quantifiable obtainable goals!

You control 3 things; the thoughts you think the images you visualize and behavior-the actions you take. You determine your own destiny. *Accept personal responsibility* or not.

**Understand:** Each day is a test of self-discipline. Set goals and make commitments you can achieve, and the result is confidence in your ability to accomplish more. Be aware if you make even a small commitment to your self and fail to meet expectations the opposite effect takes place. That's why goals need to be quantifiable and obtainable.

**Be willing to pay the price in full** - Practice persistence - Improve in small increments - Achievers are committed to continual improvement.

**Behind every great achievement and success story is self-discipline and sacrifice**



# Get Off Your Butt: 13 Ways to Get Motivated

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## 13 Ways to Get Motivated and Reach Attainable Goals + 5 Second Rule!

- ☐ Find inspiration (*complete the free workshops & clinics*)
- ☐ Get excited (*create an incentive worth working toward*)
- ☐ Build anticipation (*the classes you booked are on your app and calendar*)
- ☐ Post your goal view daily reminder
- ☐ Commit publicly (*those that love you will support you*)
- ☐ Think about it daily
- ☐ Get support (*a class or group training shares encouragement and accomplishment*)
- ☐ Realize that there's an ebb and flow
- ☐ Stick with it
- ☐ Start small. Really small
- ☐ Build on small successes
- ☐ Think about the benefits, not the difficulties
- ☐ Squash negative thoughts; Be positive



# Having FUN It's about you!

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**Taking classes....** Participating in a competitive event or class pushes you beyond your comfort zone providing results.

**Hard work outs that generate results,** breaking a great sweat helping to eliminate toxins and waste from your system feels great!

**Do It For You!** No one admits it but training hard and making progress is one of the few things we do for ourselves it ***builds self confidence a positive out look and happiness = better quality of life!***

**Having a work out partner helps ensure your fitness success!**

National studies show that members who participate in programming/classes or have a work out partner are 75% more likely to achieve desired results.

# A Few Final Notes

## Keeping Membership Costs Down

We strive to provide added value for our members by hosting classes and free programming at a fraction of what competitors charge. If you appreciate what we are doing, please help us spread the word by referring friends or through social media. Follow Comment or Like us on Face Book or post a review on Yelp.

Thank you!

Like us on Facebook 

Find us on Yelp 



## Affordable Personal Training

Training will help you launch – and sustain – a smart exercise program or just re-energize your workout. You don't have to go it alone.

TEAM TRAINING	MEMBERS	SESSION RATE	EACH PERSON
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T ....Training	1 Member	\$50.00	\$50.00
	2 Members	\$60.00	\$30.00
E .... Education	3 Members	\$90.00	\$30.00
	4 Members	\$120.00	\$30.00

### A .... Accountability

### M ... Motivation

Starter individual plans as low as 3 sessions for \$99

*Thanks for being a member! If you ever have concerns or need encouragement don't hesitate to let us know!  
231 932-8340 or email [tom@centreicefitness.com](mailto:tom@centreicefitness.com)*