



## **Training Guidelines**

Our physical and mental training programs are geared to bring about individual improvement in several areas. The harder and more consistently a swimmer trains in each of these areas, the better they will condition themselves for peak performance. Through that development process, the swimmer will change their body and swim faster. The degree a swimmer is "conditioned" depends on the type, amount, and quality of the training that he/she may have done. Each time stress is placed on the body, the body attempts to adapt to this stress by changing itself.

All team members must realize that the body changes and adapts to changes in direct correlation to the effort and consistency put into the training. These changes most commonly come very slowly, and there are no short cuts. This is true for all athletes, regardless of age. Many times the younger swimmer is learning to focus on perfecting strokes and becoming comfortable with the sport. Alternatively, the older more experienced swimmer focuses on a more physically demanding training schedule. Both ages, however, will find that their success is directly related to a consistent and focused approach to their sport.

### **Improvement Areas**

- 1. Water Conditioning (Speed/Endurance)**
- 2. Mental Training and Race Preparation**
- 3. Stroke, Turn, and Start Technique**
- 4. Strength Development**
- 5. Flexibility**
- 6. Life-skill Development**

## **Code of Conduct**

### **Expected Habits, Practice Policies &**

#### **SSC Coaches Expect Each Swimmer to Display These Habits**

1. Always be punctual.
2. Train to your limits.
3. Use the pace clock.
4. Begin each repeat precisely on time and at : 05 intervals.
5. Start and finish every swim at the wall.
6. Listen - No talking when directions are being given.
7. Perform every set and drill exactly as stated.
8. Do every stroke and turn legally.
9. Learn to enjoy a hard challenging practice since this is what helps you reach your potential.
10. Always have the necessary equipment including mesh bag, an extra suit, and goggles.

#### **Practice Policies- General**

The following guidelines are to inform parents and swimmers of the coach's policies regarding practice. These policies have been developed over many years and are designed to provide the best practice environment for all.

1. **Southeastern Swim Club does not have a set attendance policy. As with most athletic activities, competition will improve as practice time increases. Your coaching staff has spent a great deal of time preparing a practice schedule that caters to the variety of ages and ability levels for Southeastern. The coaching staff will take attendance on a daily basis so that the progress of each athlete can be tracked.**
2. **Southeastern swimmers should arrive at the pool practice facility no earlier than 15 minutes prior to their workout time. They should also be picked up no later than 15 minutes after their practice time is over. This is for their safety and protection.**
3. **In order to continue the good relationship that we currently have with our High Schools, no swimmers are allowed in any areas of the High Schools other than the workout facilities and the halls that lead to them. It is also extremely important for siblings of swimmers, as well as any other young children involved with the team, to be under constant supervision.**
4. **While at practice, swimmers are the responsibility of the coaching staff. During workouts, swimmers are not to leave the pool area without the coach's permission. In addition, a parent must notify the coach verbally or with a written note if any swimmer would need to leave practice early.**
5. **Southeastern Swim Club is the guest of Hamilton Southeastern High School, Fishers High School, Brown Pool, Forest Park Pool, and**

potentially other facilities and it is our responsibility to respect this privilege. Any damage to school/park property may result in the financial liability of the swimmer's family. Any damage may also result in the swimmer being asked to leave the team permanently.

6. Our preference is that Southeastern practices be closed to coaches and athletes only. However, parents are welcome to sit in the stands during practice sessions as long as this does not create a distraction for athletes, coaches, or any other staff. Please refrain from contacting the coach or communicating with any swimmer during practices. This is not only disturbing to the swimmer, but also is a violation of safety procedures and insurance policies.
7. Promptness is a must for practices to be worthwhile. Therefore, a swimmer will not be allowed to practice if he/she is more than 15 minutes late to practice. Exceptions to this rule will be allowed if the parents have arranged for this with the coach or if the parents would come on deck and explain the circumstances of the tardiness to the coach.

**SSC adopts three main policy bodies to promote the best possible culture and conduct of Southeastern Swim Club members at all team functions, as well as to create the best possible individual and team impression at all times. These policies are:**

- Safe Sport/Minor Athlete Abuse Prevention Policies (MAAPP)
- Code of Conduct (both staff and athletes)
- Team Travel, Honor Code, Anti-bullying, and Electronic Communication Policies
- As these policies are relatively time sensitive and change is often dictated by our governing bodies (USA Swimming and USOC), our most up-to-date policies and codes are located on our website. **Please click [here](#) to review them.**

## **What is SafeSport?**

The U.S. Center for SafeSport is a nonprofit organization committed to ending all forms of abuse in sport. This includes bullying, harassment, hazing, physical abuse, emotional abuse, and sexual misconduct and abuse.

Their mission is to make athlete well-being the centerpiece of our culture, and to ensure every athlete is safe, supported, and strengthened through sport.

## **Partnership**

SafeSport is an important partner of USA Swimming and Southeastern Swim Club. SSC uses important guidelines and training resources to prevent abuse in all forms.

## **National Help Line**

The SafeSport Helpline provides crisis intervention, referrals, and emotional support specifically designed for athletes affected by sexual violence. Through this service, support specialists provide live, confidential, one-on-one support. All services are anonymous, secure, and available 24/7.

## **Report a Concern**

To report a concern directly to our team SafeSport coordinator, contact [safesport@southeasternswim.org](mailto:safesport@southeasternswim.org).

To report a concern directly to USA Swimming, please contact (719) 866-4578 or visit [Deal with a Safe Sport Concern](#)

To report a concern directly to the U.S. Center for Safe Sport to make a report, use the [online reporting form](#), call (720) 524-5640, or find more information at [www.safesport.org](http://www.safesport.org).



**Disregard for the Code of Conduct,  
What Happens?**

The following is a guideline for violations of our Code of Conduct. While an exhaustive effort will be made to treat every incident identically, each circumstance will be judged on its own merit and handled accordingly. However, some incidents may be so flagrant that they will be treated initially with the second or third option.

This is simply a general process, and can be varied upon. This could occur when one or more tenants of the Code of Conduct are broken during the same incident or when a first time violation turns into a second time violation rather quickly. Many different scenarios are possible, but the following list will be used as a general rule:

**1st Time**

3 - day suspension, parent/swimmer/coach conference, and any various additional items parents or coaches deem necessary.

**2nd Time**

5 - day suspension, parent/swimmer/coach conference, and any various additional items parents or coaches deem necessary.

**3rd Time**

Removal from the team.

**Mental Training Guidelines**

Performing your best on a consistent level, no matter what kind of pressures you are experiencing, certainly is a challenge faced by most competitive individuals today. To become and remain a consistent top performer, you must first know and understand yourself. Furthermore, the development of an action plan allows you to understand and deal effectively with the highs and lows of your competitive arena; you need to become aware of your own strengths and barriers.

At SSC, we believe that once an individual enters a competitive situation, there is no time to develop techniques or skills. Rather, the mental aspect of the task takes over. If the individual knows and understands themselves and has done a thorough job of mental preparation, a top performance can be expected. The following strategies are the focus of Southeastern's mental training and have been used successfully by coaches, champion athletes, competitors in business, students, and parents – both in their personal and professional lives.

- ✓ **The two components for consistent top performances are HARD WORK and a complete understanding of your MENTAL PROCESS.**
- ✓ **There is no substitute for HARD WORK.**
- ✓ **A sound MENTAL PROCESS consists of:**
  - 1) Knowing, understanding, and appreciating yourself.**
  - 2) Your approach to mental strategies; learn, practice, and use them.**
- ✓ **Your SELF-TALK builds your SELF-IMAGE, which controls your PERFORMANCE, which stimulates your SELF-TALK, therefore, a thorough evaluation of your SELF-TALK is important.**
- ✓ **Know your STRENGTHS! It is worthwhile to acknowledge your weaknesses and then highlight and focus on your STRENGTHS.**
- ✓ **LAW OF CUMULATION = The result of many little things is not little. Be sure to acknowledge the many LITTLE WINS in your life.**
- ✓ **GREEN LIGHTS = Think about, talk about, look for, expect, and acknowledge the GREEN LIGHTS in your life.**
- ✓ **RELAX! Two keys to relaxing in pressure situations are proper breathing (belly breaths) and using relaxing thoughts and images.**
- ✓ **IMAGING! Build clear, crisp images when setting goals or sending a message to others. Remember, people think in images, not words.**
- ✓ **Attempt to use a positive attitude as your dominant thought process. Always use productive and positive thoughts!**

**A SWIMMER'S GUIDE TO MENTAL TOUGHNESS**

*By Dr. Alan Goldberg*

If you really want to maximize your potential as a competitive swimmer and reach the goals you've set for yourself, then you have to start today to train yourself mentally as well as physically. Without the right head set and mental strategies, you'll always swim slower than your capabilities. In order to gain the Competitive Advantage and swim like a winner; you've got to first think like one. Understand and practice the following ideas and steps, and they'll help you on your way to becoming a champion! Remember you can't go fast without using your head, and you can't develop mental toughness without consistent practice.

- # 1. Keep your Swimming Fun.** Do not wait until you win before you start having fun. Champions go fast because they are having fun! When you enjoy yourself you'll be physically looser and will swim much faster. Make your practices and meets fun! If you're too serious and turn your swimming into all work and no fun, you will definitely run in to performance difficulties and be a candidate for burnout. Remember fun and speed go together. If you find yourself dreading your meets, something's wrong.
- # 2. Have Clear Goals** - You can't get to where you want to go unless you know exactly where that is. Your success as a swimmer starts with a dream, a goal of how far you'd like to go in the sport. The more detailed a picture you can paint of this goal, the better your chance of turning your dream in to reality. Saying you want to be as good as you can or go faster are goals that are general and too vague to be useful. Qualifying for Senior Nationals, or going 50 flat in the 100 fly are clear, specific and more reachable. Your goals are like magnets, which will pull you in their direction. The more specific and detailed you make them and the more time you spend thinking about them, the stronger the pull. Try to have your goals broken down from long term to intermediate to short term so that even on a daily basis you will have specific goals for practice. This will help you stay motivated over the long haul.
- # 3. Make Your Practices Important: Use Simulation in Practice** – Most swimmers spend the same amount of time practicing weekly. However, only a small fraction of athletes improve to their potential. The reason behind this lies in your practices. Practice does not make perfect; perfect practice makes perfect. Too many swimmers go through the motions in practice. They put their time in but not their minds or their emotions. They daydream during sets or wish they were elsewhere. During difficult sets they look for ways to dog it. You will compete the way you practice. Practice just like meets, mentally as well as physically; that is make your practices important, use your imagination to simulate meet or race conditions. Take a few of those long, boring, painful sets and pretend you're actually competing. Practice race turns, finishing fast, getting your pain to work for you, etc. The more important you can make your practices and the more similar to actual meets, the more you'll get out of them. Every chance you have, set up specific race scenarios in your head and then swim as if everything was on the line. If you consistently practice this way, the way champions do, you'll soon find your meet times dropping.
- # 4. Focus on Your race One Stroke at a Time – Not Winning or Qualifying** – You will swim your best when your concentration is on your race, one stroke at a time. You will choke and swim badly when you get caught up with outcome thoughts (i.e. winning, losing, qualifying, times, etc.). The outcome of your race, which is in the future, is totally out of your control! Swimmers who get distracted with this kind of future focus almost always swim tight and feel heavy. Stay in the now as you race; concentrating on what you are doing, while you are doing it. If you find yourself thinking “What if. . .“ that's a reminder that you are mentally in the future and need to change your focus.

- # 5. Concentrate = Recognize (Step #1) = Bring Yourself Back (Step #2)** – In order to swim as fast as you can, you’ve got to have your mind in the right place. Concentration is the key mental skill to swimming excellence and mental toughness. Here’s how to do it! Step 1: Recognize that you are mentally in the wrong place, i.e. in the future worried about an outcome or a swimmer in the next lane. Step 2: Quickly and gently bring yourself back to a proper focus. You learn to concentrate by catching yourself when you’re not concentrating! This is the heart of championship concentration.
- # 6. Learn to Quickly Let go of your Mistakes and Failures** – Champions do one thing better than everyone else. FAIL!! When a champion has a bad race, they not only use this failure for feedback (What did I do wrong . . . How can I improve?) But just as important, they let it go quickly. In other words, they don’t dwell on the past. When you hang onto your bad races and mistakes at a meet, the one thing you can count on happening is that you’ll get more of them! Learn to recognize when your mind’s in the past and quickly and gently let it go. Telling yourself things like “Here we go again,” “Why does this always happen to me?” are indicators that your focus is stuck in the past. Only go into the past if your past is a positive, self-enhancing one!
- # 7. Stay within yourself – Swim Your Own Race – Stay Mentally in the “Here”** – You will swim your very best when you can learn to mentally stay within yourself, focusing on what you have to do and are doing. Psych-outs and intimidation can only occur when you choose to start focusing outside of yourself or on another swimmer. Staying within yourself means that you have to want to mentally stay in your own lane when you compete. Thinking about someone else’s best times, how fast they finish, or how awesome they are will only make you choke and swim tight. Stay in the “here” by recognizing when you’re in the wrong mental place and bringing yourself back right away to what you’re doing.
- # 8. Control your Eyes and Ears for Championship Meet Performances** - Related to #7, learn to control what you look at and listen to, both before and during the race. That is, only visually focus on things that keep you calm, composed, and ready to perform well. If looking at the gallery, or other racers, makes you uptight . . . don’t do it! Instead look down at the blocks or at a spot across the pool. Or keep one eye on the water, which keeps you, relaxed. Similarly, make sure any things you “look” at in your mind’s eye are positive and confidence enhancing. If you are using imagery and keep seeing a false start, either change the image or actively look at something else. Controlling your ears means that you only want to listen to things that will keep you calm, composed, and confident. If your self-talk is making you uptight, change it! Or block it out by listening to a Walkman. Control you eyes and ears for mental toughness.
- # 9. See what you want to have happen, not what you’re afraid will happen** – Winners in and out of the pool have learned to use their imagination (mental rehearsal and imagery) to help them reach their goals. Make it a practice to focus on exactly what you want to have happen, not what you’re afraid will happen. Focusing on positive images will calm you down, raise you confidence, and increase your chances of achieving your goals. Practice mental rehearsal 5-10 minutes at a time, preceded by relaxation in an area free from distractions. Make your pictures (sounds, feelings) as vivid and detailed as possible, seeing, hearing, and feeling yourself performing just the way you’d like to.
- # 10. Let it happen = Speed** – when you swim your fastest, there is an automatic, effortless quality to your performance. You are working hard without trying hard. It feels easy, yet powerful. When you get in to a meet situation, you have to remember that in order to swim your best, you have to relax and let the race happen. If you make your race too important, you’ll get into trying too hard and will swim slower. Trust that you’ve done everything you need to, your body and muscle memory knows what to do, and then just let the performance happen. Swim with effortless effort.

- # 11. Swim with No-Mind to go fast** - A corollary to #10, if you want to go fast you've got to keep your conscious mind and all of its thoughts out of the pool. In your best races, not only did you swim on autopilot, but most likely there was a no-thinking quality to your race. Conscience thought slows you down and distracts you. You want to swim unconsciously with no mind. In baseball Yogi Berra once said, "a full mind is an empty bat." The same applies to you and your swimming. The more you think, the slower you'll go. Practice, in practice, doing "no-think" swims.
- # 12. GIGO – you swim the way you think** – The difference between your best and worst swims is usually related to your mental "strategies" just before and during your race. That is, what you think, say to yourself, and image both before and during your race determines whether you'll go fast or slow. If you program garbage into your computer (brain) before a race ("What if I false start," "What if I blow my turn," or "He'll probably catch me at the finish and win."), you will get garbage back out in your performances. Learn to "program in" good stuff, and that's what you'll get back out.
- # 13. Be positive – nothing good comes from negativity** – When you're negative or down on yourself, you sap your energy, drain your confidence, and insure that you will swim poorly. Practice being positive about yourself, teammates, and coaches, NO MATTER WHAT. A positive attitude will help you overcome hardships and setbacks and keep you going. A negative attitude will trick you into giving up too soon. Winners in and out of the pool are positive. "Can't," "Never," and "Impossible" do not exist in the dictionary of their minds.
- # 14. Reframe adversity** – Learn to look at obstacles and setbacks as a way to get more motivated and to increase your confidence. Most swimmers complain bitterly about pool temperature, lane assignments, rain, and fatigue. The great swimmers use any kind of adversity to help them get the competitive advantage over their opponents. For example, you can do one of two things with the pain and fatigue. You can dread it; fight it; complain about it and consequently tighten up and back down from it =going slower; or you can reframe it. You can say to yourself "Everyone in this race has to deal with this pain, and I'm mentally tougher to handle it than everyone else. . . pain and fatigue is an indicator that I'm going fast, that my body's working well, and a signal for me to move towards it, stretching it out, and lengthening the stroke." Learn to think like a winner by reframing. When your swimming gives you lemons. . . make lemonade out of them.
- # 15. Act as if** – If you want to become a winner, first you have to learn to act like one. 'Acting as if' is the master strategy of champions. If you act the way you want to become, you'll become the way you act. 'Acting as if' has to do with your posture or how you carry yourself physically. Watch swimmers after they've had a bad race and you'll see some interesting stuff. Their heads will be down, shoulders drooping, facial expression down, and they'll be dragging their feet. If you act this way physically, like a loser, you'll perform like one. A winner's fallback position is to 'act as if'. If you're totally intimidated and freaking out before a race, 'act as if': act calm and confident. Have your head up, put a smile on your face, pick your shoulders up and put a spring in your step; even if you're dying inside. Show your opponent someone who on the outside looks in control.
- # 16. Learn to be your own best fan** – It's real easy to be nice to yourself and supportive when you're winning. Champions, however, separate themselves from everyone else because they've learned to be supportive to themselves when things are going badly. Getting down on yourself for bad performances will not help you in the long run. It will kill your motivation and make you an unhappy camper. Learn to be your own best fan. Someone who is here to share the success and to help you through the tough times. After all, that's when you need support the most, especially from yourself.

- # 17. You are not your races** – Learn to separate who you are as an athlete and person from how you do in your meets. You are not the results of your races. If you have a great meet this does not make you a great person. More importantly, if you have an awful meet, this does not make you the scum of the earth. If you get caught up in putting your ego on the line whenever you compete, you can be sure of one thing: you'll take a fall a whole lot. A swim meet should never be viewed as a measure of self-worth and respectability, by you, your coaches, or your parents.
- # 18. Learn to relax** – In order to stay within yourself and swim your own race you need to have the ability to handle competitive pressure. For many, this ability does not come naturally. You can learn to stay composed under pressure by practicing one or two of the many relaxation techniques available to athletes. Probably one of the best is to learn to slow and deepen your breathing. By taking a few slow diaphragmatic breaths, you can very quickly calm yourself down pre-race. Practice at home sitting for five minutes at a time, inhaling slowly through your nose to a count of 4, and then exhaling to a count of 7-8, and continuing this process for the allotted time. Every time you drift, you can practice recognizing that you've lost your focus and then bring yourself back.

## **Nutrition for the Athlete**

This section contains some information on nutrition. This information was borrowed and re-created with the permission of USA Swimming. Nutrition and the part that it plays in our daily efforts has been a hotly debated topic for decades. At SSC, we trust USA Swimming to take the lead on this as they are committed to finding the best for all of our athletes.

## **Nutrition 101 - The Eight Lessons**

Something every swimmer should know before learning about good nutrition is this: **Food does NOT make you swim fast.** That's right. Food does not make you swim fast. What **DOES** make you swim fast? Training. Training makes you swim fast. Better yet, **QUALITY training makes you swim fast.** And part of quality training is good nutrition!

Believe it or not, you don't get fast during practice. Practice is where you might see your times improving, but your *adaptation* to training (i.e. getting faster) actually occurs while your body is at rest. Workout is the **stimulus** that causes this to happen.

Workouts are hard. Yes they are. They're supposed to be. They're designed to tell the body, "This is hard work for me...you better do something to enable me to do it again later." And the body actually responds by becoming more efficient – aerobically and anaerobically. During its time off, the body **WILL** adapt. But only if you give it the **proper fuels**.

<p><b>Lesson 1</b> <i>Fueling Your Stroke, Buying and Burning Gas</i></p>
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Six 200's descending on five minutes. Twenty-five 50's on :58. Whatever your "favorite," every set during every workout and dryland session requires energy. Nutrients are the "chemicals" that supply the body with energy. Carbohydrate, protein and fat supply energy in the form of calories. These are your "Energy-Yielding Nutrients." Vitamins, Minerals and Water don't supply energy in the form of calories, but their presence is required in order for the body to access the energy provided by carbohydrate, protein and fat.

During exercise, the body gets its energy primarily from carbohydrate and fat. It likes to save protein for other things (building and repairing muscle tissue, hormones and red blood cells, and supporting the immune system). The only time the body uses protein as an energy source during exercise is when carbohydrate and fat are not present in sufficient quantities. This happens when the total caloric intake is too low over a period of months, and or the bout of exercise is so long that the body's accessible sources of carbohydrate and protein become exhausted. Neither of these scenarios is desirable for swimmers.

Think about money. When you have lots of it, you don't mind paying full price for things. But when money is scarce, or there is just too much you have to buy, you look for bargains. You're not being cheap, just thrifty. Simplified to some extent, your body knows how to shop.

Now instead of dollars, think of your currency as oxygen. When swimming is "easy," say during warm-up or your easiest sets, there is plenty of oxygen available to support the exercise. The body perceives itself as "rich" and doesn't mind splurging on fat (1 gram of fat costs 9 oxygens). In fact, it automatically does so because it knows it might need carbohydrate at a later time.

When exercise is hard (we're talking *tough* sets, definitely your *hardest* sets), oxygen is not plentiful. In fact, the body needs every bit it can get to support the exercise, but even *that* is often not enough, and the body is forced to derive energy in ways that do not require oxygen (i.e. *anaerobic* metabolism). In this situation, the body perceives itself as very "poor" and becomes very thrifty with its "purchase" of fuel. Since carbohydrate costs less than fat (1 gram of carbohydrate costs 4 oxygens), the body chooses to rely primarily on carbohydrate for its energy.

Keep in mind that this entire fuel burning process is never a case of "all or none." In other words, the body is always using some combination of carbohydrate and fat, but the **intensity** of the exercise dictates which fuel source will be the *dominant* one. When swimming is easiest, fat is the primary fuel source. When swimming is toughest, carbohydrate is the primary fuel source. When swimming is about 50% of maximum effort, carbohydrate and fat contribute about equally.

Let's face it – the majority of workouts are hard. Above 50% for certain. If you consider the typical swim workout, it's pretty safe to say that **the primary fuel source for swimmers IS carbohydrate.**

## **Lesson 2**

### ***Eat Colorful Foods***

What are the first three foods that come to mind when we say "carbohydrate?"

1. Pasta
2. Rice
3. Bread

Each of these is excellent. But what do they have in common? They're all white!

One of the most overlooked sources of carbohydrate is fruit. Yes, FRUIT. Fresh, canned, frozen, dried or juiced. No matter how you look at it, fruit is an excellent source of carbohydrate. Not only does fruit provide carbohydrate in the form of natural sugars (versus refined sugar), the bright colors of fruits indicate that they are also excellent sources of vitamins and minerals, including a sub-group called **anti-oxidants.**

You might recall that exercise is the stimulus that leads to training adaptations. And that adaptations to training occur **ONLY** if you give the body the right kinds of fuels during periods of rest.

Well, one of the side effects of exercise is the generation of "*free radicals.*" Free radicals are molecules that can actually cause damage to muscle tissue above and beyond the damage caused by exercise. The damage caused by exercise is normal. It serves as part of the stimulus for training adaptation to take place. But damage caused by free radicals is **NOT** a desired part of the training process. Damage caused by free radicals (aka "scavengers") circulating in the bloodstream after workout can continue well into the recovery period. This is when the body is supposed to be adapting!

Anti-oxidants "absorb" free radicals, neutralizing their effect in the body before their damage to muscle tissue can amount to much. A diet consistently rich in fruits (and other colorful foods, such as VEGETABLES) is apt to keep the body consistently supplied with anti-oxidants, which will assist the body in keeping free radical formation to a minimum. This a good reason to eat lots of colorful foods during the recovery time between workouts.

Colorful foods include, but are not limited to: **Apples, Strawberries, Blueberries, Bananas, Oranges, Kiwi, Watermelon, Raspberries, Grapes, Mango, Papaya, Apricots, Red peppers, Broccoli, Corn, Squash, Carrots, Peas, Green beans, Tomatoes**

Colorful foods **DO NOT** include: Skittles, Jelly Beans, M&Ms, Mike&Ikes, Fruit Loops, etc.

## **Lesson 3**

### **Carb, Protein, Fat...How Much is Enough?**

We talk a lot about the body using carbohydrate, protein and fat as it Energy-Yielding Nutrients, but the requirement from swimmer to swimmer varies. A swimmer's energy requirements depend on several variables, including their age, gender, body weight (and possible composition) and level of training.

According to the American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance,

***“Protein requirements are slightly increased in highly active people. Protein recommendations for endurance athletes are 1.2-1.4 g/kg body weight per day, whereas those for resistance and strength-trained athletes may be as high as 1.6-1.7 g/kg body weight per day. These recommended protein intakes can generally be met through diet alone, without the use of protein or amino acid supplements, if energy intake is adequate to maintain body weight.” (ACSM, ADA, Dietitians of Canada, 2000, p 2131)***

The generally recommended daily intake of protein for swimmers in training is 1.4-1.8 g/kg of body weight. Typically this should account for 12-15% of total calories. For a 160 lb athlete, that equates to 102-131 g/day, which is 12-15% of a diet of 2,720-4,367 kcal/day.

Meeting this requirement typically ensures adequate dietary intake of all of the necessary amino acids. It is important, however, that high-quality protein products be selected. Sources include meats, dairy, beans, dried peas, milk, eggs, and grains. These sources provide a more complete mixture of the necessary amino acids and therefore have a higher “biological value” or protein efficiency score. If these protein needs can be met by selecting good dietary sources of protein on a daily basis, the amounts of amino acids required to achieve the effects observed in the studies mentioned above can easily be met as well. There is no evidence that ingesting protein in amounts far in excess of the recommended intake is beneficial to either protein balance or exercise performance. The primary role of protein, and therefore amino acids, is to synthesize structural proteins and TCA-cycle intermediates. Excess protein can be stored to some degree, but that which is not used for the aforementioned purpose is typically metabolized and excreted. Protein is generally not used for energy during exercise.

The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance also states that:

***“Carbohydrates are important to maintain blood-glucose levels during exercise and to replace muscle glycogen. Recommendations for athletes range from 6 to 10 g/kg body weight per day. The amount required depends upon the athlete’s total daily energy expenditure, type of sport performed, sex of the athlete, and environmental conditions.” (ACSM, ADA, Dietitians of Canada, 2000, p 2131)***

The general recommendation is that carbohydrate intake should account for at least 60% of total caloric intake. In addition, long-supported research by Costill (1988) indicates that athletes training more than 2 hrs/day require a carbohydrate intake of 9-10 g/kg of body weight on a daily basis to prevent chronic depletion of carbohydrate stores.

Body Weight in lbs (kg)	Carbohydrate Required (g) to meet Intake of 9 g/kg	Carbohydrate Required (g) to meet Intake of 10 g/kg	Protein Required (g) to meet Intake of 1.4 g/kg	Protein Required (g) to meet Intake of 1.8 g/kg
120 (54.5)	491	545	76	98
130 (59.1)	532	590	83	106
140 (63.6)	572	636	89	115
150 (68.2)	614	682	95	123

160 (72.7)	655	727	102	131
170 (77.3)	695	773	108	139
180 (81.8)	736	818	115	147
190 (86.4)	777	864	121	155
200 (90.9)	818	909	127	164
210 (95.5)	859	955	134	172
220 (100.0)	900	1,000	140	180

Lastly, The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance also states that:

***“Fat intake should not be restricted, because there is no performance benefit in consuming a diet with less than 15% of energy from fat, compared with 20% to 25% of energy from fat. Fat is important in the diets of athletes as it provides energy, fat-soluble vitamins, and essential fatty acids. Additionally, there is no scientific basis on which to recommend high-fat diets to athletes.” (ACSM, ADA, Dietitians of Canada, 2000, p 2131)***

The general recommendation is that swimmers get 20-25% of their calories from fat. For the swimmer whose daily caloric requirement is 2,000 kcal, this translates to 400-500 kcal from fat, or 44-56 grams of fat per day. Use the following table to determine that amount of fat you should be consuming on a daily basis:

Total Caloric Need (kcal)	Daily Fat Intake (g) To meet 20-25% of this Caloric Intake
2,000	44-56
2,500	56-69
3,000	67-83
3,500	78-97
4,000	89-111
4,500	100-125
5,000	111-139
5,500	122-153
6,000	133-167
6,500	144-181
7,000	156-194

## **Lesson 4** *Eat Early and Often to Recover Well*

Knowing how much carbohydrate, protein and fat to get in a day is good. But knowing **when** you should be getting those nutrients is even better. When it comes to optimal nutrition, timing really is everything.

In general, following these guidelines for incorporating carbohydrate, protein and fat into your day:

- Spread carbohydrate intake out over the course of the day (i.e. smaller meals and frequent snacks). This keeps blood sugar levels adequate and stable.
- Eat *some* carbohydrate before morning practice. Note: This can be in the form of juice.
- Eat carbohydrate in the form of a carb-electrolyte drink, such as Gatorade or Powerade, during workout **IF** workout is 90 minutes or longer. Gels are also acceptable.
- Eat carbohydrate and protein within the first 30 minutes after practice. This enables the body to

replenish glycogen stores and repair muscle tissue. **This is perhaps the most important time to eat!!!!**

· Eat again (something substantial, like a real meal) before two hours post-practice has elapsed. **This is critical to maximizing recovery!!!!**

· Incorporate fat into the day at times that are not close to workout. Fat is *necessary*, but contributes little to the workout or immediate post-workout recovery period.

Part of the reason good nutrition is critical during recovery has to do with the fact that the body is extremely good at making the most of what it is given. Following exercise, the body is very sensitive to the hormone *insulin*. Insulin is that hormone that rises every time blood sugar rises. In other words, every time a swimmer eats carbohydrate, which causes blood sugar to rise, insulin goes up. Well, it's insulin's job to remove sugar from the bloodstream, and it does so by facilitating its storage as **glycogen**. Glycogen, the storage form for carbohydrate, is what the body taps into for fuel when exercise is very intense. This can happen quite a bit during a tough workout, which is why it's important to see that glycogen is replenished before the next practice.

The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance states that:

***“After exercise, the dietary goal is to provide adequate energy and carbohydrates to replace muscle glycogen and to ensure rapid recovery. If an athlete is glycogen-depleted after exercise, a carbohydrate intake of 1.5 g/kg body weight during the first 30 min and again every 2h for 4 to 6h will be adequate to replace glycogen stores. Protein consumed after exercise will provide amino acids for the building and repair of muscle tissue. Therefore, athletes should consume a mixed meal providing carbohydrates, protein, and fat soon after a strenuous competition or training session.” (ACSM, ADA, Dietitians of Canada, 2000, p 2131)***

In addition, research (van Loon et al, 2000) has implicated immediate post-exercise carbohydrate ingestion (1.2 g/kg/hr for 5 hrs) in the enhancement of glycogen re-synthesis.

<b>Body Weight in lbs (kg)</b>	<b>Carbohydrate Required (g) to meet Intake of 1.2-1.5 g/kg</b>
120 (54.5)	65-82
130 (59.1)	71-89
140 (63.6)	76-95
150 (68.2)	82-102
160 (72.7)	87-109
170 (77.3)	93-116
180 (81.8)	98-123
190 (86.4)	104-130
200 (90.9)	109-136
210 (95.5)	115-143
220 (100.0)	120-150

**Lesson 5**  
*Know the Scoop on Cereals*

For swimmers, cereal is great just about any time of the day. Competitive athletes are encouraged to choose nutrient dense cereals, which contain more of the right kinds of nutrients (carbohydrate, protein, vitamins, minerals) per serving than their “candy cereal” counterparts. More bang for the buck, so to speak.

Generally speaking, the best cereals are high-carbohydrate (>25 grams/serving), moderate-protein (5-10 grams/serving), low-fat (<5 grams/serving), and moderate-fiber (2-4 grams/serving). Most cereals on the market today, including “candy cereal,” are fortified with vitamins and minerals, such that one serving usually provides 20-100% of a given vitamin or mineral. However, these values are based on a 2,000 calorie diet, which is well below the energy requirements for most competitive swimmers in their teens and twenties.

Consider cereals in three categories: High Nutrient Density, Moderate Nutrient Density, and Low Density (aka “candy cereal”). Athletes looking for a good cereal but not a whole lot of calories, a Moderate Nutrient Density product is best. For those looking for density (i.e. lots more nutrients/calories in a smaller serving), then a High Nutrient Density cereal is the way to go. Swimmers looking for “candy cereal” should be encouraged to save this type of product for weekends and/or limited occasions. The following table offers a non-exhaustive list of cereals in each of the categories mentioned above:

<b>High Nutrient Density Cereals</b> >30 grams carb >4 grams protein <40% of carbohydrate is sugar	<b>Moderate Nutrient Density Cereals</b> 20-30 grams carbohydrate 2-4 grams protein <40% of carbohydrate is sugar	<b>Low Nutrient Density (“candy”) Cereals</b> >40% of carbohydrate is sugar
Quaker Toasted Oatmeal Raisin Bran Smart Start Blueberry Morning Basic Four Wheaties Energy Crunch Raisin Nut Bran Honey Nut Shredded Wheat	Cheerios Team Cheerios Rice Crispies Corn Flakes Special K Total	Fruit Loops Cinnamon Toast Crunch Captain Crunch Cocoa Puffs Fruitie Pebbles Frosted Flakes

And of course, hot oatmeal and granola are always excellent choices. And all dry cereals make a great snack to take on the road. Just toss 1 cup into a plastic storage bag or air-tight container, and off you go. The point is to find a cereal that tastes good and also meets your nutritional needs. With all the products on the market, no swimmer should have any problem doing just that.

**Lesson 6**  
*What IS One Serving?*

Coaches....Got 15 bucks? Go to your local super store and splurge on one of the most valuable Nutrition teaching kits you’ll ever own. You may even have these things lying around the house. Here’s the list:

- 1 tennis bal
- 1 baseball
- 1 deck of playing cards
- 1 book of matches
- 1 CD case
- 1 1” wooden cube
- 1 nickel

Why would you want these things? Each item represents the approximate size of a serving for various foods. See the table below for representations:

<b>Item</b>	<b>Serving it Represents</b>
Tennis ball	1 cup of cooked rice; 15 grapes
Baseball	12 oz potato; 1 cup of cold cereal
Deck of cards	3 oz cut of meat
Book of matches	1 tbsp of oil, salad dressing or mayo
CD case	1 slice of bread
1" wooden cube	1 oz of cheese
Nickel	2 oz of dry spaghetti, 1 cup of cooked spaghetti

## **Lesson 7**

### ***Drink Early and Often***

There are 2 reasons to drink fluids: (1) to stay hydrated, and (2) to provide the body with fuel.

**During Workout** - Regardless of age or length of workout, all swimmers need fluids during practice to stay hydrated. Easily accomplished with a couple of sips from the water bottle every 15-20 minutes. As swimmers progress, workouts get longer and tougher. It's well established that exercise beyond 90 minutes benefits from a supplemental fuel source. The sports drink can

provide it. But we still have hydration to think about. Drinks that are too strong, or "concentrated," can provide the fuel but also inhibit fluid absorption and often lead to cramping.

Years of research tells us that drinks that are 6-8% carbohydrate by weight provide the perfect balance. Enough carbohydrate to provide a fuel source during long exercise, but not so much that will inhibit fluid absorption. A couple of sips every 15-20 minutes keeps the body fueled, helps prevent unnecessary tissue breakdown, and maintains hydration. Today, only Gatorade and Powerade meet the 6-8% criteria. Most other drinks are too strong to be effective *during* workout.

**After Workout** – Water is an excellent choice to replenish fluids after practice. It's always wise to drink at least one cup. But after a *tough* workout, replenishing fuel stores is equally important. Competitive swimmers need a little over 1 gram of carbohydrate for every kilogram they weigh (lbs/2.2) each hour after workout. And they need it **within the first hour**.

Oftentimes, a sports drink that is easily digested and quickly absorbed, such as Gatorade or Powerade can provide a convenient way to get some of this fuel within the first 20 minutes. Accelerade, a newer drink on the market may also do the trick. Endurox, perhaps, but beware of the high protein drinks, as they often forgo the carbohydrate, and carbohydrate is what you are trying to replenish within that first hour after workout. A little protein won't hurt, in fact a little bit of protein may actually help by supporting tissue repair and re-building processes. But too much protein, especially when it comes *in place of* carbohydrate, may actually be detrimental to the post-workout recovery process.

### **\*\*Remember...**

1. Carbohydrate is the primary fuel source during tough workouts. Protein is used as a fuel source during exercise only when carbohydrate and fat are not present in sufficient quantities. This can happen during long/tough workouts when the body uses much of its stored carbohydrate, and it must find an additional source. If an additional carbohydrate source (ex. Gatorade, Powerade) is not supplied, the body taps into *stored* protein, aka your muscles. This is why we drink carbohydrate-electrolyte solutions during workout...to **spare muscle protein**. And this is also why it is important to replace carbohydrate stores lost during a workout...so you start the next workout with a full tank of gas!

2. Following exercise, the body is very sensitive to the hormone *insulin*. Insulin is that hormone

that rises every time blood sugar rises. In other words, every time a swimmer eats carbohydrate, which causes blood sugar to rise, insulin goes up. Well, it's insulin's job to remove sugar from the bloodstream, and it does so by facilitating its storage as **glycogen**. Glycogen, the storage form for carbohydrate, is what the body taps into for fuel when exercise is very intense. This can happen quite a bit during a tough workout, which is why it's important to see that glycogen is replenished before the next practice.

**During the Day** – Staying hydrated during the day is just as critical as hydrating during and after workouts. Most swimmers can do this by incorporating a variety of fluids into their daily diet. Water, fruit juice, milk, soups, etc., etc. Water is always an excellent choice, but other drinks, including sports drinks (defined as 6-8% carbohydrate by weight) are okay too. Just remember that variety is the key to a healthy diet. If you use a sports drink during and after practice, it may be better to drink water and juice during the day to stay hydrated. Juices are often healthier than sports drinks in that their sugars are natural. Always keep in mind that juices and sports drinks contribute to total caloric intake.

**For the purpose of this article, a sports drink is defined as a 6-8% carbohydrate-electrolyte solution. Do NOT include “energy drinks,” such as Red Bull, 180o, Sobe, etc. These dietary supplements fall into the Yellow Light category.**

## **Lesson 8** **Analyzing** **Your Diet**

Diet analysis is comprised of two parts, *needs* and *intake*. Optimal nutrition is a matter of balance (nutrients-in versus nutrients-out). In other words, a swimmer's intake of nutrients must match his/her output of nutrients during rest and exercise. In terms of *energy* (aka calories), if the needs are greater than the intake, the net result is weight *loss*. Conversely, if the needs are less than the intake, the net result is weight *gain*.

There are three variables that contribute to a person's total nutrient and energy needs:

**Resting Energy Expenditure (REE)** – REE is the energy required for cellular and tissue processes that maintain physiological functions at rest, plus small amounts of energy related to previous muscular activity. It is the energy the body needs to maintain itself in the sedentary state, and this need tends to decrease with age. REE remains relatively constant for a given age and gender. In other words, the REE for most 120-lb 16-year-old males is about the same. Typically, REE accounts for about 60% of a swimmer's daily expenditure. For swimmers, about 40% of it is used to support REE.

**Thermic Effect of Food (TEF)** – TEF is the energy required by the body to digest, absorb, transport, store and metabolize food. Eating actually increases a person's metabolic rate temporarily, which translates into an elevation in energy expenditure. This effect is higher for protein and carbohydrate meals, versus fat meals. In fact, fat has little effect in elevating the metabolic rate at all. Typically, TEF accounts for about 10% of a person's daily expenditure. Similarly, about 10% of a person's daily caloric needs are to support TEF.

**Thermic Effect of Exercise (TEE)** – TEE is the increase in a person's metabolism due to moderate and strenuous physical activity. The exact amount of energy this accounts for depends on the physiological “cost” of the activity. Determining this directly involves monitoring a person's oxygen consumption (VO<sub>2</sub>) during exercise and translating that into calories burned. There are many reference charts available that indicate how many calories are required or spent to perform a given activity for a given period of time. Typically, TEE accounts for about 30% of a person's daily expenditure. For swimmers, about 60% of it is used to support TEE.

Since lean tissue is the site for most metabolic (energy conversion) processes, the more lean tissue a person has, the higher is their level of metabolic activity. For this reason, Resting Energy Expenditure and the Thermic Effect of Food are typically higher in males than in females, and higher in athletes than in non-athletes. Resting Energy Expenditure also tends to be higher in individuals who consistently meet their metabolic demands with an adequate intake of calories. Severe restriction of calories (<80% of calculated needs) for prolonged periods of time can lead to a decrease in the metabolic rate, usually because it results in a loss of muscle mass. It should be noted that although stimulants, such as caffeine and nicotine will also increase Resting Energy Expenditure slightly, these products are not recommended for various health reasons. Changes in temperature can affect Resting Energy Expenditure as well, but the most powerful environmental influence is EXERCISE.

Adding the Thermic Effect of Exercise to the Resting Energy Expenditure and Thermic Effect of Food constitutes calculating an individual's total energy needs for the day.

$$\text{Total Energy Needs} = \text{REE} + \text{TEF} + \text{TEE}$$

What changes with the competitive season is the relative contribution of each of the three variables to the total requirement. For example, during the **in**-season, Resting Energy Expenditure may account for about 50% (half) or a little less of the total energy expenditure, or total energy needs. During the **off**-season, Resting Energy Expenditure may account for 60-70%. This is because Resting Energy Expenditure does not change much, while *active energy expenditure* (i.e. the Thermic Effect of Exercise) is lower during the off-season due to a reduction in training volume. Because Resting Energy Expenditure plays a larger role during the off-season, keeping it elevated reduces the amount of dietary change that will be required to maintain body weight. This can be accomplished by maintaining lean tissue, as opposed to losing muscle during the off-season. Hence the role of exercise during this time.

Fortunately, the USA Swimming website offers a program to take care of calculating all three of the variables mentioned above. [Nutrition Tracker](#) is an on-line tool that calculates a swimmer's nutrient needs, based on age, gender, current body weight and daily training schedule.

Of course, the other side of the equation involves intake, or the amount of energy an athlete *consumes* on a daily basis. Nutrition Tracker can do this too. Using Nutrition Tracker, a swimmer can enter an entire day's food intake to see how much carbohydrate, protein, fat and calories are in it, compare what he/she ate to his/her individual needs, and track his/her habits throughout the season and off-season. Upon comparing nutrient needs with the swimmer's current intake, the program generates a feedback report, and stores the information for future reference. Swimmers are provided with an analysis of their current diet on which they can base changes or interventions. Deficiencies and excesses are highlighted based on comparisons with reference ranges established for swimmers. The best part is that the analysis is specific to swimming and current level of training. (*Nutrition Tracker is available to all USA Swimming members. National Team athletes have pre-established accounts. All other users must register prior to first use.*)

Any complete diet analysis, including Nutrition Tracker, involves a record of every food item that was eaten on that particular day. The most common way to do this is by using a *food recall*.

The typical food recall requires an athlete to report what he/she ate over a 3-7 day period of time. The energy content (i.e. kcal) of each food item and the exact amount eaten are used to determine the total energy content of a full day's menu. Total carbohydrate, protein and fat intakes can also be determined using this format. Knowing the contribution of each of these macronutrients provides information on where the calories are coming from. Unfortunately, when athletes know they have to record what they ate, they (especially females) tend to under-eat and/or under-report their food intake. Therefore, a person's typical caloric intake based on food recall is often misrepresented, under-estimated, or both.

Specifics regarding an athlete's caloric needs are individual. They vary with seasonal changes in training volume and should be discussed with a qualified Sports Nutrition professional. What works for one athlete may not work for another. However, the following guidelines are a good place to start and can be used by anyone who has issues with off-season nutrition:

### **Do-s and Don't-s of Optimal Off-Season Nutrition\***

- Do... Focus on healthful eating and lifestyle habits.
- Do... Use performance and energy level variables to monitor success.
- Do... Decrease normal energy intake according to decreases in training.
- Do... Substitute lower-fat foods for whole-fat foods.
- Do... Reduce the intake of energy-dense snacks.
- Do... Eat more whole grains, cereals, beans and legumes.

- Do... Get at least 5 servings of fruits and 5 servings of vegetables each day.
- Do... Eat low-fat dairy products and lean cuts of meat, fish and poultry often.
- Do... Drink a variety of fluids to maintain hydration.
- Do... Keep snacks on hand for times when hunger might set in.
- Do... Find a place for “favorite foods” to fit in moderation.
- Do... Continue to exercise, even if it’s not as much as the in-season.

- Don’t... Focus on the scale.
- Don’t... Eat low-energy diets (i.e. less than REE).
- Don’t... Reduce energy intake by more than TEE.
- Don’t... Reduce fat intake to less than 15% of total calories.
- Don’t... Skimp on protein or calcium.
- Don’t... Skip meals.
- Don’t... Allow hunger to set in.
- Don’t... Deprive yourself of favorite foods.

*\*These guidelines have been adapted from the American Dietetic Association, Dietitians of Canada and American College of Sports Medicine Position Paper on Nutrition and Athletic Performance and Melinda Manore’s paper on Chronic Dieting in Active Women (Women’s Health Issues 6:332-341, 1996).*