



FOUNDATIONS OF *Coaching*

Athlete Development Charts Table of Contents

1. Progressions for Athlete Development:
 - *All aspects of development do not occur at an exact rate and at the same time. Each swimmer's journey proceeds at an individual pace, with many different levels of success. These progressions can be helpful in creating a career plan for the development of swimmers. The material is presented in chart form. Each chart illustrates one level all the way across each subject area.*
2. Developmental Characteristics of Children Aged Five through Twelve:
 - *The typical physical, social, emotional and intellectual characteristics of children during childhood development. Presented in chart form for easy access.*



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Progressions for Athlete Development

Levels of Development

The Progressions for Athlete Development were developed several years ago in an attempt to answer the question, “What is the best way to develop an athlete?” The materials were produced based on a great deal of discussion and the input from numerous USA Swimming technical committees, staff personnel and coaches.

The Progressions for Athlete Development comprise eight levels of development, which encompass six critical areas to help a coach guide the journey for each and every athlete. The six areas are:

- training
- competitive performance
- biomechanics
- physiology
- psychology
- character development and life skills

When reading through the progressions, there may be some specific questions about the development of particular athletes. The progressions are meant to be a tool or a yardstick to evaluate the overall development and progress of swimmers. The “how” of getting athletes to each and every milestone is completely up to the coach. Helping athletes reach these accomplishments will be the result of balancing the art and science of coaching.

The Progressions are not meant to create clone coaching. Will every athlete progress to level 8? No. Will every athlete excel at the same pace? No. Can an athlete make it to the upper levels by virtue of his or her talent and achievements? Yes, but only in the categories of training parameters and competitive performance. The athlete could be at level 4 in character development for his or her entire life. In other cases, just the opposite is true. There are kids who are head and shoulders above others when it comes to life skills such as making a commitment and having a work ethic, but unfortunately, some of these athletes will never make a junior championship cut. These athletes may be level 8 in the character development category, but they may never achieve higher than level 4 or 5 in the competitive performance area. We hope that the progressions will help you address the full development of each one of your swimmers.

It is important to keep in mind that all aspects of development do not occur at an exact rate and at the same time. We know that physical development occurs in spurts. An athlete may experience a big improvement in the training or the competitive components, but he or she may still lag behind in the psychological area. Each swimmer's journey proceeds at an individual pace, with many different levels of success. These progressions can be helpful in creating a career plan for the development of swimmers.

The material is presented in chart form. Each chart illustrates one level all the way across each subject area. Although this is an easy way to look at an entire level by seeing all categories at once, it is not meant to suggest that a swimmer must achieve all the criteria of one level before moving on to the next level.

How to Use Progressions for Athlete Development

The Progressions for Athlete Development are designed to be used as a tool by the coach. The progressions can be used to enhance coaching by giving specific examples of what an athlete may need to accomplish at different levels to reach his or her potential. If you feel uncomfortable addressing a particular area, you may want to consider bringing in an expert presenter, or better yet, attending a coaches' education program that features the area in which you require greater expertise.



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Listed next are examples of how the *Progressions for Athlete Development* can be used:

- Take a topic(s) from an area of development, and hold a series of team meetings around that topic. These meetings may be given for athletes and/or their parents. For example, here are a couple of meeting topics taken from the psychological skills category:
 - Meeting One** Self-talk
 - Meeting Two** Concentration
 - Meeting Three** Visualization
 - Meeting Four** Goal Setting
- The progressions can serve as the basis for a club award system. Give special recognition to a swimmer who moves to the next level. Post a chart that allows swimmers to mark down when they have completed a specific skill or task.
- Focus on the career development of an athlete, so that his or her long-term development is emphasized.
- Emphasize the six different areas of development so that the swimmer must think about more than just swimming fast. This multidimensional focus helps develop a well-rounded athlete.
- Teach swimmers different aspects of the biomechanical and physiological areas to get them to also focus on technique, stroke count, distance per stroke, heart rate, etc.
- These documents may be used to construct progressions that are in line with present team structure. A beginning team may have as their top athletes swimmers with level 4 competitive performances, some athletes with level 3 training requirements, and the remainder with a variety of skill levels in the other areas. A coach may decide to develop progressions for the athletes and adopt them as follows:
 1. *Level 5* could become a *level 8* for a particular team.
 2. Each level below *level 5* could be broken down into smaller steps so the athletes see their progress and feel that they are moving up the ladder of success.
 3. Athletes could be divided into training groups to work on specific increments of the training requirements listed.
 4. Outside training could take place that teaches many of the cognitive skills of swimming.
 5. Progress charts (using simple grid charts available at teacher supply stores) could be posted showing each swimmer's progress.
 6. Athletes could develop their own checklists of skills accomplished.
 7. Weekly or monthly "graduation ceremonies" could be held as athletes fulfill requirements at different levels.
 8. As the team grows and individual athletes progress, new challenges, based on this model, could be implemented.



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Training

The workout sets listed in the training category are not intended to represent a full menu of sets for each of the energy systems. The critically important lactate tolerance sets and other anaerobic sets are not included because swimmers at any level can “keep up” with the long rest intervals. The intervals that are presented in the training category of this book represent the minimum pace that the swimmers must be able to sustain to handle the aerobic work in the next level. Needless to say, both the intervals and the length of the aerobic sets at any given level will vary throughout the season. As is the case with all of the other information presented in the book, coaches may need to modify these guidelines to suit the particular needs of their athletes and programs.

Competitive Performance

The competitive performance section is designed to allow the coach to establish a progression of times for the athlete to achieve in competition before the athlete can move to the next level. The focus is very light in the first three levels, which include the prerequisite level; performance times are introduced in level three. One of the goals in this category is to prepare the athlete for long-term development by emphasizing all four strokes, avoiding specialization until later in the athlete’s career.

The competitive times progressions are designed to dovetail into what is expected in practice performances. The times listed next for each level are used to determine the training speeds in the training category.

Biomechanics

The biomechanical progressions emphasize technique acquisition in the development of swimmers. The goal here is not to dictate how technique should be taught but to provide a step-by-step developmental time line to keep athletes advancing throughout their careers.

The levels focus on both creation of propulsion through sculling and the minimization of water drag during training and races. Both factors are critical in improving overall swimming speed.

The distance per stroke cycle (one complete cycle, e.g., right-arm entry to right-arm entry in freestyle and backstroke) is very important to proper biomechanics and must be reinforced as the swimmer progresses through the developmental levels. Research continually shows that long distance per stroke is the most important factor in elite level swimming. Monitoring an athlete’s distance per stroke cycle is the simplest, most objective tool that can be used in the field to assess biomechanical technique. Distance per stroke cycle should lengthen as technique improves.



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Physiology

A variety of physiological adaptations are required for optimal performance because events in competitive swimming range in duration from about 20 seconds up to a little less than 20 minutes. Elements of both speed and endurance have been shown to be important factors in competitive success. Thus, competitive swimmers spend a great deal of their training efforts on enhancing their physiological capacities to optimize their sprint and endurance abilities. The development of physiological systems for success must coincide with the athlete's responsiveness to the various forms of conditioning at different times during his or her growth and development. For example, it has been shown that children have a limited capacity to perform and adapt to high-intensity anaerobic work prior to puberty. Thus, a well-planned training program designed to maximize the swimmers' ultimate performance potential will avoid placing too much emphasis on this kind of physiological conditioning until the late adolescent phase of development. Instead, the focus in early childhood should be in developing the skills and aerobic endurance necessary to perform the higher-intensity training later in the swimmers' careers. The physiological progressions included in this book were designed to reflect this philosophy by introducing physiological capacities at the appropriate times of the swimmer's career. In addition, field tests of physiological capacities are recommended instead of laboratory-based tests because of the lack of access to laboratory testing by most athletes and coaches. By taking this approach, we hope to not only provide guidance to our coaches and athletes but also to equip them with tools to evaluate the athletes' progress.

Character Development and Life Skills

Many coaches support learning life skills as a major benefit of participating in a swim program. These skills include such things as championship behavior and accountability, work ethic and self-discipline, time management, and commitment and loyalty. Ten years after a swimmer has stopped swimming the items most often mentioned about his or her swimming career are in this category. In our review of swimming literature, however, we did not find much information on at what level of a swimmer's career these issues should be addressed. As in all the other categories presented, each level builds upon the previous level.

Psychology

The factors that make up the psychological domain include arousal control, concentration, self-image, self-talk, imagery and visualization, goal setting, and meet and practice behaviors.

These skills help the athlete develop the ability to focus on what he or she can control and not to worry about "uncontrollables."



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Level 1

Training Set Requirements	Competitive Performance	Biomechanical Progressions
<p>Physical</p> <ol style="list-style-type: none"> Swims 25 yards/meters of freestyle and backstroke. Starts and finishes on the wall. <p>Cognitive</p> <p>Begins to use the pace clock.</p>	None	<p>Physical</p> <ol style="list-style-type: none"> From a push maintain a prone streamlined body position, defined as one hand on top of the other, ears between the upper arms, lower body stretched long, and toes pointed. Hold this position for at least one and one-half body lengths, and be able to vary the depth of the underwater push-off. Execute a breakout from a push by holding the streamlined position; then initiate a kicking action and progress to the surface of the water with a pull to the surface. Propel forward in a prone position for at least one length of the pool. Propel forward in a supine position for at least one length of the pool. Maintain a vertical, stationary position with little or no leg movement in deep water, using a sculling motion. Stroke progressions <ol style="list-style-type: none"> Complete progressions for freestyle and backstroke. Begin to develop the butterfly and breaststroke. <p><i>Freestyle</i></p> <ol style="list-style-type: none"> Complete the legal freestyle technique using arms and legs for one length of the pool. Demonstrate shoulder and hip rolling motion during the freestyle stroke. Demonstrate the ability to comfortably take a breath on either the right or left side. <p><i>Backstroke</i></p> <ol style="list-style-type: none"> Complete the legal backstroke technique using arms and legs for one length of the pool. Demonstrate shoulder and hip rolling motion during the backstroke. <ol style="list-style-type: none"> Demonstrate proper dive from the side of the pool with a streamlined glide to the surface (follow the guidelines in the American Red Cross publication, <i>Safety Training for Swim Coaches</i>) Perform an open turn, either prone or supine, where the hand touches the wall first, the body rotates to place the feet against the wall, the body drops underwater, and the swimmer pushes off in a streamlined position. <p>Cognitive</p> <ol style="list-style-type: none"> The swimmer knows which letter of the alphabet best describes the freestyle pulling pattern. The swimmer can count up to five complete stroke cycles of freestyle. The swimmer can count up to five complete stroke cycles of backstroke.



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Physiological Progressions	Character Development & Life Skills	Psychological Skills
Physical <ol style="list-style-type: none">1. Coordinated movement patterns: swims freestyle and backstroke with legal form.2. Aerobic endurance<ol style="list-style-type: none">a. Can complete a 30-minute practice session.b. Can perform a continuous swim for five minutes.	Championship Behavior and Accountability <ol style="list-style-type: none">1.The swimmer understands that he or she is part of a team and has respect for his or her teammates.2.The swimmer listens to recommendations from the coach and tries to make the appropriate changes.3. The swimmer understands appropriate team rules and the consequences of breaking the rules. Work Ethic and Self-Discipline <ol style="list-style-type: none">1. The swimmer will pick up and put away any equipment he or she used in practice.2.The swimmer will be ready to start practice on time with the appropriate equipment (suits, goggles, etc.).3. The swimmer understands the importance of giving the coach his or her undivided attention while the coach is talking. The swimmer should focus his or her eyes on the coach and remain quiet when the coach is talking. The swimmer will also follow directions set forth by the coach in practice.4. The swimmer will "Just say no!" to drugs and other harmful substances.5.The swimmer will show respect for the facilities and equipment. Time Management The swimmer will arrive at practice sessions on time. Commitment and Team Loyalty <ol style="list-style-type: none">1.The swimmer will know the team name and team colors.2.The swimmer will know the names of teammates and coaches in his or her practice group on the team.3.The swimmer will know the name of any other training group(s) on the team besides his or her own group. (example: "age group 1," "age group 2," "senior" and "national")	Arousal Control <ol style="list-style-type: none">1. Understands and can demonstrate the difference between tense and relaxed muscles.2. Can identify past situations where both have been present. Concentration <ol style="list-style-type: none">1.Possesses a basic understanding of the concept of concentration.2.Knows the difference between focusing on what's important and what's not.



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Level 2

Training Set Requirements	Competitive Performance	Biomechanical Progressions
<p>Physical</p> <p>Can complete the following practice sets:</p> <ul style="list-style-type: none">6 x 50 Free6 x 50 Back6 x 50 Breast6 x 50 Fly6 x 50 Kick <p><i>Cognitive</i></p> <p>Accurately counts and computes distances.</p>	<p>Has participated in competitive situations for the primary purpose of skill development (i.e., time trials, intrasquad meets, dual meets, and other entry-level competitions)</p>	<p>Physical</p> <ol style="list-style-type: none">1. Execute a start from the blocks. Hold the underwater streamlined position for one and one-half body lengths, initiate a kicking action for one body length, and progress to the surface of the water with a pull.2. Execute a legal freestyle, backstroke, butterfly, and breaststroke turn, including an approach of at least 10 yards/meters.3. Stroke progression<ol style="list-style-type: none">c. Complete progressions for the butterfly and breaststroke. <p><i>Butterfly</i></p> <ol style="list-style-type: none">d. Complete one length of the pool with legal butterfly form.e. Demonstrate correct timing of the pull, kick, and breath during the butterfly.f. Demonstrate an undulating motion during the butterfly stroke. <p><i>Breaststroke</i></p> <ol style="list-style-type: none">g. Complete one length of the pool with legal breaststroke form.h. Demonstrate correct timing of the pull, kick, and breath during the breaststroke. 4. Performs 100 yards or 100 meters of individual medley with legal technique. <p>Cognitive</p> <ol style="list-style-type: none">1. From a push the swimmer counts the number of stroke cycles of freestyle, and the coach records the time for one length of the pool.2. From a push the swimmer counts the number of stroke cycles of backstroke, and the coach records the time for one length of the pool.3. From a push the swimmer counts the number of stroke cycles of butterfly, and the coach records the time for one length of the pool.4. From a push the swimmer counts the number of stroke cycles of breaststroke, and the coach records the time for one length of the pool.



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Physiological Progressions

Physical

1. Coordinated movement patterns: swims all four strokes.
2. Aerobic endurance: can perform continuous swim for 10 minutes.

Cognitive

1. The swimmer begins to understand maturation, physical development, and nutrition.
 - a. Understands and accepts individual differences in physical size within an age group.
 - b. Understands that energy for exercise is derived from nutrition.

Character Development & Life Skills

Championship Behavior and Accountability

1. The swimmer demonstrates an understanding of sportsmanship—championship behavior (e.g., doesn't throw goggles, congratulates opponents).
2. The swimmer will treat teammates, parents, and coaches like he or she would want to be treated.
3. The swimmer talks to the coach before and after each race.

Work Ethic and Self-Discipline

1. During practice the swimmer will
 - a. leave on time during sets,
 - b. start and finish at the wall,
 - c. swim the set in the prescribed manner (e.g., doesn't do freestyle on butterfly sets, doesn't pull on kicking sets, performs all turns legally), and
 - d. swim the entire set (e.g., doesn't walk on bottom, counts accurately).
2. The swimmer will communicate with his or her coach.

Time Management

1. The swimmer understands the importance of hard work in the classroom and will complete his or her homework on time.
2. The swimmer will turn in appropriate team paperwork in a timely fashion (meet entries, release forms, change of address, etc.).

Commitment and Team Loyalty

1. The swimmer will learn the history of the team.
2. The swimmer chooses a swimming hero (may be a member of his or her team) and knows the event in which the individual competed or competes.
3. The swimmer takes pride in being a member of the team, which the swimmer demonstrates by
 - a. participating in team cheers,
 - b. knowing the coaches' names, and
 - c. cheering on teammates during swims (practice or meets)

Psychological Skills

Arousal Control

1. Can describe the relationship between nervousness and performance.
2. Can describe the mind–body connection (negative thoughts lead to tight muscles lead to poor performance).

Self-Image

Understands the role of failure and the importance of learning from one's mistakes; understands that this is essential to becoming a champion.

Self-Talk

Has a general understanding of the effect that negative self-talk plays on performance (understands the concept of GIGO—garbage in, garbage out).

Mental Dimension of Training

Understands that an important part of training in swimming involves the mental dimension.

Concentration

1. Has an understanding of what to focus on and what to block out both in practice and in meets.
2. Is aware when focus leaves target and knows how to bring focus back (how to concentrate).



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Level 3

Training Set Requirements	Competitive Performance	Biomechanical Progressions
Physical Can complete the following practice sets: <div>LCM SCY</div> Ages 10 and Under 3 x 200 IM on 4:20 3:50 6 x 100 Kick on 2:20 2:10 8 x 100 Free on 2:00 1:50 <i>And any one of the following sets:</i> 12 x 100 Free on 1:55 1:45 6 x 100 Fly on 2:20 2:10 12 x 100 Back on 2:10 2:00 12 x 100 Breast on 2:20 2:10 Ages 11-12 4 x 200 IM on 4:10 3:45 7 x 100 Kick on 2:20 2:10 10 x 100 Free on 1:50 1:40 <i>And any one of the following sets:</i> 16 x 100 Free on 1:45 1:35 9 x 100 Fly on 2:10 2:00 16 x 100 Back on 2:00 1:50 16 x 100 Breast on 2:10 2:00 Ages 13 and over 6 x 200 IM on 4:00 3:40 8 x 100 Kick on 2:20 2:10 12 x 100 Free on 1:45 1:35 <i>And any one of the following sets:</i> 16 x 100 Free on 1:35 1:25 12 x 100 Fly on 2:00 1:50 16 x 100 Back on 1:50 1:40 16 x 100 Breast on 2:00 1:50	Has competed in all the events offered in his or her age group and has met all of the following time standards (in yards or meters) in a Sanctioned USA Swimming Meet. <div>LCM SCY</div> 100 Free 1:20 1:10 100 Back 1:35 1:25 100 Breast 1:50 1:35 100 Fly 1:40 1:25 200 IM 3:20 2:55	Physical Perform a legal 200 individual medley swim Cognitive 1. Complete one length of freestyle holding the same time or faster but using at least one less stroke cycle than in level 2. 2. Complete one length of backstroke holding the same time or faster but using at least one less stroke cycle than in level 2. 3. Complete one length of butterfly holding the same time or faster but using at least one less stroke cycle than in level 2. 4. Complete one length of breaststroke holding the same time or faster but using at least one less stroke cycle than in level 2.



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Physiological Progressions

Physical

1. Coordinated movement patterns: swims all four strokes with legal form.
2. Aerobic endurance: performs T30 or other threshold set one time per season.

Cognitive

1. Swimmer understands maturation and physical development: begins to understand relationship between training programs, maturation, and physical development.
2. Swimmer understands the purpose of heart rate measurement.
3. The swimmer can measure his or her own resting and exercise heart rate.
4. The swimmer understands the importance of muscular flexibility in swimming performance.

Character Development & Life Skills

Championship Behavior and Accountability

The swimmer will demonstrate a higher level of sportsmanship—championship behavior than in level 2 (e.g., respects competitors and gets along with friends regardless of ability level).

Work Ethic and Self-Discipline

1. The swimmer attends the recommended meets and understands the importance of being on time for meet warm-ups.
2. The swimmer will meet the established attendance requirements.
3. The swimmer will understand why he or she must “Just say no!” to drugs and other harmful substances.
4. The swimmer will learn to challenge him- or herself to perform to the utmost of his or her ability in practice.

Time Management

The swimmer demonstrates an ability to balance school and outside activities.

Commitment and Loyalty

The swimmer chooses a national swimming hero and knows the event in which he or she competed or competes.

Psychological Skills

Arousal Control

1. Understands the relationship between relaxation and performance.
2. Knows the three levels of nervousness (too little, just right, too much).
3. Can perform diaphragmatic (belly) breathing as relaxation technique.
4. Understands that stress comes from negative self-talk and faulty focus of concentration.
5. Understands the concept of “UC’s,” or uncontrollables, as a major source of stress.

Self-Talk

1. Understands the benefits of and uses positive self-talk and affirmations.
2. Closely monitors negative self-talk.

Concentration

Understands the importance of concentration in practice and meets and can regularly recognize a faulty focus and bring self back to a proper focus.

Goal Setting

Understands the value of setting goals to improve performance.

Self-Image

1. Is able to accept criticism from the coach.
2. Understands that criticism is a critique of skills not a critique of an individual.



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Level 4

Training Set Requirements	Competitive Performance	Biomechanical Progressions																																																						
Physical Can complete the following practice sets: <table> <tr> <th></th><th>LCM</th><th>SCY</th></tr> <tr> <td>6 x 200 IM on</td><td>3:40</td><td>3:20</td></tr> <tr> <td>8 x 100 Kick on</td><td>2:10</td><td>2:00</td></tr> <tr> <td>16 x 100 Free on</td><td>1:40</td><td>1:30</td></tr> </table> And any one of the following sets: <table> <tr> <td>20 x 100 Free on</td><td>1:30</td><td>1:20</td></tr> <tr> <td>20 x 100 Back on</td><td>1:40</td><td>1:30</td></tr> <tr> <td>20 x 100 Breast on</td><td>1:50</td><td>1:40</td></tr> <tr> <td>20 x 100 Fly on</td><td>1:40</td><td>1:30</td></tr> </table>		LCM	SCY	6 x 200 IM on	3:40	3:20	8 x 100 Kick on	2:10	2:00	16 x 100 Free on	1:40	1:30	20 x 100 Free on	1:30	1:20	20 x 100 Back on	1:40	1:30	20 x 100 Breast on	1:50	1:40	20 x 100 Fly on	1:40	1:30	Has competed in all the events offered in his or her age group and has met all of the following time standards (in yards or meters) in a Sanctioned USA Swimming Meet. <table> <tr> <th></th><th>LCM</th><th>SCY</th></tr> <tr> <td>100 Free</td><td>1:15</td><td>1:05</td></tr> <tr> <td>200 Free</td><td>2:40</td><td>2:20</td></tr> <tr> <td>400 Free</td><td>5:20</td><td>6:00</td></tr> <tr> <td>800/1000 Free</td><td>10:40</td><td>12:00</td></tr> <tr> <td>1500/1650 Free</td><td>20:00</td><td>19:15</td></tr> <tr> <td>100 Back</td><td>1:25</td><td>1:15</td></tr> <tr> <td>100 Breast</td><td>1:35</td><td>1:25</td></tr> <tr> <td>100 Fly</td><td>1:25</td><td>1:15</td></tr> <tr> <td>200 IM</td><td>3:00</td><td>2:40</td></tr> </table>		LCM	SCY	100 Free	1:15	1:05	200 Free	2:40	2:20	400 Free	5:20	6:00	800/1000 Free	10:40	12:00	1500/1650 Free	20:00	19:15	100 Back	1:25	1:15	100 Breast	1:35	1:25	100 Fly	1:25	1:15	200 IM	3:00	2:40	Physical <ol style="list-style-type: none"> 1. Complete one length of each stroke holding the same time or faster but using fewer stroke cycles than in level 3. 2. Maintain consistent stroke rates and times in training sets. Cognitive <ol style="list-style-type: none"> 3. The swimmer understands the relationship between distance per stroke, stroke rate, and swimming speed. 4. The swimmer can name two ways to minimize resistance or drag from the water. 5. The swimmer can explain one reason why sculling is important in creating propulsion.
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Physiological Progressions

Physical

Aerobic endurance: swims a T30 or other threshold set two times per season with improvement.

Cognitive

1. The swimmer understands the concept of a balanced diet and basic fuels used during swimming training.
2. The swimmer begins to understand the basics of different energy system usage in sprinting versus distance swimming.
3. The swimmer can use heart rate measurement to monitor exercise intensity and recovery.

Character Development & Life Skills

Championship Behavior and Accountability

The swimmer will know the names of competitors.

Work Ethic and Self-Discipline

1. The swimmer is not influenced by the negative behavior of his or her teammates.
2. The swimmer understands and takes responsibility for attendance, performance, and habits in practice and how these three relate to meet performance.

Psychological Skills

Arousal Control

1. Can combine self-talk and slow breathing for arousal control.
2. Has a clear awareness of personal stressors (UCs).
3. Is capable of performing progressive muscle relaxation.
4. Recognizes that arousal can negatively affect mind and body.
5. Knows techniques to control mind (positive self-talk and imagery) and body (deep breathing, progressive muscle relaxation).

Imagery and Visualization

1. Understands the importance of imagery in enhancing performance.
2. Knows the principles behind effective imagery practice.
3. Can perform basic visualization skills.

Concentration

Can quickly return concentration focus in practice and in meets from uncontrollables to appropriate focus.

Goal Setting

1. Understands the principles of effective goal setting.
2. Beginning to set goals for the entire season.

Self-Talk

Knows at least one technique for handling negative self-talk.



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Level 5

Training Set Requirements	Competitive Performance	Biomechanical Progressions																								
Physical Can complete the following practice sets: <table><tr><td></td><td>LCM</td><td>SCY</td></tr><tr><td>4 x 400 IM on</td><td>6:40</td><td>6:00</td></tr><tr><td>12 x 100 Kick on</td><td>2:00</td><td>1:50</td></tr><tr><td>24 x 100 Free on</td><td>1:30</td><td>1:20</td></tr></table> <i>And any one of the following sets:</i> <table><tr><td>24 x 100 Free on</td><td>1:20</td><td>1:10</td></tr><tr><td>24 x 100 Back on</td><td>1:30</td><td>1:20</td></tr><tr><td>24 x 100 Breast on</td><td>1:40</td><td>1:30</td></tr><tr><td>24 x 100 Fly on</td><td>1:30</td><td>1:20</td></tr></table>		LCM	SCY	4 x 400 IM on	6:40	6:00	12 x 100 Kick on	2:00	1:50	24 x 100 Free on	1:30	1:20	24 x 100 Free on	1:20	1:10	24 x 100 Back on	1:30	1:20	24 x 100 Breast on	1:40	1:30	24 x 100 Fly on	1:30	1:20	Must achieve at least one National Age Group AA or AAA time standard from the National Age Group Motivational Time Standards, (See current <i>USA Swimming Rules & Regulations</i> for time standards, or check the USA Swimming Web site .	Physical Perform a 400 individual medley swim with correct transitions between strokes. Cognitive The swimmer, with the assistance of his or her coach, can calculate swimming speed, distance per stroke, and stroke rate during competition and training.
	LCM	SCY																								
4 x 400 IM on	6:40	6:00																								
12 x 100 Kick on	2:00	1:50																								
24 x 100 Free on	1:30	1:20																								
24 x 100 Free on	1:20	1:10																								
24 x 100 Back on	1:30	1:20																								
24 x 100 Breast on	1:40	1:30																								
24 x 100 Fly on	1:30	1:20																								



FOUNDATIONS OF *Coaching*

Physiological Progressions

Physical

1. Muscular strength and endurance: can perform sit-ups, push-ups, and pull-ups (chin-ups).
2. Aerobic endurance: swims a T30 or other threshold set three times per season with continuous improvement.
3. Sprint capacity/CP system: swims 12 x 25 doing 3 butterfly, 3 backstroke, 3 breaststroke and 3 freestyle on 3:00 (three per stroke) at maximum velocity three times per season.

Cognitive

1. The swimmer understands energy systems: can explain aerobic and anaerobic systems of energy delivery.
2. The swimmer understands nutritional requirements of training and competition: demonstrates understanding of basic nutrition principles, fuels for swimming performance, training diets, hydration, RDAs for swimmers, and the importance of eating a balanced diet.
3. The swimmer demonstrates understanding of the relationship between training programs and maturation and development and their effects on competitive and training performance.
4. The swimmer understands how to use heart rate measurement to monitor training progress.

Character Development & Life Skills

Championship Behavior and Accountability

The swimmer accepts the responsibility of being a leader and/or role model. The swimmer will lead by being a positive example.

Work Ethic and Self-Discipline

1. The swimmer will be able to explain the rationale of the five categories of banned substances.
2. The swimmer will demonstrate an understanding of the short- and long-term effects of performance-enhancing drugs.

Time Management

The swimmer has mastered time management skills so outside activities do not interfere with practice and meet attendance.

Commitment and Team Loyalty

1. The swimmer understands the need to sacrifice self-interest for team goals.
2. The swimmer demonstrates commitment to his or her team by continued dedicated membership.

Psychological Skills

Arousal Control

1. Demonstrates an understanding of the individual zones of optimal functioning (IZOF) concept.
2. Can identify (personal) optimal zone of performance both in practice and competition.
3. Understands personal signs of under- or overarousal ("not enough" or "too much" nervousness).
4. Skilled in two or more arousal control techniques (see glossary in part I).

Imagery and Visualization

Can visualize a race from start to finish. Can control the image so vision matches actual performance.

Concentration

1. Develops a pre-race ritual or routine.
2. Develops race focal points for concentration.

Self-Image

1. Realizes that positive comments help reduce stress, build confidence, and can increase the enjoyment of competition and practice.
2. Understands the damage of negative self-talk to self-esteem, performance, and the enjoyment of the sport.

Goal Setting

1. Has developed a long-range goal within the sport.
2. Develops short-term and intermediate goals that ultimately tie into long-range goals.

Meet and Practice Behavior

1. Understands the effect of posture and actions on emotions.
2. Uses the "Act as if" strategy as a fallback position.



FOUNDATIONS OF *Coaching*

Level 6

Training Set Requirements	Competitive Performance	Biomechanical Progressions
Physical Can complete the following practice sets: <div>LCM</div> <div>4 x 400 IM on 6:20</div> <div>12 x 100 Kick on 1:55</div> <div>24 x 100 Free on 1:25</div> And any one of the following sets: <div>24 x 100 Free on 1:15</div> <div>24 x 100 Back on 1:25</div> <div>24 x 100 Breast on 1:35</div> <div>24 x 100 Fly on 1:25</div>	Has attained a Junior Championship Time Standard in one or more individual events. (See current <i>USA Swimming Rules & Regulations</i> for time standards, or check the USA Swimming Web site .	Physical 1. Continue to decrease the number of stroke cycles, or swim faster with the same number of cycles. 2. Decrease the number of cycles per length during competition. Cognitive The swimmer can calculate swimming speed, distance per stroke, and stroke rate.



FOUNDATIONS OF *Coaching*

Physiological Progressions

Physical

1. Muscular strength and endurance: can perform sit-ups, push-ups, and pull-ups (chin-ups) with improvement from previous level.
2. Aerobic endurance: performs T30 or other threshold set three times per season with continuous improvement.
3. Lactate tolerance: performs a set of 12 x 100 (or until failure) on 2:30 holding current best 200 pace (2nd 100 split) three times per season with continuous improvement.
4. Sprint capacity/CP system: performs 12 x 25 on 3:00 (specialty stroke) at maximum velocity.

Cognitive

1. The swimmer demonstrates knowledge of energy systems.
 - a. Can describe the relationship between training sets and energy systems.
 - b. Demonstrates an understanding of training periodization.
2. The swimmer understands nutritional requirements of training and competition.

Character Development & Life Skills

Championship Behavior and Accountability

The swimmer accepts the responsibility of being a leader and/or role model. The swimmer will lead by being a positive example.

Work Ethic and Self-Discipline

1. The swimmer will be able to explain the rationale of the five categories of banned substances.
2. The swimmer will demonstrate an understanding of the short- and long-term effects of performance-enhancing drugs.

Time Management

The swimmer has mastered time management skills so outside activities do not interfere with practice and meet attendance.

Commitment and Team Loyalty

1. The swimmer understands the need to sacrifice self-interest for team goals.
2. The swimmer demonstrates commitment to his or her team by continued dedicated membership.

Psychological Skills

Arousal Control

1. Demonstrates an understanding of factors that arouse and relax the athlete.
2. Utilizes relaxation techniques under meet duress to perform optimally.
3. Maintains optimum relaxation level ("good nervousness"), regardless of uncontrollables.
4. Learns to utilize imagery skills to manage competitive stress.

Imagery and Visualization

Through instruction is able to visualize a race from start to finish in complete detail (seeing, hearing, and feeling).

Self-Image and Goal Setting

Can use ultimate goal in sport to maintain intensity and work ethic in practice.

Concentration

1. Demonstrates an ability to rebound quickly from mistakes and failures.
2. Able to successfully use pre-race routines and control focal points to maintain concentration during a race.
3. Consistently swims "in own lane" in practice and meets.

Self-Talk

Able to positively reframe uncontrollables and adversity to enhance confidence.



FOUNDATIONS OF *Coaching*

Level 7

Training Set Requirements	Competitive Performance	Biomechanical Progressions
Physical Can complete the following practice sets: LCM 4 x 400 IM on 6:00 12 x 100 Kick on 1:50 24 x 100 Free on 1:20 And any one of the following sets: 24 x 100 Free on 1:12 (women) 1:08 (men) 24 x 100 Back on 1:20 (women) 1:15 (men) 24 x 100 Brst on 1:30 (women) 1:25 (men) 24 x 100 Fly on 1:20 (women) 1:15 (men)	Has attained a National Championship Time Standard in one or more individual events. (See current <i>USA Swimming Rules & Regulations</i> for time standards, or check the USA Swimming Web site .)	Physical Continue to improve distance per stroke and/or swimming speed during competition and training.



FOUNDATIONS OF *Coaching*

Physiological Progressions

Physical

1. Muscular strength and endurance: demonstrates improvement in muscular endurance (stroke specific).
2. Aerobic endurance: performs a T30 or other threshold set three times per season with continuous improvement.
3. Lactate tolerance: performs a set of 12 x 100 (or until failure) on 2:30 holding current best 200 pace (2nd 100 split) three times per season with continuous improvement.
4. Sprint capacity/CP system: performs 12 x 25m on 3:00 (specialty stroke) at maximum velocity three times per season with continuous improvement.

Cognitive

1. The swimmer demonstrates knowledge of energy systems.
 - a. Demonstrates knowledge of personal training velocities for each training category.
 - b. Can discuss training needs based on test-set results.
2. The swimmer develops and understands nutritional plan for training and competition.

Character Development & Life Skills

Championship Behavior and Accountability

1. The swimmer demonstrates leadership responsibilities by working with younger swimmers (e.g., talking with them, water work).
2. The swimmer understands the importance of seasonal, yearly, and quadrennial planning and the consistency of the plan within each of the cycles.
3. The swimmer will recognize the effects of poor communication.

Work Ethic and Self-Discipline

1. The swimmer takes pride in doing the little things well and goes beyond the call of duty.
2. The swimmer demonstrates self-motivation.
3. The swimmer demonstrates an understanding and willingness to participate in drug-testing procedures.

Psychological Skills

Arousal Control

1. Skilled at managing competitive pressure (uses relaxation techniques pre-race).
2. Maintains perspective before big meets and can have fun in big competitions.
3. Aware of tension in muscles and can relax them on cue as needed.
4. Develops and uses relaxation cues preperformance to maintain arousal control.

Imagery and Visualization

1. Can successfully utilize coping imagery for mastering stress.
2. Is able to create more vivid images in mind's eye.
3. Has developed control of internal images and can turn negatives into positives.
4. Can assess past races to develop peak performance cue.

Self-Image

1. Able to keep racing and swimming in perspective.
2. Does not tie up self-image in swim results.

Race Mentality

1. Understands that swimming fast is about not thinking.
2. Develops a sense of trust in self and abilities pre-race.
3. Learns to let the fast swim happen.

Goal Setting

1. Can utilize ultimate goal to persevere in the face of setbacks, obstacles, and losses.
2. Completely intrinsically driven.



FOUNDATIONS OF *Coaching*

Level 8

Training Set Requirements	Competitive Performance	Biomechanical Progressions
Physical Can complete the following practice sets: <div><div>LCM</div><div>4 x 400 IM on 5:40</div><div>12 x 100 Kick on 1:45</div><div>24 x 100 Free on 1:15</div></div>	Ranked among the Top 8 fastest swimmers in the world or a member of the USA Olympic Team	Physical Continue to improve distance per stroke and/or swimming speed during competition and training.



FOUNDATIONS OF *Coaching*

Physiological Progressions

Physical

1. Muscular strength and endurance:
 - a. Demonstrates maintenance of muscular strength.
 - b. Demonstrates improvement in stroke-specific muscular endurance.
2. Aerobic endurance: performs a T30 or other threshold set three times per season with continuous improvement.
3. Lactate tolerance: demonstrates ability to perform a set of 12 x 100 (or until failure) on 2:30 holding current best 200 pace (2nd 100 split) three times per season with continuous improvement.
4. Sprint capacity/CP system: performs 12 x 25m on 3:00 (specialty stroke) at maximum velocity three times per season with continuous improvement.

Cognitive

1. The swimmer understands the nutritional requirements of training and competition; he or she demonstrates the ability to apply nutritional information to daily living.

Character Development & Life Skills

Championship Behavior and Accountability

1. The swimmer understands the relationship of seasonal, yearly, and quadrennial planning and works with the coach in establishing priorities.
2. The swimmer recognizes the importance of communicating with the media.
3. The swimmer accepts and appreciates the responsibility and benefits of being an ambassador of swimming by participating in public speaking, interviews, autograph sessions, etc.

Work Ethic and Self-Discipline

1. The swimmer demonstrates consistent, high-quality performance in training.
2. The swimmer can manage setbacks so they don't interfere with long-range goals.
3. The swimmer submits to drug testing without refusal.
4. The swimmer will consistently make choices that positively affect training performance.
5. The swimmer will actively participate in antidrug programs (e.g., leading by example, public speaking)

Psychological Skills

Arousal Control

1. Can raise or lower arousal control as needed before a competition.
2. Has developed own personal coping style integrating a number of relaxation techniques.
3. Can effectively handle national and international level pressure.
4. Has developed awareness of competitors' arousal level without being distracted.
5. Relaxation techniques perfected and utilized automatically as needed.

Imagery and Visualization

1. Able to utilize peak performance cues before races.
2. Displays ability to mentally rehearse in vivid detail and with imagery control.
3. Utilizes both mastery and coping imagery as needed.
4. Visualization skills perfected and used automatically as needed.

Self-Talk

1. Has the ability to swim fast despite the presence of last-second negative self-talk.
2. Can put self on "automatic" and quiet inner dialogue when racing.

Self-Image

1. Has developed inner sense of well-being from personal and athletic development.
2. Has a fully developed sense of mental toughness.

Concentration

1. Skill refined to "tunnel vision" as needed in practice and competition.
2. In total control of eyes and ears in terms of concentration.



FOUNDATIONS OF *Coaching*

Developmental Characteristics of Children Aged Five through Twelve

Five Year Olds:

Physical

- a) Boy's height 42-46 inches; weight, 38-49 pounds.; girls' height, 42-46 inches; weight, 36-48 pounds.
- b) May grow 2-3 inches and gain from 3-6 lbs. During the year.
- c) Girls may be about a year ahead of boys in physiological development.
- d) Beginning to have better control of body.
- e) The large muscles are better developed than the small muscles that control the fingers and hands.
- f) Usually determined whether he or she will be right or left-handed.
- g) Eye and hand coordination is not complete.
- h) May have farsighted vision.
- i) Vigorous and noisy, but activity appears to have definite direction.
- j) Tires easily and needs plenty of rest.

Social

- a) Interested in neighborhood games that involve any number of children.
- b) Plays various games to test his skill.
- c) Enjoys other children and like to be with them.
- d) Interests are largely self-centered.
- e) Seems to get along best in small groups.
- f) Shows an interest in home activities.
- g) Imitates when he plays.
- h) Gets along well in taking turns.
- i) Respects the belongings of other people.

Emotional

- a) Seldom shows jealousy toward younger siblings.
- b) Usually sees only one way to do a thing.
- c) Usually sees only one answer to a question.
- d) Inclined not to change plans in the middle of an activity, but would rather begin over.
- e) May fear being deprived of mother.
- f) Some definite personality traits evidenced.
- g) Is learning to get along better, but still may resort to quarreling and fighting.
- h) Likes to be trusted with errands.
- i) Wants to please and do what is expected of him.
- j) Is beginning to sense right and wrong in terms of specific situations.

Intellectual

- a) Enjoys copying designs, letters, and numbers.
- b) Interested in completing tasks.
- c) May tend to monopolize table conversation.
- d) Memory for past events good.
- e) Looks at books and pretends to read.
- f) Likes recordings, words, and music that tell a story.
- g) Enjoys counting objects.
- h) Over 2,000 words in speaking vocabulary.
- i) Can speak in complete sentences.
- j) Can sing simple melodies, beat good rhythms, and recognized simple tunes.
- k) Daydreams seem to center around make-believe play.



FOUNDATIONS OF *Coaching*

- l) Attention span increasing up to 20 minutes in some cases.
- m) Is able to plan activities.
- n) Enjoys stories, dramatic plays, and poems.
- o) Enjoys making up dances to music.
- p) Pronunciation is usually clear.
- q) Can express needs well in words.



FOUNDATIONS OF *Coaching*

Six Year Olds:

Physical

- a) Boy's height, 44-48 inches; weight 41-54 pounds; girls' height, 43-48 inches; weight, 40-53 pounds.
- b) Growth is gradual in weight and height.
- c) Good supply of energy.
- d) Marked activity urge absorbs the child in running, jumping, chasing and dodging games.
- e) Muscular control becoming more effective with large objects.
- f) There is a noticeable change in the eye-hand behavior.
- g) Legs lengthening rapidly.
- h) Big muscles crave activity.

Social

- a) Self-centered and has need for praise.
- b) Likes to be first.
- c) Indifferent to sex distinction.
- d) Enjoys group play when groups tend to be small.
- e) Likes parties but behavior may not always be decorous.
- f) The majority enjoys school associations and has a desire to learn.
- g) Boys like to fight and wrestle with peers to prove masculinity.
- h) Shows and interest in group approval.

Emotional

- a) Restless and may have difficulty in making decisions.
- b) Emotional pattern of anger may be difficult to control at times.
- c) Behavior patterns may often be explosive and unpredictable.
- d) Jealousy toward siblings at times; at other times takes pride in siblings.
- e) Greatly excited by anything new.
- f) Behavior susceptible to shifts in direction, inwardly motivated, and outwardly stimulated.
- g) May be self-assertive and dramatic.

Intellectual

- a) Speaking vocabulary of over 2,500 words.
- b) Interest span inclined to be short.
- c) Knows number combinations up to ten.
- d) Knows comparative values of the common coins.
- e) Can define objects in terms of what they are used for.
- f) Knows right and left side of body.
- g) Has an association with creative activity and motorized life experience.
- h) Drawings are crude but realistic and suggestive of early man.
- i) Will contribute to guided group planning.
- j) Conversation usually concerns own experience and interests.
- k) Curiosity is active and memory is strong.
- l) Identifies with imaginary characters.



FOUNDATIONS OF *Coaching*

7 Year Olds:

Physical

- a) Boys' height, 46-51 inches; weight, 45-60 pounds; girls' height, 46-50 inches; weight, 44-59 pounds.
- b) Big muscle activity predominates in interest and value.
- c) More improvement in eye-hand coordination.
- d) May grow two to three inches and gain three to five pounds weight during the year.
- e) Tires easily and shows fatigue in the afternoon.
- f) Has slow reaction time.
- g) Heart and lungs are smallest in proportion to body size.
- h) General health may be precarious, with susceptibility to disease high and resistance low.
- i) Endurance relatively low.
- j) Coordination is improving with throwing, and catching becoming more accurate.
- k) Whole-body movements are under better control.
- l) Small accessory muscles developing
- m) Displays amazing amounts of vitality.

Social

- a) Wants recognition for individual achievements.
- b) Sex differences are not of great importance.
- c) Not always a good loser.
- d) Conversation often centers around family.
- e) Learning to stand up for own rights.
- f) Interested in friends and is not influenced by their social or economic status.
- g) May have nervous habits such as nail biting, tongue sucking, scratching or pulling at ear.
- h) Attaining orientation in time.
- i) Gets greater enjoyment from group play.
- j) Shows greater signs of cooperative efforts.

Emotional

- a) Curiosity and creative desires may condition responses.
- b) May be difficult to take criticism from adults.
- c) Wants to be more independent.
- d) Reaching for new experiences and trying to relate himself to enlarged world.
- e) Overanxious to reach goals set by parents and teachers.
- f) Critical of himself and sensitive to failure.
- g) Emotional pattern of anger is more controlled.
- h) Becoming less impulsive and boisterous in actions than at six.

Intellectual

- a) Abstract thinking is barely beginning.
- b) Is able to listen longer.
- c) Reads some books by himself.
- d) Is able to reason, but has little experience upon which to base judgments.
- e) The attention span is still short and retention poor, but does not object to repetition.
- f) Reaction time is still slow.
- g) Learning to evaluate the achievements of self and others.
- h) Concerned with own lack of skill and achievement.
- i) Becoming more realistic and less imaginative.



FOUNDATIONS OF *Coaching*

8 Year Olds:

Physical

- a) Boys' height, 48-53 inches; weight, 49-70 pounds; girls' height, 48-52 inches; weight, 47-66 pounds.
- b) Interested in games requiring coordination of small muscles.
- c) Arms are lengthening and hands are growing larger.
- d) Eyes can accommodate more easily.
- e) Some develop poor posture.
- f) Accidents appear to occur more frequently at this age.
- g) Appreciates correct skill performance.

Social

- a) Girls are careful of their clothes, but boys are not.
- b) Leaves many things uncompleted.
- c) Has special friends.
- d) Has longer periods of peaceful play.
- e) Does not like playing alone.
- f) Enjoys dramatizing.
- g) Starts collections.
- h) Enjoys school and dislikes staying home.
- i) Likes variety.
- j) Recognition of property rights is well established.
- k) Responds well to group activity.
- l) Interest will focus on friends of own sex.
- m) Beginning of the desire to become a member of a club.

Emotional

- a) Dislikes taking much criticism from adults.
- b) Can give and take criticism in his own group.
- c) May develop enemies.
- d) Does not like to be treated as a child.
- e) Has a marked sense of humor.
- f) First impulse is to blame others.
- g) Becoming more realistic and wants to find out for himself.

Intellectual

- a) Can tell day of month and year.
- b) Voluntary attention span increasing.
- c) Interested in far-off places, and ways of communication now have real meaning.
- d) Becoming more aware of adult world and his place in it.
- e) Ready to tackle almost anything.
- f) Shows a capacity for self-evaluation.
- g) Like to memorize.
- h) Not always too good at telling time, but very much aware of it.



FOUNDATIONS OF *Coaching*

9 Year Olds:

Physical

- a) Boys' height, 50-55 inches; weight, 55-74 pounds; girls' height 50-54 inches; weight, 52-74 pounds.
- b) Increasing strength in arms, hands and fingers.
- c) Endurance improving.
- d) Needs and enjoys much activity; boys like to shout, wrestle, and tussle with each other.
- e) A few girls near puberty.
- f) Girls gaining growth maturity up to two years over boys.
- g) Girls enjoy active group games, but are usually less noisy and less full of spontaneous energy than boys.
- h) Likely to slouch and assume unusual postures.
- i) Eyes are much better developed and are able to accommodate close work with less strain.
- j) May tend to over-exercise.
- k) Sex differences appear in recreational activities.
- l) Interested in own body and wants to have questions answered.

Social

- a) Want to be like others, talk like others, and look like them.
- b) Girls are becoming more interested in their clothes.
- c) Is generally a conformist and may be afraid of that which is different.
- d) Able to be on his own.
- e) Able to be fairly responsible and dependable.
- f) Some firm and loyal friendships may develop.
- g) Increasing development of qualities of leadership and follow ship.
- h) Increasing interest in activities involving challenges and adventure.
- i) Increasing participation in varied and organized group activities.

Emotional

- a) May sometimes be outspoken and critical of the adults he knows, although he has a genuine fondness for them.
- b) Responds best to adults who treat him as an individual and approach him in an adult way.
- c) Likes recognition for what he has done and responds well to deserved praise.
- d) Likely to be backward about public recognition, but likes private praise.
- e) Developing sympathy and loyalty to others.
- f) Does not mind criticism or punishment if he thinks it is fair, but is indignant if he thinks it is unfair.
- g) Disdainful of danger to and safety of himself, which may be a result of increasing interest in activities involving challenges and adventure.

Intellectual

- a) Individual differences are clear and distinct.
- b) Some real interests are beginning to develop.
- c) Beginning to have a strong sense of right and wrong.
- d) Understands explanations.
- e) Interests are closer to ten- or eleven-year-olds than to seven- or eight-year-olds.
- f) As soon as a project fails to hold interest, it may dropped without further thought.
- g) Attention span is greatly increased.
- h) Seems to be guided best by a reason, simple and clear cut, for a decision that needs to be made.
- i) Ready to learn from occasional failure of his judgment as long as learning takes place in situations where failure will not have too serious consequences.
- j) Able to make up own minds and come to decisions.
- k) Marked reading disabilities begin to be more evident and may tend to influence the personality.
- l) Range of interest in reading in that many are great readers while others may be barely interested in books.
- m) Will average between six and seven words per remark.



FOUNDATIONS OF *Coaching*

10 Year Olds:

Physical

- a) Boys' height, 52-57 inches; weight, 59-82 pounds; girls' height, 52-57 inches; weight 57-83 pounds.
- b) Individuality is well-defined, and insights are more mature.
- c) Stability in growth rate and stability of physiological processes.
- d) Physically active and likes to rush around and be busy.
- e) Before the onset of puberty there is usually a resting period or plateau, during which the boy or girl does not appear to gain in either height or weight.
- f) Interested in the development of more skills.
- g) Reaction time is improving.
- h) Muscular strength does not seem to keep pace with growth.
- i) Refining and elaborating skill in the use of small muscles.

Social

- a) Begins to recognize the fallibility of adults.
- b) Moving more into a peer-centered society.
- c) Both boys and girls are amazingly self-dependent.
- d) Self-reliance has grown and at the same time intensified groups feelings are required.
- e) Divergence between the two sexes is widening.
- f) Great team loyalties are developing.
- g) Beginning to identify with one's social contemporaries of the same sex.
- h) Relatively easy to appeal to his reason.
- i) On the whole, he has a fairly critical sense of justice.
- j) Boys show their friendship with other boys by wrestling and jostling with each other, while girls walk around with arms around each other as friends.
- k) Interest in people, in the community, and affairs of the world is keen.
- l) Interested in social problems in an elementary way and likes to take part in discussions.

Emotional

- a) Increasing tendency to rebel against adult domination.
- b) Capable of loyalties and hero worship and he can inspire it in his school mates.
- c) Can be readily inspired to group loyalties in his club organization.
- d) Likes the sense of solidarity that comes from keeping a group secret as a member of a group.
- e) Each sex has an increasing tendency to show lack of sympathy and understanding with the other.
- f) Boys' and girls' behavior and interest becoming increasingly different.

Intellectual

- a) Works with executive speed and likes the challenge of mathematics.
- b) Shows a capacity to budget time and energy.
- c) Can attend to a visual task and at the same time maintain conversation.
- d) Some become discouraged and may give up trying when unsuccessful.
- e) The attention span has lengthened considerably, with the child able to listen and to follow directions and retain knowledge more easily.
- f) Beginning understanding of real causal relations.
- g) Making finer conceptual distinctions and thinking reflectively.
- h) Developing a scientific approach.
- i) Better oriented with respect to time.
- j) Ready to plan his day and accept responsibility for getting things done on time.



FOUNDATIONS OF *Coaching*

11 Year Olds:

Physical

- a) Boys' height, 53-58 inches; weight 64-91 pounds; girls' height, 53-59 inches; weight 64-95 pounds.
- b) Marked changes in muscle system causing awkwardness and habits sometimes distressing to the child.
- c) Shows fatigue more easily.
- d) Some girls and a few boys suddenly show rapid growth and evidence of the approach of adolescence.
- e) On the average, girls may be taller and heavier than the boys.
- f) Uneven growth of different parts of the body.
- g) Rapid growth may result in laziness of the lateral type of child and fatigue and irritability in the linear type.
- h) Willing to work hard at acquiring physical skills, and emphasis is on excellence of performance of physical feats.
- i) Boys are more active and rough in games than girls.
- j) Eye-hand coordination is well developed.
- k) Bodily growth is more rapid than heart growth, and lungs are not fully developed.
- l) Boys develop greater power in shoulder girdle muscles.

Social

- a) Internal guiding standards have been set up, and although guided by what is done by other children, he will modify his behavior in line with those standards already set up.
- b) Does a number of socially acceptable things, not because they are right or wrong.
- c) Although obsessed by standards of peers, he is anxious for social approval of adults.
- d) Need for social companionship of children their own age.
- e) Liking for organized games becoming more prominent.
- f) Girls are likely to be self-conscious in the presence of boys and are usually much more mature than boys.
- g) Team spirit is very strong.
- h) Boys' and girls' interests are not always the same, and there may be some antagonism between the sexes.
- i) Often engages in silly behavior, such as giggling and clowning.
- j) Girls are more interested in social appearance than boys.

Emotional

- a) If unskilled in group games and game skills, he may tend to withdraw.
- b) Boys may be concerned if they feel they are underdeveloped.
- c) May appear to be indifferent and uncooperative.
- d) Moods change quickly.
- e) Wants to grow up, but may be afraid to leave childhood security behind.
- f) Increase in self-direction and in a serious attitude toward work.
- g) Need for approval to feel secure.
- h) Beginning to have a fully developed idea of own importance.

Intellectual

- a) Increasing power of attention.
- b) Able to maintain a longer period of intellectual activity between firsthand experiences.
- c) Interested in scientific experiments and procedures.
- d) Can carry on any individual intellectual responsibilities.
- e) Able to discuss problems and to see different sides of questions.
- f) May lack maturity of judgment.
- g) Increased language facility.
- h) Attention span is increasing, and concentration may be given to a task for a long period of time.
- i) Level of aspiration has increased.
- j) Growing in ability to use several facts to make a decision.
- k) Insight into causal relationships is developing more and is manifested by many how and why questions.



FOUNDATIONS OF *Coaching*

12 Year Olds:

Physical

- a) Boys' height, 55-61 inches; weight 70-101 pounds; girls' height, 56-62 inches; weight 72-107 pounds.
- b) Becoming more skillful in the use of small muscles.
- c) May be relatively little body change in some cases.
- d) Ten hours of sleep is considered average.
- e) Heart rate at rest is between 80 and 90.

Social

- a) Increasing identification of self with other children of own sex.
- b) Increasing recognition of fallibility of adults.
- c) May see himself as a child and adults as adults.
- d) Getting ready to make the difficult transition to adolescence.
- e) Pressure is being placed on individual at this level to begin to assume adult responsibilities.

Emotional

- a) Beginning to develop a truer picture of morality.
- b) Clearer understanding of real causal relations.
- c) The process of sexual maturation involves structured and physiological changes with possible perplexing and disturbing emotional problems.
- d) Personal appearance may become a source of great conflict, and learning to appreciate good grooming or the reverse may be prevalent.
- e) May be very easily hurt when criticized or made the scapegoat.
- f) Maladjustment may occur when there is not a harmonious relationship between child and adults.

Intellectual

- a) Learns more ways of studying and controlling the physical world.
- b) The use of language (on many occasions his own vocabulary) to exchange ideas for explanatory reason.
- c) More use of reflective thinking and greater ease of distinction.
- d) Continuation in development of scientific approach.

Taken from the book *Sports for Children-A guide for Adults* by James H. Humphrey, Ed.D., Charles C. Thomas publisher, 1993. ISBN # 0-398-06168-8



FOUNDATIONS OF *Coaching*

Set and Season Planning Documents Table of Contents

1. Interval Training and Set Design:
 - *A chart showing the seven energy categories with characteristics of each. This chart can be used to guide set design.*
2. Basic Season Planning:
 - *Two versions of the Basic Season Planner, one for Age Group swimmers and one for Senior level swimmers. Sample spreadsheets, with explanations, are provided to aid a coach in planning weekly and season training volumes and energy zone percentages.*



FOUNDATIONS OF *Coaching*

Interval Training and Set Design

Interval training consists of periods of work followed by rest intervals. Interval training design comprises four primary components. Depending on the manner in which these four components are manipulated, aerobic or anaerobic pathways will be primarily taxed by the set. Exercise intensity must be controlled to train the aerobic or anaerobic pathways. Here are the four components of interval training design:

- Training or swim distance
- Training interval or work time
- Recovery interval (rest or recovery period between swims)
- Repetitions of the exercise (number of swims)

On the next page is a sample training guide for swimmers. This is merely one system or strategy that can be used with your athletes to design training sets. Other viable methods exist and can be modified to fit the needs of your swimmers and your program. Note that this chart is basically the same information as shown in the Energy Zones in Chapter 6 Part 3 with several additional columns of information and guidance. Some of the figures vary, such as exact distances, duration of sets and heart rates. Don't be concerned with minor discrepancies because there are no absolute or correct numbers. Be concerned with ranges and guidelines. Understand the types of sets and how to design sets to challenge the different energy zones or categories.



FOUNDATIONS OF *Coaching*

Category	Purpose	Subjective Intensity	Swim Distance	Recovery Interval	Total Set Duration (actual swimming)	Expected Heart Rate	Intensity Speed	Coach Monitoring Priorities	Example of a set
REC	Warm-up, warm-down, drills	Very light	Any	N/A	Any	< 60% of HR Max	<80% of threshold	Drills and Recovery	Swim 400 easy @ HR < 120 bpm
EN1	Develop economy, maintain aerobic adaptations	Light	300-4,000	10-30 sec	15-60 minutes	60-70% of HR Max	80-95% of threshold	Heart rate Stroke rate Stroke count Speed	Swim 12 x 200 with 15 sec rest @ HR = 130 bpm
EN2	Improve threshold, aerobic endurance	Somewhat hard	100-2,000	10-30 sec	15-60 minutes	70-85% of HR Max	95-103% of threshold	Heart rate Stroke rate Stroke count Speed	Swim 8 x 400 with 20 sec rest @ HR = 160 bpm
EN3	Improve aerobic power and threshold (minor)	Hard	100-1,000	30-60 sec	8-30 minutes	> 85% of HR Max	103-107% of threshold	Stroke rate Speed Heart rate Stroke count	Swim 6 x 200 with 30-60 sec rest @ HR = 185 bpm
SP1	Improve lactate tolerance	Very hard	50-200	1:1 – 1:2 work to rest ratio	3-12 minutes	100 % of HR Max	90-95% of best 100	Speed Stroke rate Heart rate	Swim 12 x 100 on 2:30 @ holding within 3 seconds of 2 nd 100 split of best 200
SP2	Improve ability to produce lactate and tolerance	Extremely hard	50-100	1:2 – 1:8 work to rest ratio	2-6 minutes	100 % of HR Max	95-105% of best 100	Speed Stroke Rate	Swim 6 x 50 on 5:00 with a maximum effort on each one
SP3	Improve maximum sprint speed and power	Maximum effort sprinting	10-25	1:8+work to rest ratio	1-2 minutes		>105% of best 100	Perfect technique and stroke rate at max. velocity for a short distance	Swim 10 x 12½ yard or meter sprints on 2:00



FOUNDATIONS OF *Coaching*

Introduction to Basic Season Planning

Season planning is a crucial element of successful coaching. The Introduction to Basic Season Planning (IBSP) is designed as a tool to help coaches with the planning process. The IBSP is a spreadsheet that a coach completes to plan weekly and season training volume (yardage) and energy zone percentages. Once the spreadsheet is completed, it is up to the coach to determine daily training volume, sets, percentages of kicking, pulling and swimming, strokes to be trained and all other aspects of practice design and planning.

Just Examples

The IBSP consists of two working Excel spreadsheets. The spreadsheets in this document are examples. For a working copy, contact [The USA Swimming Sport Performance Consultants](#). The example season plans are based on a particular team with a specific group of athletes. The yardage, percentage of work in each energy zone and strategy of progression are merely recommendations for that program based on swimming research. The energy zone charts are based on recommendations made by USA Swimming's National Team Technical Support Department.

Planning Basics

When planning the season be aware of four basic points.

- **How many weeks long will the season be?**
The IBSP spreadsheet allows for a 25-30 week season. Thirty weeks should accommodate either a short course or long course season. Using a calendar, fill in the date column with the first Monday in your season using the MM/DD/YYYY format. Make sure that the first Monday of the season is beside week #1. Once all the weeks are listed then fill in the important competitions.
- **When will the most important competitions take place?**
When selecting the important competitions be conservative. In a short course season many successful teams adjust their training for very few competitions; possibly one in late November or early December and the rest coming at the end of the season. On the IBSP spreadsheet there is an area to put in a competition after every week of the season. However, continually decreasing yardage to accommodate frequent competitions will inhibit the athlete's ability to improve. Because the long course season is shorter, the recommendation is to only focus on one or two major competitions. With the competitions in place, begin to plan the practice schedule.
- **How many practices per week will there be throughout the season?**
It is important to recognize how many practices per week will take place throughout the season. Will there be practices every Saturday or just five days per week? Will there be morning practices all season long or just during certain times? Does the facility limit access on National holidays or allow more latitude for practice scheduling? These types of questions need to be answered before planning the weekly yardage.
- **What will the weekly yardage plan look like?**
There are many methods of planning yardage for a season. The examples that come with the spreadsheet are just that, examples. However, the questions that were answered earlier about the calendar and new questions about the athletes need to be answered before any yardage planning can take place. If there are only five practices in a weekly training cycle, planning a 60,000 yard week probably will not be feasible. If Christmas and New Years fall in the middle of the week, valuable training time may be lost by the holidays. More importantly, the age, ability and history of the athletes must be considered when planning a new season. The examples provided are for Age Group and Senior Group swimmers. The Age Group spreadsheet is designed for most 12-year old and younger swimmers; the Senior Group spreadsheet is designed for most 13 to 17-year old swimmers. New, injured or slower swimmers in either group may not be able to handle the loads specified and the coach will be responsible for adjusting the plan so it is appropriate for their training ability. It is important to consider multiple factors when planning training yardage.

Age Group Season Planning Chart



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The first chart is a general plan for a 12-year old and younger age group program. Remember, this is an example for a particular team and a specific group of athletes. It is not intended to be a general recommendation. For this team, the assumption is that the athletes averaged 25,000 yards per week the previous short course season, are not injured and are advanced enough that they can maintain the required paces to achieve the yardage calculated on the spreadsheet. The coach is responsible for adjusting the training plan so it is appropriate for all of the athletes' training abilities. The weekly volumes and percentages for each energy zone are only a recommendation; they follow levels recommended in current literature. The energy zones are recommendations as defined by USA Swimming.

- **Weekly Volume.** This Age Group plan is designed for a 25-week season, beginning on Monday September 12th and concluding the week beginning February 27th. The weekly yardage column displays the total yardage for each week. Notice that the yardage increases gradually from Week #1 to Week #12. Week #13 shows a drop in yardage that coincides with the first big meet of the season. Weeks 21-25 will be focused on preparing for the end of the season. During the last cycle of the season the emphasis is placed more on the energy category percentages, to maintain conditioning, and less on the yardage volume.
- **Energy Zone Percentages.** The energy zone percentages make up the other displayed chart on the IBSP Age Group planner. The energy zones have been broken into four columns Aerobic, Aerobic/Anaerobic Mix, Anaerobic and Sprint. Notice that the Aerobic percentage of weekly yardage never drops below 82% of the total weekly yardage. For most of the season the combination of Anaerobic and Sprint percentages hovers around 3-4% of the total weekly yardage. The percentages for Anaerobic work climb a little bit at the end of the season to compensate for the drop in yardage. Finally, the threshold work is represented by the Aerobic/Anaerobic Mix column. After the athletes adjust following the first three weeks of the season the threshold yardage climbs all season long going from 8-13%.



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Basic Seasonal Age-Group Planner

YARDAGE

PERCENTAGES

Week #	Date	Weekly Yardage	Aerobic	Ae/An Mix	Anaerobic	Sprint	Meets	Aerobic	Ae/An Mix	Anaerobic	Sprint	Total % (must= 100)
1	12-Sep	10,950	8,500	1,800	400	200		78	16	4	2	100
2	19-Sep	15,450	13,000	1,900	500	200		84	12	3	1	100
3	26-Sep	19,150	16,500	1,900	600	200		86	10	3	1	100
4	3-Oct	22,500	19,800	2,000	500	200		88	9	2	1	100
5	10-Oct	25,300	22,500	2,000	500	300		89	8	2	1	100
6	17-Oct	27,700	24,700	2,200	600	300		89	8	2	1	100
7	24-Oct	29,850	26,600	2,400	600	300		89	8	2	1	100
8	31-Oct	31,600	28,100	2,500	600	300		89	8	2	1	100
9	7-Nov	33,000	29,400	2,600	700	300		89	8	2	1	100
10	14-Nov	34,450	30,300	3,100	700	300		88	9	2	1	100
11	21-Nov	35,400	31,200	3,200	700	400		88	9	2	1	100
12	28-Nov	36,450	31,300	3,600	1,100	400		86	10	3	1	100
13	5-Dec	30,300	25,800	3,300	900	300		85	11	3	1	100
14	12-Dec	37,950	32,300	4,200	1,100	400		85	11	3	1	100
15	19-Dec	38,650	32,500	4,600	1,200	400		84	12	3	1	100
16	26-Dec	31,900	26,800	3,800	1,000	300		84	12	3	1	100
17	2-Jan	39,500	33,200	4,700	1,200	400		84	12	3	1	100
18	9-Jan	39,950	33,200	4,800	1,200	800		83	12	3	2	100
19	16-Jan	32,800	26,900	4,300	1,000	700		82	13	3	2	100
20	23-Jan	38,050	31,200	4,900	1,100	800		82	13	3	2	100
21	30-Jan	34,050	27,900	4,400	1,000	700		82	13	3	2	100
22	6-Feb	29,200	23,900	3,800	900	600		82	13	3	2	100
23	13-Feb	24,950	20,500	3,200	700	500		82	13	3	2	100
24	20-Feb	22,300	18,300	2,900	700	400		82	13	3	2	100
25	27-Feb	20,900	17,300	2,700	600	200		83	13	3	1	100
TOTAL		742,300	631,700	80,800	20,100	9,900						



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FOUR ENERGY ZONE SYSTEM

	Set Distance (m)	Set Duration (min)	HR (bpm)	HR (% max)	Work:Rest	Sample Set (*for Sr. Age Group swimmer)
AEROBIC	500 - 4000	Variable	≤ 160	≤ 80	:10 - :30 rest	4-8 x 500 Swim @ :20 rest or 18 x 75 S-K-S @ :15 rest
AEROBIC/ANAEROBIC MIX	600 - 2000	8-40	160 - Max	80 - 100	:15 - :60 rest	6-10 x 200 Swim @ :20-:30 rest or 6-8 x 100 IM @ :30 to :45 rest
ANAEROBIC	200-600	2-15	Max	100	2:1 - 1:4	6 x 50 Swim @ 2:00 rest or 3 x 100 Swim @ 4:00 rest
SPRINT	25 - 100	1-2	Max	100	1:3 - 1:4	4-6 x dive 15m @ 1:00 rest or 6-8 x 12.5 Swim @ :45 rest



FOUNDATIONS OF *Coaching*

Senior Group Season Planner

The second chart is a general plan for a Senior group made up of 13-year old and older swimmers. Remember, this is an example for a particular team and a specific group of athletes. It is not intended to be a general recommendation. The assumption is that the athletes averaged 40,000 yards per week the previous short course season, are not injured and are advanced enough that they can maintain the required paces to achieve the yardage calculated on the spreadsheet. The coach is responsible for adjusting the training plan so it is appropriate for all of the athletes' training abilities. The weekly volumes and percentages for each energy zone are only a recommendation; they follow levels recommended in current literature. The energy zones are recommendations as defined by USA Swimming.

- **Weekly Volume.** The Senior Group planner is designed for a 28-week season, beginning on Monday September 12th and concluding the week beginning March 20th. The weekly yardage column displays the total yardage for each week. The yardage increases gradually from Week #1 to Week #12. Week #13 shows a drop in yardage that coincides with the first big meet of the season. From Week #14 to Week #23 every two weeks of increased yardage is followed by a recovery week (#16, #19 and #22). Weeks 23-28 will be focused on preparing for the end of the season. During the last cycle of the season the emphasis is placed more on the energy zone percentages, to maintain conditioning, and less on the yardage volume.
- **Energy Zone Percentages.** The energy zone percentages make up the other displayed chart on the IBSP Senior Group planner. The energy zones have been broken into seven columns Aerobic (recovery), Aerobic Development (EN1), Aerobic/Anaerobic Mix 1 (EN2), Aerobic/Anaerobic Mix 2 (EN3), Anaerobic 1 (SP1), Anaerobic 2 (SP2) and Sprint (SP3). The low aerobic combination of Aerobic (recovery) and Aerobic Development (EN1) never drops below 67% of the total weekly yardage. For most of the season the anaerobic percentages, Anaerobic 1 (SP1), Anaerobic 2 (SP2) and Sprint (SP3) hover around 7-8% of the total weekly yardage. The percentages for Anaerobic and Sprint work climb a little bit at the end of the season to compensate for the drop in yardage. Finally, the threshold work is represented by the Aerobic/Anaerobic Mix 1 (EN2) and Aerobic/Anaerobic Mix 2 (EN3) columns. After the athletes adjust following the first three weeks of the season the threshold yardage climbs all season long going from 15-25%.



FOUNDATIONS OF Coaching

Basic Seasonal Senior Planner

YARDAGE

PERCENTAGES

Week #	Date	Weekly Yardage	Ae (Recov)	Ae Dev (EN1)	AeAn Mix1 (EN2)	AeAn Mix2 (EN3)	An1 (SP1)	AN2 (SP2)	Sprint (SP3)	Meets	Ae (Recov)	Ae Dev (EN1)	AeAn Mix1 (EN2)	AeAn Mix2 (EN3)	An1 (SP1)	AN2 (SP2)	Sprint (SP3)	Total % (must= 100)
1	12-Sep	15,750	2,700	6,100	3,200	2,000	800	500	500		17	39	20	13	5	3	3	100
2	19-Sep	15,850	3,500	7,600	2,200	1,400	500	300	300		22	48	14	9	3	2	2	100
3	26-Sep	22,700	5,000	11,800	2,500	1,800	700	500	500		22	52	11	8	3	2	2	100
4	3-Oct	28,950	6,700	15,900	2,900	1,700	600	600	600		23	55	10	6	2	2	2	100
5	10-Oct	34,250	8,600	19,200	3,100	2,100	700	300	300		25	56	9	6	2	1	1	100
6	17-Oct	38,950	9,300	22,200	3,500	2,300	800	400	400		24	57	9	6	2	1	1	100
7	24-Oct	43,000	11,200	24,500	3,400	2,200	900	400	400		26	57	8	5	2	1	1	100
8	31-Oct	46,550	11,600	26,500	3,700	2,800	900	500	500		25	57	8	6	2	1	1	100
9	7-Nov	49,900	12,500	27,900	4,500	3,000	1,000	500	500		25	56	9	6	2	1	1	100
10	14-Nov	52,500	13,100	29,400	4,700	3,200	1,100	500	500		25	56	9	6	2	1	1	100
11	21-Nov	54,950	12,600	30,200	5,500	3,300	1,100	1,100	1,100		23	55	10	6	2	2	2	100
12	28-Nov	57,050	12,600	30,800	6,300	4,000	1,100	1,100	1,100		22	54	11	7	2	2	2	100
13	5-Dec	48,000	11,000	25,000	5,300	3,400	1,400	1,000	1,000		23	52	11	7	3	2	2	100
14	12-Dec	60,550	13,300	30,900	7,300	4,800	1,800	1,200	1,200		22	51	12	8	3	2	2	100
15	19-Dec	61,950	13,000	31,000	8,100	5,600	1,900	1,200	1,200		21	50	13	9	3	2	2	100
16	26-Dec	49,000	10,800	24,000	6,400	4,400	1,500	1,000	1,000		22	49	13	9	3	2	2	100
17	2-Jan	64,400	14,200	30,900	9,000	5,800	1,900	1,300	1,300		22	48	14	9	3	2	2	100
18	9-Jan	65,300	14,400	31,300	9,100	5,900	2,000	1,300	1,300		22	48	14	9	3	2	2	100
19	16-Jan	51,300	10,300	24,100	7,700	5,100	2,100	1,000	1,000		20	47	15	10	4	2	2	100
20	23-Jan	66,800	13,400	31,400	10,000	6,700	2,700	1,300	1,300		20	47	15	10	4	2	2	100
21	30-Jan	67,550	13,500	31,700	10,100	6,800	2,700	1,400	1,400		20	47	15	10	4	2	2	100
22	6-Feb	52,700	10,000	25,300	7,400	4,700	2,100	1,600	1,600		19	48	14	9	4	3	3	100
23	13-Feb	68,500	13,700	32,900	8,900	6,200	2,700	2,100	2,100		20	48	13	9	4	3	3	100
24	20-Feb	64,400	13,500	31,600	8,400	5,200	2,600	1,900	1,300		21	49	13	8	4	3	2	100
25	27-Feb	57,400	12,100	28,700	6,900	4,600	2,300	1,700	1,100		21	50	12	8	4	3	2	100
26	6-Mar	48,550	11,200	24,300	5,800	3,900	1,500	1,000	1,000		23	50	12	8	3	2	2	100
27	13-Mar	40,900	9,000	20,900	4,900	3,300	1,200	800	800		22	51	12	8	3	2	2	100
28	20-Mar	36,300	8,000	18,500	4,400	2,900	1,100	700	700		22	51	12	8	3	2	2	100
29			0	0	0	0	0	0	0									0
30			0	0	0	0	0	0	0									0
		1,364,000	300,800	694,600	165,200	109,100	41,700	27,200	26,000									



FOUNDATIONS OF *Coaching*

SEVEN ENERGY ZONE SYSTEM	Set Distance (m)	Set Duration (min)	HR (bpm)	HR (% max)	Work:Rest	Sample Set (*for Sr. Age Group swimmer)
AEROBIC (RECOVERY)	Variable	Variable	< 140	< 70	N/A	600 Easy Swim
AEROBIC DEVELOPMENT (EN1)	1500 - 4000	≥ 15	140 - 160	70 - 80	:10 - :30 rest	6-10 x 400 Swim @ :10 rest
AEROBIC/ANAEROBIC MIX 1 (EN2)	800 - 2000	10 - 40	160 - 180	80 - 90	:15 - :30 rest	4-6 x 300 Swim @ :15 rest
AEROBIC/ANAEROBIC MIX 2 (EN3)	600 - 1600	8 - 30	180 - Max	90 - 100	:30 - :60 rest	4-8 x 150 Swim @ :30 rest
ANAEROBIC 1 (SP1)	200 - 600	2 - 15	Max	100	2:1 – 1:1	2-3 sets of 6-8x50 race tempo @ :10-:30 rest or 4 x 125 Rotate IM @ :45 rest
ANAEROBIC 2 (SP2)	200 - 600	4 - 12	Max	100	1:2 - 1:4	4 x 75 Swim @ 3:00-4:00 rest or 6 x 50 @ 2:00 rest
SPRINT (SP3)	25 - 100	1 - 2	Max	100	1:3 - 1:4	4-6 x dive 15m @ 1:00 rest or 6-8 x 12.5 Swim @ :45 rest



FOUNDATIONS OF *Coaching*

Working with the Spreadsheet to Create a Plan

For a working copy of the spreadsheet, contact [The USA Swimming Sport Performance Consultants](#). Microsoft Excel must be installed on the computer in order to open the spreadsheet. The plan provided in the example can be used, specifically the percentages, as long as the yardage is adjusted to reflect the abilities of a particular team. The percentages may also be adjusted. **Remember, the example plans are not intended as specific training recommendations!**

Entering data for each week is very simple. Follow these steps:

1. Set up the spreadsheet to reflect the calendar and the number of weeks in the season.
2. Enter weekly yardage. Go through the season and enter the weekly yardage for each week.
3. Enter percentages. Do not try to enter information on the yardage chart for the energy zones, it will be automatically calculated by the numbers entered on the percentage chart. As long as there are numbers entered on the percentage chart the energy categories for each week will appear on the spreadsheet.

The percentages can be changed to reflect whatever numbers are appropriate for the training group. Make sure that the totals add up to 100 in the "Total %" column or the yardage for the week will be incorrect. While it is recommended that the season be planned before Week #1, the spreadsheet can be manipulated all year long to reflect what was actually done and to adapt to any changes in focus for future weeks.



FOUNDATIONS OF *Coaching*

Training Pace Charts **Table of Contents**

A series of training pace charts for aerobic and endurance categories of training

1. Obtaining Aerobic Training Paces
2. Table # 1: Number of Lengths Completed in a 30 Minute Swim
3. Table # 2: Timed Swim Pace Chart
4. Table # 3a: Pacing Chart for Determining Training Paces During a Distance Swim (Part a)
5. Table # 3b: Pacing Chart for Determining Training Paces During a Distance Swim (Part b)
6. Table # 4: EN-1 Training Paces with 10 Seconds Rest
7. Table # 5: EN-2 Training Paces with 10 Seconds Rest
8. Table # 6: EN-2 Training Paces with 30 Seconds Rest
9. Table # 7: EN-3 Training Paces with 30 Seconds Rest



FOUNDATIONS OF *Coaching*

Obtaining Aerobic Training Paces

by Rick Sharp, PhD

Interval Training and Set Design gives recommendations for appropriate intensities or speeds to use when designing training paces for each category. One of the ways that intensity can be prescribed for the endurance categories is based on threshold speed. The training pace charts included in this handbook for the aerobic or endurance categories (EN1, EN2, EN3) are all based on first knowing the threshold speed for the swimmer. Consequently, the coach who wishes to use the charts presented in this chapter should have a tool for estimating constant threshold speed for each swimmer.

Background on Anaerobic Threshold

Anerobic Threshold or Threshold Training is a physiological term that has been applied to test sets and paces. In 1976, Mader, Heck & Hollman, described a method whereby endurance training speeds could be prescribed based on the individual's blood lactate response to different swimming paces. Mader inferred that speeds corresponding to a blood lactate of four millimolar (4 mM) would provide the best stimulus for improving endurance capacity because faster speeds could not be maintained long enough to provide the appropriate aerobic stimulus, and slower speeds would typically underload the endurance systems. Because measurements of blood lactate were out of reach for most coaches, a considerable amount of work was done to identify simpler, safer, and less expensive ways of prescribing a threshold speed. However, the term Threshold Training, a physiological term, was kept to identify the speed/pace necessary to improve endurance capacity.

T30 or Timed 3,000 Swim

The T30, or 3,000 swim for time, gives the coach a pretty good idea of each athlete's ability to sustain prolonged work. This works if the swimmer puts forth an honest effort; the maximum speed the swimmer can maintain is his or her individual continuous swimming threshold speed.

In 1985 Olbrecht, Madsen, Mader, Liesen, and Hollmann reported the results of a study that was designed to test the validity of various training sets in predicting a swimmer's 4 mM threshold speed. The volunteers for the study were 59 members of the German Men's National team. They were first tested for their 4 mM speed using Mader's two-speed test and were then asked to swim various interval sets, a 30-minute swim as fast as possible, and a 60-minute swim as fast as possible. The major finding of the study was that swimmers chose a pace during their 30-minute swim that was not significantly different from their 4 mM speed. From this finding the authors concluded that the 30-minute swim test could be used to estimate a swimmer's 4 mM threshold speed without the need of blood sampling. Since then, the 30-minute swim test has been referred to as the T30.

To perform this test a swimmer can either do the T30 test exactly as Olbrecht et al. described, swim continuously for 25 to 40 minutes, or swim a timed 3,000 and calculate the average pace per 100 meters or yards.

Instructions for T30

1. Measure the distance the swimmer covers in a 30-minute continuous swim. It must be an honest effort by the swimmer to cover as much distance as possible using an even pace.
2. Use the pacing charts in Table 1 to find the 100 pace corresponding to the distance swum in the T30.

Instructions for Timed 3,000

1. Have the swimmer swim a 3,000 for time (or other distance that will equal approximately 30 minutes) with honest effort and even pace.
2. Use the pacing charts in Tables 2 or 3 to find the 100 pace corresponding to the time for the 3,000 swim.



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Training Pace Charts Based on T30

Why are three times given for each training pace prescription?

The standard deviation for the prediction of threshold from a T30 test has been shown to be plus or minus 0.053 meters/second. Therefore, prescribed paces should fall within a range of plus or minus 0.053 meters/second, acknowledging that 68 percent of the population will have a threshold within this range (based on the research). Because swimming speed is more easily prescribed as time for given distances, the 0.053 meters/second standard deviation has been converted to actual times. Thus, each distance has a fast speed (prescribed pace plus 0.053 meters/second), the prescribed pace, and a slower speed (prescribed pace minus 0.053 meters/second) for the swimmer to stay within. The coach should remember that although a range of paces is given, based on the research, this range only covers about 68 percent of the swimmers. Therefore, some swimmers will be able to swim faster than this prescribed range, and some will have to swim slower than the paces given here (see tables 5 and 6). In using these paces, it makes sense to start a set at the slower end of the prescribed range and gradually descend to the faster end of the range. If the swimmer does not seem to be able to hold a pace within the prescribed range for the length of an EN2 set, the coach might conclude that this swimmer is one of those who fall outside of the 68 percent who are covered by the standard deviation. In this case, the swimmer should be allowed to swim somewhat slower than the prescribed range so that EN2 sets can be performed with a constant speed without undue fatigue.

Why are paces for distances shorter than 400 so much faster than the threshold pace?

If the goal is to stay close to a blood lactate level corresponding to that occurring during a long threshold swim (e.g., T30), the previously identified threshold pace must be adjusted for short-duration swims. The shorter the repeats, the faster the pace needs to be to generate an equivalent lactate accumulation as would occur in long swims. In addition, when 30 seconds of rest is used instead of 10 seconds, the adjustments need to be even greater. For example, a swimmer swam a T30 and averaged one minute five seconds per 100 yards. Based on the EN2-10 sec. rest chart, he or she would need to average about one minute three seconds during an EN2 set of 24 x 100 per yards. Averaging a time of one minute five seconds on this set would be physiologically easier than it would be during continuous swimming. Research has also shown that such adjustment is not necessary when repeats are over 400 meters. Thus, in tables 4, 5 and 6 adjustments are made at the shorter distances.

How were the EN1 paces derived?

In theory, any speed slower than threshold speed but still fast enough to create some aerobic adaptations could be used for an EN1 speed. For convenience, the EN1 speeds shown in the EN1 chart in table 4 are simply five percent slower than the EN2-10 seconds speed (with the faster and slower speed based on the standard deviation also included).

How were the EN3 speeds determined?

Again, swimming any speed that is faster than threshold will probably target the correct adaptations one looks for in doing EN3 training *as long as the set is constructed properly*. However, to give coaches an approximate idea of what these speeds usually are, the EN3 speeds shown in the EN3 chart in table 7 were set at a range three percent, five percent, and seven percent faster than the average speed prescribed in table 6 EN2-30 sec rest speed.

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Table 1: Number of lengths completed in a 30-minute swim

Total Yards or Meters	# lengths swum yards	# lengths swum meters	Average Pace Per 100	Total Yards or Meters	# lengths swum yards	# lengths swum meters	Average Pace Per 100
3500	140	70	:51.4	2300	92	46	1:18.3
3475	139	69.5	:51.8	2275	91	45.5	1:19.1
3450	138	69	:52.2	2250	90	45	1:20.0
3425	137	68.5	:52.6	2225	89	44.5	1:20.9
3400	136	68	:52.9	2200	88	44	1:21.8
3375	135	67.5	:53.3	2175	87	43.5	1:22.8
3350	134	67	:53.7	2150	86	43	1:23.7
3325	133	66.5	:54.1	2125	85	42.5	1:24.7
3300	132	66	:54.5	2100	84	42	1:25.7
3275	131	65.5	:55.0	2075	83	41.5	1:26.7
3250	130	65	:55.4	2050	82	41	1:27.8
3225	129	64.5	:55.8	2025	81	40.5	1:28.9
3200	128	64	:56.3	2000	80	40	1:30.0
3175	127	63.5	:56.7	1975	79	39.5	1:31.1
3150	126	63	:57.1	1950	78	39	1:32.3
3125	125	62.5	:57.6	1925	77	38.5	1:33.5
3100	124	62	:58.1	1900	76	38	1:34.7
3075	123	61.5	:58.5	1875	75	37.5	1:36.0
3050	122	61	:59.0	1850	74	37	1:37.3
3025	121	60.5	:59.5	1825	73	36.5	1:38.6
3000	120	60	1:00.0	1800	72	36	1:40.0
2975	119	59.5	1:00.5	1775	71	35.5	1:41.4
2950	118	59	1:01.0	1750	70	35	1:42.9
2925	117	58.5	1:01.5	1725	69	34.5	1:44.3
2900	116	58	1:02.1	1700	68	34	1:45.9
2875	115	57.5	1:02.6	1675	67	33.5	1:47.5
2850	114	57	1:03.2	1650	66	33	1:49.1
2825	113	56.5	1:03.7	1625	65	32.5	1:50.8
2800	112	56	1:04.3	1600	64	32	1:52.5
2775	111	55.5	1:04.9	1575	63	31.5	1:54.3
2750	110	55	1:05.5	1550	62	31	1:56.1
2725	109	54.5	1:06.1	1525	61	30.5	1:58.0
2700	108	54	1:06.7	1500	60	30	2:00.0
2675	107	53.5	1:07.3	1475	59	29.5	2:02.0
2650	106	53	1:07.9	1450	58	29	2:04.1
2625	105	52.5	1:08.6	1425	57	28.5	2:06.3
2600	104	52	1:09.2	1400	56	28	2:08.6
2575	103	51.5	1:09.9	1375	55	27.5	2:10.9
2550	102	51	1:10.6	1350	54	27	2:13.3
2525	101	50.5	1:11.3	1325	53	26.5	2:15.8
2500	100	50	1:12.0	1300	52	26	2:18.5
2475	99	49.5	1:12.7	1275	51	25.5	2:21.2
2450	98	49	1:13.5	1250	50	25	2:24.0
2425	97	48.5	1:14.2	1225	49	24.5	2:26.9
2400	96	48	1:15.0	1200	48	24	2:30.0
2375	95	47.5	1:15.8	1175	47	23.5	2:33.2
2350	94	47	1:16.6	1150	46	23	2:36.5
2325	93	46.5	1:17.4	1125	45	22.5	2:40.0

Table B.2 Timed Swim Pace Chart

100	800	1000	1500	1650	2000	3000	100	800	1000	1500	1650	2000	3000	100	800	1000	1500	1650	2000	3000
0:48.0	06:24	08:00	12:00	13:12	16:00	24:00	1:14.5	09:56	12:25	18:38	20:29	24:50	37:15	1:41.0	13:28	16:50	25:15	27:46	33:40	50:30
0:48.5	06:28	08:05	12:07	13:20	16:10	24:15	1:15.0	10:00	12:30	18:45	20:37	25:00	37:30	1:41.5	13:32	16:55	25:22	27:55	33:50	50:45
0:49.0	06:32	08:10	12:15	13:28	16:20	24:30	1:15.5	10:04	12:35	18:52	20:46	25:10	37:45	1:42.0	13:36	17:00	25:30	28:03	34:00	51:00
0:49.5	06:36	08:15	12:23	13:37	16:30	24:45	1:16.0	10:08	12:40	19:00	20:54	25:20	38:00	1:42.5	13:40	17:05	25:38	28:11	34:10	51:15
0:50.0	06:40	08:20	12:30	13:45	16:40	25:00	1:16.5	10:12	12:45	19:07	21:02	25:30	38:15	1:43.0	13:44	17:10	25:45	28:19	34:20	51:30
0:50.5	06:44	08:25	12:37	13:53	16:50	25:15	1:17.0	10:16	12:50	19:15	21:10	25:40	38:30	1:43.5	13:48	17:15	25:53	28:28	34:30	51:45
0:51.0	06:48	08:30	12:45	14:01	17:00	25:30	1:17.5	10:20	12:55	19:22	21:19	25:50	38:45	1:44.0	13:52	17:20	26:00	28:36	34:40	52:00
0:51.5	06:52	08:35	12:52	14:10	17:10	25:45	1:18.0	10:24	13:00	19:30	21:27	26:00	39:00	1:44.5	13:56	17:25	26:08	28:44	34:50	52:15
0:52.0	06:56	08:40	13:00	14:18	17:20	26:00	1:18.5	10:28	13:05	19:37	21:35	26:10	39:15	1:45.0	14:00	17:30	26:15	28:53	35:00	52:30
0:52.5	07:00	08:45	13:08	14:26	17:30	26:15	1:19.0	10:32	13:10	19:45	21:44	26:20	39:30	1:45.5	14:04	17:35	26:22	29:01	35:10	52:45
0:53.0	07:04	08:50	13:15	14:35	17:40	26:30	1:19.5	10:36	13:15	19:52	21:52	26:30	39:45	1:46.0	14:08	17:40	26:30	29:09	35:20	53:00
0:53.5	07:08	08:55	13:22	14:43	17:50	26:45	1:20.0	10:40	13:20	20:00	22:00	26:40	40:00	1:46.5	14:12	17:45	26:37	29:17	35:30	53:15
0:54.0	07:12	09:00	13:30	14:51	18:00	27:00	1:20.5	10:44	13:25	20:08	22:08	26:50	40:15	1:47.0	14:16	17:50	26:45	29:25	35:40	53:30
0:54.5	07:16	09:05	13:37	14:59	18:10	27:15	1:21.0	10:48	13:30	20:15	22:16	27:00	40:30	1:47.5	14:20	17:55	26:52	29:34	35:50	53:45
0:55.0	07:20	09:10	13:45	15:07	18:20	27:30	1:21.5	10:52	13:35	20:22	22:25	27:10	40:45	1:48.0	14:24	18:00	27:00	29:42	36:00	54:00
0:55.5	07:24	09:15	13:52	15:16	18:30	27:45	1:22.0	10:56	13:40	20:30	22:33	27:20	41:00	1:48.5	14:28	18:05	27:07	29:50	36:10	54:15
0:56.0	07:28	09:20	14:00	15:24	18:40	28:00	1:22.5	11:00	13:45	20:37	22:41	27:30	41:15	1:49.0	14:32	18:10	27:15	29:58	36:20	54:30
0:56.5	07:32	09:25	14:08	15:32	18:50	28:15	1:23.0	11:04	13:50	20:45	22:49	27:40	41:30	1:49.5	14:36	18:15	27:22	30:07	36:30	54:45
0:57.0	07:36	09:30	14:15	15:40	19:00	28:30	1:23.5	11:08	13:55	20:52	22:58	27:50	41:45	1:50.0	14:40	18:20	27:30	30:15	36:40	55:00
0:57.5	07:40	09:35	14:22	15:49	19:10	28:45	1:24.0	11:12	14:00	21:00	23:06	28:00	42:00	1:50.5	14:44	18:25	27:38	30:23	36:50	55:15
0:58.0	07:44	09:40	14:30	15:57	19:20	29:00	1:24.5	11:16	14:05	21:07	23:14	28:10	42:15	1:51.0	14:48	18:30	27:45	30:32	37:00	55:30
0:58.5	07:48	09:45	14:37	16:05	19:30	29:15	1:25.0	11:20	14:10	21:15	23:23	28:20	42:30	1:51.5	14:52	18:35	27:53	30:40	37:10	55:45
0:59.0	07:52	09:50	14:45	16:14	19:40	29:30	1:25.5	11:24	14:15	21:23	23:31	28:30	42:45	1:52.0	14:56	18:40	28:00	30:48	37:20	56:00
0:59.5	07:56	09:55	14:52	16:22	19:50	29:45	1:26.0	11:28	14:20	21:30	23:39	28:40	43:00	1:52.5	15:00	18:45	28:07	30:56	37:30	56:15
1:00.0	08:00	10:00	15:00	16:30	20:00	30:00	1:26.5	11:32	14:25	21:37	23:47	28:50	43:15	1:53.0	15:04	18:50	28:15	31:05	37:40	56:30
1:00.5	08:04	10:05	15:07	16:38	20:10	30:15	1:27.0	11:36	14:30	21:45	23:55	29:00	43:30	1:53.5	15:08	18:55	28:22	31:13	37:50	56:45
1:01.0	08:08	10:10	15:15	16:46	20:20	30:30	1:27.5	11:40	14:35	21:52	24:04	29:10	43:45	1:54.0	15:12	19:00	28:30	31:21	38:00	57:00
1:01.5	08:12	10:15	15:22	16:55	20:30	30:45	1:28.0	11:44	14:40	22:00	24:12	29:20	44:00	1:54.5	15:16	19:05	28:37	31:29	38:10	57:15
1:02.0	08:16	10:20	15:30	17:03	20:40	31:00	1:28.5	11:48	14:45	22:08	24:20	29:30	44:15	1:55.0	15:20	19:10	28:45	31:37	38:20	57:30
1:02.5	08:20	10:25	15:38	17:11	20:50	31:15	1:29.0	11:52	14:50	22:15	24:28	29:40	44:30	1:55.5	15:24	19:15	28:52	31:46	38:30	57:45
1:03.0	08:24	10:30	15:45	17:19	21:00	31:30	1:29.5	11:56	14:55	22:23	24:37	29:50	44:45	1:56.0	15:28	19:20	29:00	31:54	38:40	58:00
1:03.5	08:28	10:35	15:53	17:28	21:10	31:45	1:30.0	12:00	15:00	22:30	24:45	30:00	45:00	1:56.5	15:32	19:25	29:07	32:02	38:50	58:15
1:04.0	08:32	10:40	16:00	17:36	21:20	32:00	1:30.5	12:04	15:05	22:37	24:53	30:10	45:15	1:57.0	15:36	19:30	29:15	32:11	39:00	58:30
1:04.5	08:36	10:45	16:07	17:44	21:30	32:15	1:31.0	12:08	15:10	22:45	25:01	30:20	45:30	1:57.5	15:40	19:35	29:22	32:19	39:10	58:45
1:05.0	08:40	10:50	16:15	17:52	21:40	32:30	1:31.5	12:12	15:15	22:52	25:10	30:30	45:45	1:58.0	15:44	19:40	29:30	32:27	39:20	59:00
1:05.5	08:44	10:55	16:22	18:01	21:50	32:45	1:32.0	12:16	15:20	23:00	25:18	30:40	46:00	1:58.5	15:48	19:45	29:38	32:35	39:30	59:15
1:06.0	08:48	11:00	16:30	18:09	22:00	33:00	1:32.5	12:20	15:25	23:08	25:26	30:50	46:15	1:59.0	15:52	19:50	29:45	32:44	39:40	59:30
1:06.5	08:52	11:05	16:38	18:17	22:10	33:15	1:33.0	12:24	15:30	23:15	25:35	31:00	46:30	1:59.5	15:56	19:55	29:52	32:52	39:50	59:45
1:07.0	08:56	11:10	16:45	18:26	22:20	33:30	1:33.5	12:28	15:35	23:22	25:43	31:10	46:45	2:00.0	16:00	20:00	30:00	33:00	40:00	1:00:00
1:07.5	09:00	11:15	16:52	18:34	22:30	33:45	1:34.0	12:32	15:40	23:30	25:51	31:20	47:00							
1:08.0	09:04	11:20	17:00	18:42	22:40	34:00	1:34.5	12:36	15:45	23:37	25:59	31:30	47:15							
1:08.5	09:08	11:25	17:07	18:50	22:50	34:15	1:35.0	12:40	15:50	23:45	26:08	31:40	47:30							
1:09.0	09:12	11:30	17:15	18:58	23:00	34:30	1:35.5	12:44	15:55	23:52	26:16	31:50	47:45							
1:09.5	09:16	11:35	17:22	19:07	23:10	34:45	1:36.0	12:48	16:00	24:00	26:24	32:00	48:00							
1:10.0	09:20	11:40	17:30	19:15	23:20	35:00	1:36.5	12:52	16:05	24:08	26:32	32:10	48:15							
1:10.5	09:24	11:45	17:38	19:23	23:30	35:15	1:37.0	12:56	16:10	24:15	26:40	32:20	48:30							
1:11.0	09:28	11:50	17:45	19:31	23:40	35:30	1:37.5	13:00	16:15	24:22	26:49	32:30	48:45							
1:11.5	09:32	11:55	17:52	19:40	23:50	35:45	1:38.0	13:04	16:20	24:30	26:57	32:40	49:00							
1:12.0	09:36	12:00	18:00	19:48	24:00	36:00	1:38.5	13:08	16:25	24:37	27:05	32:50	49:15							
1:12.5	09:40	12:05	18:07	19:56	24:10	36:15	1:39.0	13:12	16:30	24:45	27:14	33:00	49:30							
1:13.0	09:44	12:10	18:15	20:05	24:20	36:30	1:39.5	13:16	16:35	24:52	27:22	33:10	49:45							
1:13.5	09:48	12:15	18:23	20:13	24:30	36:45	1:40.0	13:20	16:40	25:00	27:30	33:20	50:00							
1:14.0	09:52	12:20	18:30	20:21	24:40	37:00	1:40.5	13:24	16:45	25:07	27:38	33:30	50:15							

"100" column is the
average pace
per 100

Used to calculate
EN2 or
"Threshold Pace"

Table 3a: Pacing Chart for Determining Training Paces During a Distance Swim

	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1650
0:48	01:36	02:24	03:12	04:00	04:48	05:36	06:24	07:12	08:00	08:48	09:36	10:24	11:12	12:00	12:48	13:12	
0:49	01:38	02:27	03:16	04:05	04:54	05:43	06:32	07:21	08:10	08:59	09:48	10:37	11:26	12:15	13:04	13:28.5	
0:50	01:40	02:30	03:20	04:10	05:00	05:50	06:40	07:30	08:20	09:10	10:00	10:50	11:40	12:30	13:20	13:45	
0:51	01:42	02:33	03:24	04:15	05:06	05:57	06:48	07:39	08:30	09:21	10:12	11:03	11:54	12:45	13:36	14:01.5	
0:52	01:44	02:36	03:28	04:20	05:12	06:04	06:56	07:48	08:40	09:32	10:24	11:16	12:08	13:00	13:52	14:18	
0:53	01:46	02:39	03:32	04:25	05:18	06:11	07:04	07:57	08:50	09:43	10:36	11:29	12:22	13:15	14:08	14:34.5	
0:54	01:48	02:42	03:36	04:30	05:24	06:18	07:12	08:06	09:00	09:54	10:48	11:42	12:36	13:30	14:24	14:51	
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1:06	02:12	03:18	04:24	05:30	06:36	07:42	08:48	09:54	11:00	12:06	13:12	14:18	15:24	16:30	17:36	18:09	
1:07	02:14	03:21	04:28	05:35	06:42	07:49	08:56	10:03	11:10	12:17	13:24	14:31	15:38	16:45	17:52	18:25.5	
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1:16	02:32	03:48	05:04	06:20	07:36	08:52	10:08	11:24	12:40	13:56	15:12	16:28	17:44	19:00	20:16	20:54	
1:17	02:34	03:51	05:08	06:25	07:42	08:59	10:16	11:33	12:50	14:07	15:24	16:41	17:58	19:15	20:32	21:10.5	
1:18	02:36	03:54	05:12	06:30	07:48	09:06	10:24	11:42	13:00	14:18	15:36	16:54	18:12	19:30	20:48	21:27	
1:19	02:38	03:57	05:16	06:35	07:54	09:13	10:32	11:51	13:10	14:29	15:48	17:07	18:26	19:45	21:04	21:43.5	
1:20	02:40	04:00	05:20	06:40	08:00	09:20	10:40	12:00	13:20	14:40	16:00	17:20	18:40	20:00	21:20	22:00	
1:21	02:42	04:03	05:24	06:45	08:06	09:27	10:48	12:09	13:30	14:51	16:12	17:33	18:54	20:15	21:36	22:16.5	
1:22	02:44	04:06	05:28	06:50	08:12	09:34	10:56	12:18	13:40	15:02	16:24	17:46	19:08	20:30	21:52	22:33	
1:23	02:46	04:09	05:32	06:55	08:18	09:41	11:04	12:27	13:50	15:13	16:36	17:59	19:22	20:45	22:08	22:49.5	
1:24	02:48	04:12	05:36	07:00	08:24	09:48	11:12	12:36	14:00	15:24	16:48	18:12	19:36	21:00	22:24	23:06	
1:25	02:50	04:15	05:40	07:05	08:30	09:55	11:20	12:45	14:10	15:35	17:00	18:25	19:50	21:15	22:40	23:22.5	
1:26	02:52	04:18	05:44	07:10	08:36	10:02	11:28	12:54	14:20	15:46	17:12	18:38	20:04	21:30	22:56	23:39	
1:27	02:54	04:21	05:48	07:15	08:42	10:09	11:36	13:03	14:30	15:57	17:24	18:51	20:18	21:45	23:12	23:55.5	
1:28	02:56	04:24	05:52	07:20	08:48	10:16	11:44	13:12	14:40	16:08	17:36	19:04	20:32	22:00	23:28	24:12	
1:29	02:58	04:27	05:56	07:25	08:54	10:23	11:52	13:21	14:50	16:19	17:48	19:17	20:46	22:15	23:44	24:28.5	
1:30	03:00	04:30	06:00	07:30	09:00	10:30	12:00	13:30	15:00	16:30	18:00	19:30	21:00	22:30	24:00	24:45	
1:31	03:02	04:33	06:04	07:35	09:06	10:37	12:08	13:39	15:10	16:41	18:12	19:43	21:14	22:45	24:16	25:01.5	
1:32	03:04	04:36	06:08	07:40	09:12	10:44	12:16	13:48	15:20	16:52	18:24	19:56	21:28	23:00	24:32	25:18	
1:33	03:06	04:39	06:12	07:45	09:18	10:51	12:24	13:57	15:30	17:03	18:36	20:09	21:42	23:15	24:48	25:34.5	
1:34	03:08	04:42	06:16	07:50	09:24	10:58	12:32	14:06	15:40	17:14	18:48	20:22	21:56	23:30	25:04	25:51	
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1:39	03:18	04:57	06:36	08:15	09:54	11:33	13:12	14:51	16:30	18:09	19:48	21:27	23:06	24:45	26:24	27:13.5	
1:40	03:20	05:00	06:40	08:20	10:00	11:40	13:20	15:00	16:40	18:20	20:00	21:40	23:20	25:00	26:40	27:30	

Table 3b: Pacing Chart for Determining Training Paces During a Distance Swim

100	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200
0:48	13:36	14:24	15:12	16:00	16:48	17:36	18:24	19:12	20:00	20:48	21:36	22:24	23:12	24:00	24:48	25:36
0:49	13:53	14:42	15:31	16:20	17:09	17:58	18:47	19:36	20:25	21:14	22:03	22:52	23:41	24:30	25:19	26:08
0:50	14:10	15:00	15:50	16:40	17:30	18:20	19:10	20:00	20:50	21:40	22:30	23:20	24:10	25:00	25:50	26:40
0:51	14:27	15:18	16:09	17:00	17:51	18:42	19:33	20:24	21:15	22:06	22:57	23:48	24:39	25:30	26:21	27:12
0:52	14:44	15:36	16:28	17:20	18:12	19:04	19:56	20:48	21:40	22:32	23:24	24:16	25:08	26:00	26:52	27:44
0:53	15:01	15:54	16:47	17:40	18:33	19:26	20:19	21:12	22:05	22:58	23:51	24:44	25:37	26:30	27:23	28:16
0:54	15:18	16:12	17:06	18:00	18:54	19:48	20:42	21:36	22:30	23:24	24:18	25:12	26:06	27:00	27:54	28:48
0:55	15:35	16:30	17:25	18:20	19:15	20:10	21:05	22:00	22:55	23:50	24:45	25:40	26:35	27:30	28:25	29:20
0:56	15:52	16:48	17:44	18:40	19:36	20:32	21:28	22:24	23:20	24:16	25:12	26:08	27:04	28:00	28:56	29:52
0:57	16:09	17:06	18:03	19:00	19:57	20:54	21:51	22:48	23:45	24:42	25:39	26:36	27:33	28:30	29:27	30:24
0:58	16:26	17:24	18:22	19:20	20:18	21:16	22:14	23:12	24:10	25:08	26:06	27:04	28:02	29:00	29:58	30:56
0:59	16:43	17:42	18:41	19:40	20:39	21:38	22:37	23:36	24:35	25:34	26:33	27:32	28:31	29:30	30:29	31:28
1:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	25:00	26:00	27:00	28:00	29:00	30:00	31:00	32:00
1:01	17:17	18:18	19:19	20:20	21:21	22:22	23:23	24:24	25:25	26:26	27:27	28:28	29:29	30:30	31:31	32:32
1:02	17:34	18:36	19:38	20:40	21:42	22:44	23:46	24:48	25:50	26:52	27:54	28:56	29:58	31:00	32:02	33:04
1:03	17:51	18:54	19:57	21:00	22:03	23:06	24:09	25:12	26:15	27:18	28:21	29:24	30:27	31:30	32:33	33:36
1:04	18:08	19:12	20:16	21:20	22:24	23:28	24:32	25:36	26:40	27:44	28:48	29:52	30:56	32:00	33:04	34:08
1:05	18:25	19:30	20:35	21:40	22:45	23:50	24:55	26:00	27:05	28:10	29:15	30:20	31:25	32:30	33:35	34:40
1:06	18:42	19:48	20:54	22:00	23:06	24:12	25:18	26:24	27:30	28:36	29:42	30:48	31:54	33:00	34:06	35:12
1:07	18:59	20:06	21:13	22:20	23:27	24:34	25:41	26:48	27:55	29:02	30:09	31:16	32:23	33:30	34:37	35:44
1:08	19:16	20:24	21:32	22:40	23:48	24:56	26:04	27:12	28:20	29:28	30:36	31:44	32:52	34:00	35:08	36:16
1:09	19:33	20:42	21:51	23:00	24:09	25:18	26:27	27:36	28:45	29:54	31:03	32:12	33:21	34:30	35:39	36:48
1:10	19:50	21:00	22:10	23:20	24:30	25:40	26:50	28:00	29:10	30:20	31:30	32:40	33:50	35:00	36:10	37:20
1:11	20:07	21:18	22:29	23:40	24:51	26:02	27:13	28:24	29:35	30:46	31:57	33:08	34:19	35:30	36:41	37:52
1:12	20:24	21:36	22:48	24:00	25:12	26:24	27:36	28:48	30:00	31:12	32:24	33:36	34:48	36:00	37:12	38:24
1:13	20:41	21:54	23:07	24:20	25:33	26:46	27:59	29:12	30:25	31:38	32:51	34:04	35:17	36:30	37:43	38:56
1:14	20:58	22:12	23:26	24:40	25:54	27:08	28:22	29:36	30:50	32:04	33:18	34:32	35:46	37:00	38:14	39:28
1:15	21:15	22:30	23:45	25:00	26:15	27:30	28:45	30:00	31:15	32:30	33:45	35:00	36:15	37:30	38:45	40:00
1:16	21:32	22:48	24:04	25:20	26:36	27:52	29:08	30:24	31:40	32:56	34:12	35:28	36:44	38:00	39:16	40:32
1:17	21:49	23:06	24:23	25:40	26:57	28:14	29:31	30:48	32:05	33:22	34:39	35:56	37:13	38:30	39:47	41:04
1:18	22:06	23:24	24:42	26:00	27:18	28:36	29:54	31:12	32:30	33:48	35:06	36:24	37:42	39:00	40:18	41:36
1:19	22:23	23:42	25:01	26:20	27:39	28:58	30:17	31:36	32:55	34:14	35:33	36:52	38:11	39:30	40:49	42:08
1:20	22:40	24:00	25:20	26:40	28:00	29:20	30:40	32:00	33:20	34:40	36:00	37:20	38:40	40:00	41:20	42:40
1:21	22:57	24:18	25:39	27:00	28:21	29:42	31:03	32:24	33:45	35:06	36:27	37:48	39:09	40:30	41:51	43:12
1:22	23:14	24:36	25:58	27:20	28:42	30:04	31:26	32:48	34:10	35:32	36:54	38:16	39:38	41:00	42:22	43:44
1:23	23:31	24:54	26:17	27:40	29:03	30:26	31:49	33:12	34:35	35:58	37:21	38:44	40:07	41:30	42:53	44:16
1:24	23:48	25:12	26:36	28:00	29:24	30:48	32:12	33:36	35:00	36:24	37:48	39:12	40:36	42:00	43:24	44:48
1:25	24:05	25:30	26:55	28:20	29:45	31:10	32:35	34:00	35:25	36:50	38:15	39:40	41:05	42:30	43:55	45:20
1:26	24:22	25:48	27:14	28:40	30:06	31:32	32:58	34:24	35:50	37:16	38:42	40:08	41:34	43:00	44:26	45:52
1:27	24:39	26:06	27:33	29:00	30:27	31:54	33:21	34:48	36:15	37:42	39:09	40:36	42:03	43:30	44:57	46:24
1:28	24:56	26:24	27:52	29:20	30:48	32:16	33:44	35:12	36:40	38:08	39:36	41:04	42:32	44:00	45:28	46:56
1:29	25:13	26:42	28:11	29:40	31:09	32:38	34:07	35:36	37:05	38:34	40:03	41:32	43:01	44:30	45:59	47:28
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1:31	25:47	27:18	28:49	30:20	31:51	33:22	34:53	36:24	37:55	39:26	40:57	42:28	43:59	45:30	47:01	48:32
1:32	26:04	27:36	29:08	30:40	32:12	33:44	35:16	36:48	38:20	39:52	41:24	42:56	44:28	46:00	47:32	49:04
1:33	26:21	27:54	29:27	31:00	32:33	34:06	35:39	37:12	38:45	40:18	41:51	43:24	44:57	46:30	48:03	49:36
1:34	26:38	28:12	29:46	31:20	32:54	34:28	36:02	37:36	39:10	40:44	42:18	43:52	45:26	47:00	48:34	50:08
1:35	26:55	28:30	30:05	31:40	33:15	34:50	36:25	38:00	39:35	41:10	42:45	44:20	45:55	47:30	49:05	50:40
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1:38	27:46	29:24	31:02	32:40	34:18	35:56	37:34	39:12	40:50	42:28	44:06	45:44	47:22	49:00	50:38	52:16
1:39	28:03	29:42	31:21	33:00	34:39	36:18	37:57	39:36	41:15	42:54	44:33	46:12	47:51	49:30	51:09	52:48
1:40	28:20	30:00	31:40	33:20	35:00	36:40	38:20	40:00	41:40	43:20	45:00	46:40	48:20	50:00	51:40	53:20

Table 4 EN1 Training Paces (with 10 seconds rest)

Threshold	Repeat Distance									Threshold	Repeat Distance								
	25	50	75	100	150	200	300	400	500		25	50	75	100	150	200	300	400	500
0:55	0:13	0:26	0:40	0:54	1:22	1:51	2:47	3:44	4:41	1:21	0:18	0:37	0:58	1:19	2:00	2:41	4:03	5:26	6:48
	0:13	0:26	0:41	0:56	1:25	1:54	2:52	3:51	4:49		0:19	0:39	1:00	1:23	2:05	2:48	4:13	5:40	7:05
	0:13	0:27	0:42	0:58	1:27	1:57	2:57	3:58	4:57		0:20	0:41	1:03	1:26	2:10	2:55	4:25	5:55	7:24
0:56	0:13	0:26	0:40	0:55	1:24	1:53	2:50	3:48	4:46	1:22	0:18	0:38	0:58	1:20	2:01	2:43	4:06	5:30	6:53
	0:13	0:27	0:42	0:57	1:26	1:56	2:55	3:55	4:54		0:19	0:39	1:01	1:24	2:06	2:50	4:16	5:44	7:11
	0:14	0:28	0:43	0:59	1:29	1:59	3:00	4:02	5:03		0:20	0:41	1:04	1:27	2:12	2:57	4:28	6:00	7:30
0:57	0:13	0:27	0:41	0:56	1:25	1:54	2:53	3:52	4:50	1:23	0:19	0:38	0:59	1:21	2:02	2:44	4:09	5:34	6:57
	0:13	0:27	0:42	0:58	1:28	1:58	2:58	3:59	4:59		0:19	0:40	1:02	1:25	2:08	2:52	4:20	5:49	7:16
	0:14	0:28	0:44	1:00	1:31	2:02	3:04	4:07	5:09		0:20	0:42	1:05	1:29	2:14	3:00	4:31	6:05	7:36
0:58	0:13	0:27	0:42	0:57	1:27	1:56	2:56	3:56	4:55	1:24	0:19	0:39	1:00	1:22	2:04	2:46	4:11	5:38	7:02
	0:14	0:28	0:43	0:59	1:29	2:00	3:01	4:04	5:05		0:20	0:40	1:02	1:26	2:09	2:54	4:23	5:53	7:21
	0:14	0:29	0:44	1:01	1:32	2:04	3:07	4:11	5:14		0:21	0:42	1:05	1:30	2:15	3:02	4:35	6:09	7:42
0:59	0:13	0:28	0:43	0:58	1:28	1:58	2:59	4:00	5:00	1:25	0:19	0:39	1:00	1:23	2:05	2:48	4:14	5:42	7:07
	0:14	0:28	0:44	1:00	1:31	2:02	3:04	4:08	5:10		0:20	0:41	1:03	1:27	2:11	2:56	4:26	5:57	7:26
	0:14	0:29	0:45	1:02	1:34	2:06	3:10	4:16	5:20		0:21	0:43	1:06	1:31	2:17	3:04	4:38	6:14	7:47
1:00	0:14	0:28	0:43	0:59	1:30	2:00	3:02	4:04	5:05	1:26	0:19	0:40	1:01	1:24	2:07	2:50	4:17	5:45	7:12
	0:14	0:29	0:45	1:01	1:32	2:04	3:08	4:12	5:15		0:20	0:41	1:04	1:28	2:12	2:58	4:29	6:01	7:32
	0:15	0:30	0:46	1:03	1:35	2:08	3:14	4:20	5:25		0:21	0:43	1:07	1:32	2:19	3:06	4:42	6:18	7:53
1:01	0:14	0:28	0:44	1:00	1:31	2:02	3:05	4:08	5:10	1:27	0:19	0:40	1:02	1:25	2:08	2:52	4:20	5:49	7:17
	0:14	0:29	0:45	1:02	1:34	2:06	3:11	4:16	5:20		0:20	0:42	1:05	1:29	2:14	3:00	4:32	6:05	7:37
	0:15	0:30	0:47	1:04	1:37	2:10	3:17	4:25	5:31		0:21	0:44	1:08	1:33	2:20	3:09	4:45	6:23	7:59
1:02	0:14	0:29	0:45	1:01	1:32	2:04	3:08	4:12	5:15	1:28	0:20	0:40	1:02	1:26	2:10	2:54	4:23	5:53	7:21
	0:15	0:31	0:48	1:05	1:39	2:13	3:20	4:29	5:37		0:21	0:42	1:05	1:30	2:16	3:02	4:35	6:10	7:42
	0:15	0:31	0:48	1:05	1:39	2:13	3:20	4:29	5:37		0:22	0:44	1:09	1:34	2:22	3:11	4:49	6:28	8:05
1:03	0:14	0:29	0:45	1:02	1:34	2:06	3:11	4:16	5:20	1:29	0:20	0:41	1:03	1:27	2:11	2:56	4:26	5:57	7:26
	0:15	0:31	0:48	1:06	1:40	2:15	3:24	4:34	5:42		0:21	0:43	1:06	1:31	2:17	3:04	4:38	6:14	7:47
	0:15	0:31	0:48	1:06	1:40	2:15	3:24	4:34	5:42		0:22	0:45	1:09	1:35	2:24	3:13	4:52	6:32	8:10
1:04	0:15	0:30	0:46	1:03	1:35	2:08	3:14	4:20	5:25	1:30	0:20	0:41	1:04	1:28	2:12	2:58	4:29	6:01	7:31
	0:15	0:31	0:48	1:05	1:39	2:12	3:20	4:29	5:36		0:21	0:43	1:07	1:32	2:19	3:06	4:41	6:18	7:53
	0:16	0:32	0:49	1:08	1:42	2:17	3:27	4:38	5:48		0:22	0:46	1:10	1:36	2:26	3:16	4:55	6:37	8:16
1:05	0:15	0:30	0:47	1:04	1:37	2:10	3:16	4:24	5:30	1:31	0:20	0:42	1:04	1:28	2:14	3:00	4:31	6:05	7:36
	0:15	0:31	0:48	1:06	1:40	2:14	3:23	4:33	5:41		0:21	0:44	1:08	1:33	2:20	3:08	4:45	6:22	7:58
	0:16	0:32	0:50	1:09	1:44	2:19	3:30	4:43	5:53		0:22	0:46	1:11	1:37	2:27	3:18	4:59	6:42	8:22
1:06	0:15	0:31	0:47	1:05	1:38	2:12	3:19	4:28	5:35	1:32	0:21	0:42	1:05	1:29	2:15	3:01	4:34	6:08	7:41
	0:15	0:32	0:49	1:07	1:42	2:17	3:26	4:37	5:47		0:22	0:44	1:08	1:34	2:22	3:10	4:48	6:26	8:03
	0:16	0:33	0:51	1:10	1:45	2:22	3:34	4:47	5:59		0:23	0:47	1:12	1:39	2:29	3:20	5:02	6:46	8:28
1:07	0:15	0:31	0:48	1:06	1:40	2:14	3:22	4:32	5:40	1:33	0:21	0:43	1:06	1:30	2:17	3:03	4:37	6:12	7:45
	0:16	0:32	0:50	1:08	1:43	2:19	3:29	4:41	5:52		0:22	0:45	1:09	1:35	2:23	3:12	4:51	6:31	8:08
	0:16	0:33	0:52	1:11	1:47	2:24	3:37	4:52	6:05		0:23	0:47	1:13	1:40	2:31	3:22	5:06	6:51	8:34
1:08	0:15	0:32	0:49	1:07	1:41	2:16	3:25	4:36	5:45	1:34	0:21	0:43	1:07	1:31	2:18	3:05	4:40	6:16	7:50
	0:16	0:33	0:51	1:09	1:45	2:21	3:33	4:46	5:57		0:22	0:45	1:10	1:36	2:25	3:14	4:54	6:35	8:14
	0:17	0:34	0:52	1:12	1:49	2:26	3:41	4:56	6:10		0:23	0:48	1:13	1:41	2:32	3:25	5:09	6:56	8:39
1:09	0:16	0:32	0:49	1:08	1:43	2:18	3:28	4:40	5:49	1:35	0:21	0:44	1:07	1:32	2:19	3:07	4:43	6:20	7:55
	0:16	0:33	0:51	1:10	1:46	2:23	3:36	4:50	6:02		0:22	0:46	1:11	1:37	2:26	3:17	4:57	6:39	8:19
	0:17	0:34	0:53	1:13	1:50	2:28	3:44	5:01	6:16		0:23	0:48	1:14	1:42	2:34	3:27	5:13	7:00	8:45
1:10	0:16	0:33	0:50	1:09	1:44	2:20	3:31	4:43	5:54	1:36	0:21	0:44	1:08	1:33	2:21	3:09	4:46	6:24	8:00
	0:16	0:34	0:52	1:11	1:48	2:25	3:39	4:54	6:08		0:23	0:46	1:11	1:38	2:28	3:19	5:00	6:43	8:24
	0:17	0:35	0:54	1:14	1:52	2:30	3:47	5:05	6:22		0:24	0:49	1:15	1:43	2:36	3:29	5:16	7:05	8:51
1:11	0:16	0:33	0:51	1:10	1:45	2:22	3:34	4:47	5:59	1:37	0:22	0:44	1:09	1:34	2:22	3:11	4:48	6:27	8:04
	0:17	0:34	0:53	1:12	1:49	2:27	3:42	4:58	6:13		0:23	0:47	1:12	1:39	2:29	3:21	5:03	6:47	8:29
	0:17	0:36	0:55	1:15	1:54	2:33	3:51	5:10	6:27		0:24	0:49	1:16	1:44	2:38	3:32	5:20	7:09	8:57
1:12	0:16	0:33	0:52	1:11	1:47	2:23	3:37	4:51	6:04	1:38	0:22	0:45	1:09	1:35	2:24	3:13	4:51	6:31	8:09
	0:17	0:35	0:53	1:13	1:51	2:29	3:45	5:02	6:18		0:23	0:47	1:13	1:40	2:31	3:23	5:06	6:52	8:35
	0:18	0:36	0:56	1:16	1:55	2:35	3:54	5:14	6:33		0:24	0:50	1:17	1:45	2:39	3:34	5:23	7:14	9:03
1:13	0:16	0:34	0:52	1:12	1:48	2:25	3:40	4:55	6:09	1:39	0:22	0:45	1:10	1:36	2:25	3:15	4:54	6:35	8:14
	0:17	0:35	0:54	1:14	1:52	2:31	3:48	5:07	6:23		0:23	0:48	1:14	1:41	2:32	3:25	5:10	6:56	8:40
	0:18	0:37	0:56	1:17	1:57	2:37	3:57	5:19	6:39		0:24	0:50	1:18	1:47	2:41	3:36	5:27	7:19	9:09
1:14	0:17	0:34	0:53	1:13	1:50	2:27	3:43	4:59	6:14	1:40	0:22	0:46	1:11	1:37	2:26	3:16	4:57	6:39	8:19
	0:17	0:36	0:55	1:15	1:54	2:33	3:51	5:11	6:29		0:23	0:48	1:14	1:42	2:34	3:27	5:13	7:00	8:45
	0:18	0:37	0:57	1:19	1:59	2:39	4:01	5:23	6:44		0:25	0:51	1:18	1:48	2:43	3:38	5:30	7:24	9:14
1:15	0:17																		

Table 5 EN2 Training Paces (with 10 seconds rest)

Threshold	Repeat Distance								Threshold	Repeat Distance							
	50	75	100	150	200	300	400	500		50	75	100	150	200	300	400	500
0:55	0:25	0:38	0:52	1:18	1:45	2:39	3:34	4:27	1:21	0:36	0:55	1:15	1:54	2:33	3:51	5:11	6:28
	0:25	0:39	0:53	1:21	1:48	2:44	3:40	4:35		0:37	0:57	1:19	1:59	2:40	4:01	5:24	6:45
	0:26	0:40	0:55	1:23	1:52	2:49	3:47	4:43		0:39	1:00	1:22	2:04	2:47	4:12	5:39	7:03
0:56	0:25	0:38	0:53	1:20	1:47	2:42	3:38	4:32	1:22	0:36	0:56	1:16	1:55	2:35	3:54	5:14	6:33
	0:26	0:40	0:54	1:22	1:50	2:47	3:44	4:40		0:38	0:58	1:20	2:00	2:42	4:04	5:28	6:50
	0:26	0:41	0:56	1:25	1:54	2:52	3:51	4:49		0:39	1:01	1:23	2:06	2:49	4:15	5:43	7:09
0:57	0:25	0:39	0:54	1:21	1:49	2:45	3:41	4:37	1:23	0:36	0:56	1:17	1:57	2:37	3:57	5:18	6:38
	0:26	0:40	0:55	1:24	1:52	2:50	3:48	4:45		0:38	0:59	1:21	2:02	2:44	4:07	5:32	6:55
	0:27	0:42	0:57	1:26	1:56	2:55	3:55	4:54		0:40	1:01	1:24	2:07	2:51	4:19	5:47	7:14
0:58	0:26	0:40	0:55	1:23	1:51	2:48	3:45	4:41	1:24	0:37	0:57	1:18	1:58	2:38	3:59	5:22	6:42
	0:27	0:41	0:56	1:25	1:54	2:53	3:52	4:50		0:39	0:59	1:22	2:03	2:46	4:10	5:36	7:00
	0:27	0:42	0:58	1:28	1:58	2:58	3:59	4:59		0:40	1:02	1:25	2:09	2:53	4:22	5:52	7:20
0:59	0:26	0:40	0:56	1:24	1:53	2:50	3:49	4:46	1:25	0:37	0:58	1:19	1:59	2:40	4:02	5:25	6:47
	0:27	0:42	0:57	1:27	1:56	2:56	3:56	4:55		0:39	1:00	1:23	2:05	2:47	4:13	5:40	7:05
	0:28	0:43	0:59	1:29	2:00	3:01	4:04	5:05		0:41	1:03	1:26	2:11	2:55	4:25	5:56	7:25
1:00	0:27	0:41	0:56	1:25	1:55	2:53	3:53	4:51	1:26	0:38	0:58	1:20	2:01	2:42	4:05	5:29	6:51
	0:28	0:42	0:58	1:28	1:58	2:59	4:00	5:00		0:39	1:01	1:23	2:06	2:49	4:16	5:44	7:10
	0:28	0:44	1:00	1:31	2:02	3:05	4:08	5:10		0:41	1:04	1:27	2:12	2:58	4:28	6:00	7:31
1:01	0:27	0:42	0:57	1:27	1:56	2:56	3:56	4:55	1:27	0:38	0:59	1:21	2:02	2:44	4:08	5:33	6:56
	0:28	0:43	0:59	1:29	2:00	3:02	4:04	5:05		0:40	1:02	1:24	2:08	2:51	4:19	5:48	7:15
	0:29	0:45	1:01	1:32	2:04	3:08	4:12	5:15		0:42	1:05	1:29	2:14	3:00	4:32	6:05	7:36
1:02	0:28	0:42	0:58	1:28	1:58	2:59	4:00	5:00	1:28	0:39	0:59	1:22	2:03	2:46	4:10	5:36	7:00
	0:28	0:44	1:00	1:31	2:02	3:05	4:08	5:10		0:40	1:02	1:25	2:09	2:53	4:22	5:52	7:20
	0:29	0:45	1:02	1:34	2:06	3:11	4:16	5:21		0:42	1:05	1:30	2:15	3:02	4:35	6:09	7:42
1:03	0:28	0:43	0:59	1:29	2:00	3:02	4:04	5:05	1:29	0:39	1:00	1:23	2:05	2:47	4:13	5:40	7:05
	0:29	0:45	1:01	1:32	2:04	3:08	4:12	5:15		0:41	1:03	1:26	2:11	2:55	4:25	5:56	7:25
	0:30	0:46	1:03	1:36	2:08	3:14	4:21	5:26		0:43	1:06	1:31	2:17	3:04	4:38	6:14	7:47
1:04	0:28	0:44	1:00	1:31	2:02	3:04	4:08	5:10	1:30	0:39	1:01	1:23	2:06	2:49	4:16	5:44	7:10
	0:29	0:45	1:02	1:34	2:06	3:11	4:16	5:20		0:41	1:04	1:27	2:12	2:57	4:28	6:00	7:30
	0:30	0:47	1:04	1:37	2:11	3:17	4:25	5:31		0:43	1:07	1:32	2:19	3:06	4:41	6:18	7:53
1:05	0:29	0:44	1:01	1:32	2:04	3:07	4:11	5:14	1:31	0:40	1:01	1:24	2:07	2:51	4:19	5:47	7:14
	0:30	0:46	1:03	1:35	2:08	3:14	4:20	5:25		0:42	1:04	1:28	2:13	2:59	4:31	6:04	7:35
	0:31	0:48	1:05	1:39	2:13	3:20	4:29	5:37		0:44	1:08	1:33	2:20	3:08	4:45	6:22	7:58
1:06	0:29	0:45	1:02	1:34	2:06	3:10	4:15	5:19	1:32	0:40	1:02	1:25	2:09	2:53	4:21	5:51	7:19
	0:30	0:47	1:04	1:37	2:10	3:17	4:24	5:30		0:42	1:05	1:29	2:15	3:01	4:34	6:08	7:40
	0:31	0:48	1:06	1:40	2:15	3:24	4:34	5:42		0:44	1:08	1:34	2:22	3:11	4:48	6:27	8:04
1:07	0:30	0:46	1:03	1:35	2:07	3:13	4:19	5:24	1:33	0:41	1:03	1:26	2:10	2:55	4:24	5:55	7:23
	0:31	0:47	1:05	1:38	2:12	3:20	4:28	5:35		0:43	1:06	1:30	2:16	3:03	4:37	6:12	7:45
	0:32	0:49	1:07	1:42	2:17	3:27	4:38	5:47		0:45	1:09	1:35	2:24	3:13	4:51	6:31	8:09
1:08	0:30	0:46	1:04	1:36	2:09	3:15	4:23	5:28	1:34	0:41	1:03	1:27	2:11	2:56	4:27	5:58	7:28
	0:31	0:48	1:06	1:40	2:14	3:22	4:32	5:40		0:43	1:07	1:31	2:18	3:05	4:40	6:16	7:50
	0:32	0:50	1:08	1:43	2:19	3:30	4:42	5:53		0:45	1:10	1:36	2:25	3:15	4:55	6:36	8:15
1:09	0:31	0:47	1:05	1:38	2:11	3:18	4:26	5:33	1:35	0:41	1:04	1:28	2:13	2:58	4:29	6:02	7:32
	0:32	0:49	1:07	1:41	2:16	3:25	4:36	5:45		0:44	1:07	1:32	2:19	3:07	4:43	6:20	7:55
	0:33	0:51	1:10	1:45	2:21	3:33	4:46	5:58		0:46	1:11	1:37	2:27	3:17	4:58	6:40	8:20
1:10	0:31	0:48	1:06	1:39	2:13	3:21	4:30	5:37	1:36	0:42	1:05	1:29	2:14	3:00	4:32	6:05	7:37
	0:32	0:50	1:08	1:43	2:18	3:28	4:40	5:50		0:44	1:08	1:33	2:21	3:09	4:46	6:24	8:00
	0:33	0:51	1:11	1:47	2:23	3:36	4:51	6:03		0:46	1:12	1:38	2:28	3:19	5:01	6:45	8:26
1:11	0:31	0:48	1:06	1:40	2:15	3:24	4:34	5:42	1:37	0:42	1:05	1:30	2:15	3:02	4:35	6:09	7:41
	0:33	0:50	1:09	1:44	2:20	3:31	4:44	5:55		0:44	1:09	1:34	2:22	3:11	4:49	6:28	8:05
	0:34	0:52	1:12	1:48	2:25	3:40	4:55	6:09		0:47	1:12	1:39	2:30	3:21	5:04	6:49	8:31
1:12	0:32	0:49	1:07	1:42	2:17	3:27	4:37	5:47	1:38	0:43	1:06	1:30	2:17	3:04	4:37	6:13	7:46
	0:33	0:51	1:10	1:46	2:22	3:34	4:48	6:00		0:45	1:09	1:35	2:24	3:13	4:52	6:32	8:10
	0:34	0:53	1:13	1:50	2:28	3:43	4:59	6:14		0:47	1:13	1:40	2:32	3:24	5:08	6:53	8:37
1:13	0:32	0:50	1:08	1:43	2:18	3:29	4:41	5:51	1:39	0:43	1:07	1:31	2:18	3:05	4:40	6:16	7:50
	0:33	0:52	1:11	1:47	2:24	3:37	4:52	6:05		0:45	1:10	1:36	2:25	3:15	4:55	6:36	8:15
	0:35	0:54	1:14	1:51	2:30	3:46	5:04	6:20		0:48	1:14	1:41	2:33	3:26	5:11	6:58	8:42
1:14	0:33	0:50	1:09	1:44	2:20	3:32	4:45	5:56	1:40	0:44	1:07	1:32	2:19	3:07	4:43	6:20	7:55
	0:34	0:52	1:12	1:49	2:26	3:40	4:56	6:10		0:46	1:11	1:37	2:27	3:17	4:58	6:40	8:20
	0:35	0:54	1:15	1:53	2:32	3:49	5:08	6:25		0:48	1:15	1:43	2:35	3:28	5:14	7:02	8:48
1:15	0:33	0:51	1:10	1:46	2:22	3:35	4:49	6:01	1:41	0:44	1:08	1:33	2:21	3:09	4:45	6:23	7:59
	0:34	0:53	1:13	1:50	2:28	3:43	5:00	6:15		0:46	1:11	1:38	2:28	3:19	5:01	6:44	8:25
	0:36	0:55	1:16	1:55	2:34	3:53	5:12	6:31		0:49	1:16	1:44	2:37	3:30	5:18	7:07	8:54
1:16	0:34	0:52	1:11	1:47	2:24	3:38	4:52	6:05	1:42	0:44	1:08	1:34	2:22	3:11	4:48	6:27	8:04
	0:35	0:54	1:14	1:51	2:30	3:46	5:04	6:20		0:47	1:12	1:39	2:30	3:21	5:04	6:48	8:30
	0:36	0:56	1:17	1:56	2:36	3:56	5:17	6:36		0:49	1:16	1:45	2:38	3:32	5:21	7:11	8:59
1:17	0:34	0:52	1:12	1:49	2:26	3:40	4:56	6:10	1:43	0:45	1:09	1:35	2:23	3:12	4:51	6:31	8:08
	0:35	0:54	1:15	1:53	2:32	3:49	5:08	6:25		0:47	1:13	1:40	2:31	3:23	5:07	6:52	8:35
	0:37	0:57</															

Table 6 EN2 Training Paces (with 30 seconds rest)

Threshold	Repeat Distance								Threshold	Repeat Distance							
	50	75	100	150	200	300	400	500		50	75	100	150	200	300	400	500
0:55	0:23	0:36	0:50	1:16	1:44	2:38	3:33	4:27	1:21	0:34	0:53	1:12	1:51	2:32	3:50	5:09	6:28
	0:24	0:37	0:51	1:19	1:47	2:43	3:39	4:35		0:35	0:55	1:16	1:56	2:38	3:59	5:22	6:45
	0:25	0:38	0:53	1:21	1:51	2:47	3:45	4:43		0:37	0:57	1:19	2:01	2:45	4:10	5:37	7:03
0:56	0:24	0:37	0:51	1:18	1:46	2:41	3:36	4:32	1:22	0:34	0:53	1:13	1:52	2:33	3:52	5:13	6:33
	0:24	0:38	0:52	1:20	1:49	2:46	3:43	4:40		0:36	0:55	1:16	1:57	2:40	4:02	5:26	6:50
	0:25	0:39	0:54	1:23	1:53	2:51	3:50	4:49		0:37	0:58	1:20	2:03	2:47	4:13	5:41	7:09
0:57	0:24	0:37	0:52	1:19	1:48	2:44	3:40	4:37	1:23	0:35	0:54	1:14	1:54	2:35	3:55	5:16	6:38
	0:25	0:39	0:53	1:22	1:51	2:48	3:47	4:45		0:36	0:56	1:17	1:59	2:42	4:05	5:30	6:55
	0:26	0:40	0:55	1:24	1:55	2:54	3:54	4:54		0:38	0:59	1:21	2:04	2:49	4:17	5:46	7:14
0:58	0:25	0:38	0:52	1:20	1:50	2:46	3:44	4:41	1:24	0:35	0:54	1:15	1:55	2:37	3:58	5:20	6:42
	0:25	0:39	0:54	1:23	1:53	2:51	3:51	4:50		0:37	0:57	1:18	2:00	2:44	4:08	5:34	7:00
	0:26	0:40	0:56	1:26	1:57	2:57	3:58	4:59		0:38	0:59	1:22	2:06	2:52	4:20	5:50	7:20
0:59	0:25	0:39	0:53	1:22	1:52	2:49	3:48	4:46	1:25	0:36	0:55	1:16	1:56	2:39	4:00	5:24	6:47
	0:26	0:40	0:55	1:24	1:55	2:54	3:55	4:55		0:37	0:57	1:19	2:02	2:46	4:11	5:38	7:05
	0:27	0:41	0:57	1:27	1:59	3:00	4:02	5:05		0:39	1:00	1:23	2:07	2:54	4:23	5:54	7:25
1:00	0:25	0:39	0:54	1:23	1:53	2:52	3:51	4:51	1:26	0:36	0:56	1:17	1:58	2:40	4:03	5:27	6:51
	0:26	0:41	0:56	1:26	1:57	2:57	3:59	5:00		0:38	0:58	1:20	2:03	2:48	4:14	5:42	7:10
	0:27	0:42	0:58	1:29	2:01	3:03	4:07	5:10		0:39	1:01	1:24	2:09	2:56	4:26	5:59	7:31
1:01	0:26	0:40	0:55	1:25	1:55	2:55	3:55	4:55	1:27	0:36	0:56	1:18	1:59	2:42	4:06	5:31	6:56
	0:27	0:41	0:57	1:27	1:59	3:00	4:03	5:05		0:38	0:59	1:21	2:04	2:50	4:17	5:46	7:15
	0:28	0:43	0:59	1:30	2:03	3:06	4:11	5:15		0:40	1:02	1:25	2:10	2:58	4:30	6:03	7:36
1:02	0:26	0:41	0:56	1:26	1:57	2:57	3:59	5:00	1:28	0:37	0:57	1:18	2:00	2:44	4:09	5:35	7:00
	0:27	0:42	0:58	1:29	2:01	3:03	4:07	5:10		0:38	1:00	1:22	2:06	2:52	4:20	5:50	7:20
	0:28	0:43	1:00	1:32	2:05	3:09	4:15	5:21		0:40	1:02	1:26	2:12	3:00	4:33	6:07	7:42
1:03	0:27	0:41	0:57	1:27	1:59	3:00	4:03	5:05	1:29	0:37	0:57	1:19	2:02	2:46	4:11	5:38	7:05
	0:28	0:43	0:59	1:30	2:03	3:06	4:11	5:15		0:41	1:03	1:27	2:14	3:02	4:36	6:12	7:47
	0:28	0:44	1:01	1:33	2:07	3:13	4:19	5:26		0:43	1:06	1:31	2:20	3:11	4:49	6:29	8:09
1:04	0:27	0:42	0:58	1:29	2:01	3:03	4:06	5:10	1:30	0:38	0:58	1:20	2:03	2:48	4:14	5:42	7:10
	0:28	0:43	1:00	1:32	2:05	3:09	4:15	5:20		0:39	1:01	1:24	2:09	2:56	4:26	5:58	7:30
	0:29	0:45	1:02	1:35	2:09	3:16	4:24	5:31		0:41	1:04	1:28	2:15	3:04	4:39	6:16	7:53
1:05	0:27	0:43	0:59	1:30	2:03	3:06	4:10	5:14	1:31	0:38	0:59	1:21	2:04	2:49	4:17	5:46	7:14
	0:28	0:44	1:01	1:33	2:07	3:12	4:19	5:25		0:40	1:02	1:25	2:10	2:58	4:29	6:02	7:35
	0:29	0:46	1:03	1:36	2:11	3:19	4:28	5:37		0:42	1:05	1:29	2:17	3:07	4:43	6:21	7:58
1:06	0:28	0:43	0:59	1:31	2:04	3:08	4:14	5:19	1:32	0:38	0:59	1:22	2:05	2:51	4:19	5:49	7:19
	0:29	0:45	1:02	1:34	2:09	3:15	4:23	5:30		0:40	1:02	1:26	2:12	3:00	4:32	6:06	7:40
	0:30	0:46	1:04	1:38	2:13	3:22	4:32	5:42		0:42	1:05	1:30	2:18	3:09	4:46	6:25	8:04
1:07	0:28	0:44	1:00	1:33	2:06	3:11	4:18	5:24	1:33	0:39	1:00	1:23	2:07	2:53	4:22	5:53	7:23
	0:29	0:45	1:02	1:36	2:11	3:18	4:27	5:35		0:41	1:03	1:27	2:13	3:01	4:35	6:10	7:45
	0:30	0:47	1:05	1:39	2:16	3:25	4:36	5:47		0:43	1:06	1:31	2:20	3:11	4:49	6:29	8:09
1:08	0:29	0:44	1:01	1:34	2:08	3:14	4:21	5:28	1:34	0:39	1:01	1:23	2:08	2:55	4:25	5:56	7:28
	0:30	0:46	1:03	1:37	2:13	3:21	4:31	5:40		0:41	1:04	1:28	2:14	3:03	4:38	6:14	7:50
	0:31	0:48	1:06	1:41	2:18	3:28	4:41	5:53		0:43	1:07	1:32	2:21	3:13	4:52	6:34	8:15
1:09	0:29	0:45	1:02	1:35	2:10	3:17	4:25	5:33	1:35	0:39	1:01	1:24	2:09	2:56	4:27	6:00	7:32
	0:30	0:47	1:04	1:39	2:15	3:24	4:35	5:45		0:41	1:04	1:29	2:16	3:05	4:41	6:18	7:55
	0:31	0:48	1:07	1:42	2:20	3:32	4:45	5:58		0:44	1:08	1:33	2:23	3:15	4:56	6:38	8:20
1:10	0:29	0:46	1:03	1:37	2:12	3:19	4:29	5:37	1:36	0:40	1:02	1:25	2:11	2:58	4:30	6:04	7:37
	0:31	0:47	1:05	1:40	2:17	3:27	4:39	5:50		0:42	1:05	1:30	2:17	3:07	4:44	6:22	8:00
	0:32	0:49	1:08	1:44	2:22	3:35	4:49	6:03		0:44	1:08	1:34	2:25	3:17	4:59	6:43	8:26
1:11	0:30	0:46	1:04	1:38	2:14	3:22	4:32	5:42	1:37	0:40	1:02	1:26	2:12	3:00	4:33	6:07	7:41
	0:31	0:48	1:06	1:42	2:19	3:30	4:43	5:55		0:42	1:06	1:30	2:19	3:09	4:47	6:26	8:05
	0:32	0:50	1:09	1:46	2:24	3:38	4:54	6:09		0:45	1:09	1:35	2:26	3:20	5:02	6:47	8:31
1:12	0:30	0:47	1:05	1:39	2:15	3:25	4:36	5:47	1:38	0:41	1:03	1:27	2:13	3:02	4:35	6:11	7:46
	0:31	0:49	1:07	1:43	2:20	3:33	4:47	6:00		0:43	1:06	1:31	2:20	3:11	4:50	6:30	8:10
	0:33	0:51	1:10	1:47	2:26	3:41	4:58	6:14		0:45	1:10	1:36	2:28	3:22	5:06	6:51	8:37
1:13	0:31	0:48	1:06	1:41	2:17	3:28	4:40	5:51	1:39	0:41	1:04	1:28	2:15	3:04	4:38	6:14	7:50
	0:32	0:49	1:08	1:44	2:22	3:36	4:51	6:05		0:43	1:07	1:32	2:22	3:13	4:53	6:34	8:15
	0:33	0:51	1:11	1:49	2:28	3:44	5:02	6:20		0:46	1:11	1:37	2:29	3:24	5:09	6:56	8:42
1:14	0:31	0:48	1:06	1:42	2:19	3:30	4:43	5:56	1:40	0:41	1:04	1:29	2:16	3:05	4:41	6:18	7:55
	0:32	0:50	1:09	1:46	2:24	3:39	4:55	6:10		0:44	1:08	1:33	2:23	3:15	4:56	6:38	8:20
	0:34	0:52	1:12	1:50	2:30	3:48	5:07	6:25		0:46	1:11	1:38	2:31	3:26	5:12	7:00	8:48
1:15	0:31	0:49	1:07	1:43	2:21	3:33	4:47	6:01	1:41	0:42	1:05	1:29	2:17	3:07	4:43	6:22	7:59
	0:33	0:51	1:10	1:47	2:26	3:42	4:59	6:15		0:44	1:08	1:34	2:24	3:17	4:59	6:42	8:25
	0:34	0:53	1:13	1:52	2:32	3:51	5:11	6:31		0:47	1:12	1:39	2:33	3:28	5:15	7:05	8:54
1:16	0:32	0:49	1:08	1:44	2:23	3:36	4:51	6:05	1:42	0:42	1:05	1:30	2:18	3:09	4:46	6:25	8:04
	0:33	0:51	1:11	1:49	2:28	3:45	5:02	6:20		0:45	1:09	1:35	2:26	3:19	5:01	6:46	8:30
	0:35	0:54	1:14	1:53	2:35	3:54	5:15	6:36		0:47	1:13	1:41	2:34	3:30	5:19	7:09	8:59
1:17	0:32	0:50	1:09	1:46	2:24	3:39	4:54	6:10	1:43	0:43	1:06	1:31	2:20	3:11	4:49	6:29	8:08
	0:34	0:52	1:12	1:50	2:30	3:48	5:06	6:25		0:45	1:10	1:36	2:27				

Table 7 EN3 Training Paces (with 30 seconds rest)

In each set of three: top time is 7% faster than EN2 average., middle time is 5% faster than EN2 average and bottom time is 3% faster than EN2 average
Repeat Distance

Threshold	Repeat Distance								Threshold	Repeat Distance							
	50	75	100	150	200	300	400	500		50	75	100	150	200	300	400	500
0:55	0:22	0:35	0:48	1:14	1:40	2:32	3:25	4:17	1:21	0:33	0:51	1:11	1:48	2:28	3:44	5:01	6:19
	0:23	0:35	0:49	1:15	1:42	2:35	3:28	4:22		0:34	0:52	1:12	1:50	2:31	3:48	5:07	6:26
	0:23	0:36	0:50	1:16	1:44	2:38	3:33	4:27		0:34	0:53	1:13	1:52	2:33	3:52	5:13	6:33
0:56	0:23	0:35	0:49	1:15	1:42	2:35	3:28	4:22	1:22	0:33	0:52	1:11	1:50	2:30	3:47	5:05	6:23
	0:23	0:36	0:50	1:16	1:44	2:38	3:32	4:27		0:34	0:53	1:13	1:52	2:32	3:51	5:11	6:30
	0:24	0:37	0:51	1:18	1:46	2:41	3:36	4:32		0:35	0:54	1:14	1:54	2:35	3:55	5:17	6:38
0:57	0:23	0:36	0:50	1:16	1:44	2:37	3:32	4:26	1:23	0:34	0:52	1:12	1:51	2:31	3:49	5:09	6:28
	0:24	0:37	0:51	1:18	1:46	2:40	3:36	4:31		0:35	0:53	1:14	1:53	2:34	3:54	5:15	6:35
	0:24	0:37	0:52	1:19	1:48	2:44	3:40	4:37		0:35	0:55	1:15	1:55	2:37	3:58	5:21	6:43
0:58	0:24	0:37	0:51	1:18	1:46	2:40	3:36	4:31	1:24	0:34	0:53	1:13	1:52	2:33	3:52	5:12	6:33
	0:24	0:37	0:52	1:19	1:48	2:43	3:40	4:36		0:35	0:54	1:15	1:54	2:36	3:56	5:18	6:40
	0:25	0:38	0:53	1:21	1:50	2:46	3:44	4:42		0:36	0:55	1:16	1:57	2:39	4:01	5:25	6:48
0:59	0:24	0:37	0:51	1:19	1:48	2:43	3:39	4:36	1:25	0:35	0:54	1:14	1:54	2:35	3:55	5:16	6:37
	0:25	0:38	0:52	1:20	1:50	2:46	3:44	4:41		0:35	0:55	1:15	1:56	2:38	3:59	5:22	6:45
	0:25	0:39	0:53	1:22	1:52	2:49	3:48	4:46		0:36	0:56	1:17	1:58	2:41	4:04	5:28	6:53
1:00	0:24	0:38	0:52	1:20	1:49	2:46	3:43	4:40	1:26	0:35	0:54	1:15	1:55	2:37	3:58	5:20	6:42
	0:25	0:39	0:53	1:22	1:51	2:49	3:47	4:46		0:36	0:55	1:16	1:57	2:40	4:02	5:26	6:50
	0:25	0:39	0:54	1:23	1:54	2:52	3:52	4:51		0:36	0:56	1:18	1:59	2:43	4:07	5:32	6:57
1:01	0:25	0:39	0:53	1:22	1:51	2:49	3:47	4:45	1:27	0:36	0:55	1:16	1:56	2:39	4:00	5:24	6:47
	0:25	0:39	0:54	1:23	1:53	2:52	3:51	4:50		0:36	0:56	1:17	1:59	2:42	4:05	5:30	6:54
	0:26	0:40	0:55	1:25	1:56	2:55	3:56	4:56		0:37	0:57	1:19	2:01	2:45	4:10	5:36	7:02
1:02	0:25	0:39	0:54	1:23	1:53	2:51	3:51	4:50	1:28	0:36	0:56	1:17	1:58	2:40	4:03	5:27	6:51
	0:26	0:40	0:55	1:24	1:55	2:55	3:55	4:55		0:37	0:57	1:18	2:00	2:44	4:08	5:34	6:59
	0:26	0:41	0:56	1:26	1:57	2:58	4:00	5:01		0:37	0:58	1:20	2:02	2:47	4:13	5:40	7:07
1:03	0:26	0:40	0:55	1:24	1:55	2:54	3:54	4:54	1:29	0:36	0:56	1:18	1:59	2:42	4:06	5:31	6:56
	0:26	0:41	0:56	1:26	1:57	2:57	3:59	5:00		0:37	0:57	1:19	2:01	2:45	4:11	5:37	7:04
	0:27	0:41	0:57	1:27	1:59	3:01	4:03	5:06		0:38	0:58	1:21	2:04	2:49	4:15	5:44	7:12
1:04	0:26	0:40	0:56	1:26	1:57	2:57	3:58	4:59	1:30	0:37	0:57	1:18	2:00	2:44	4:09	5:35	7:01
	0:27	0:41	0:57	1:27	1:59	3:00	4:03	5:05		0:37	0:58	1:20	2:03	2:47	4:13	5:41	7:09
	0:27	0:42	0:58	1:29	2:01	3:04	4:07	5:11		0:38	0:59	1:21	2:05	2:50	4:18	5:48	7:17
1:05	0:27	0:41	0:57	1:27	1:59	3:00	4:02	5:04	1:31	0:37	0:58	1:19	2:02	2:46	4:11	5:38	7:05
	0:27	0:42	0:58	1:29	2:01	3:03	4:06	5:10		0:38	0:59	1:21	2:04	2:49	4:16	5:45	7:13
	0:28	0:43	0:59	1:30	2:03	3:07	4:11	5:16		0:39	1:00	1:22	2:06	2:52	4:21	5:52	7:22
1:06	0:27	0:42	0:58	1:28	2:00	3:02	4:06	5:08	1:32	0:38	0:58	1:20	2:03	2:48	4:14	5:42	7:10
	0:27	0:43	0:59	1:30	2:03	3:06	4:10	5:14		0:38	0:59	1:22	2:05	2:51	4:19	5:49	7:18
	0:28	0:43	1:00	1:32	2:05	3:09	4:15	5:20		0:39	1:00	1:23	2:08	2:54	4:24	5:56	7:27
1:07	0:27	0:42	0:58	1:30	2:02	3:05	4:09	5:13	1:33	0:38	0:59	1:21	2:04	2:50	4:17	5:46	7:15
	0:28	0:43	0:59	1:31	2:05	3:09	4:14	5:19		0:39	1:00	1:23	2:07	2:53	4:22	5:53	7:23
	0:28	0:44	1:01	1:33	2:07	3:12	4:19	5:25		0:39	1:01	1:24	2:09	2:56	4:27	5:59	7:31
1:08	0:28	0:43	0:59	1:31	2:04	3:08	4:13	5:18	1:34	0:38	0:59	1:22	2:06	2:51	4:20	5:50	7:19
	0:28	0:44	1:00	1:33	2:06	3:11	4:18	5:24		0:39	1:01	1:23	2:08	2:55	4:25	5:56	7:28
	0:29	0:45	1:02	1:34	2:09	3:15	4:23	5:30		0:40	1:02	1:25	2:11	2:58	4:30	6:03	7:36
1:09	0:28	0:44	1:00	1:32	2:06	3:11	4:17	5:22	1:35	0:39	1:00	1:23	2:07	2:53	4:22	5:53	7:24
	0:29	0:44	1:01	1:34	2:08	3:14	4:22	5:29		0:40	1:01	1:24	2:09	2:57	4:27	6:00	7:32
	0:29	0:45	1:02	1:36	2:11	3:18	4:27	5:35		0:40	1:02	1:26	2:12	3:00	4:33	6:07	7:41
1:10	0:29	0:44	1:01	1:34	2:08	3:13	4:20	5:27	1:36	0:39	1:01	1:24	2:08	2:55	4:25	5:57	7:29
	0:29	0:45	1:02	1:35	2:10	3:17	4:25	5:33		0:40	1:02	1:25	2:11	2:58	4:30	6:04	7:37
	0:30	0:46	1:03	1:37	2:13	3:21	4:30	5:40		0:41	1:03	1:27	2:13	3:02	4:35	6:11	7:46
1:11	0:29	0:45	1:02	1:35	2:09	3:16	4:24	5:32	1:37	0:40	1:01	1:25	2:10	2:57	4:28	6:01	7:33
	0:30	0:46	1:03	1:37	2:12	3:20	4:29	5:38		0:40	1:02	1:26	2:12	3:00	4:33	6:08	7:42
	0:30	0:47	1:04	1:39	2:15	3:24	4:34	5:45		0:41	1:04	1:28	2:15	3:04	4:38	6:15	7:51
1:12	0:29	0:46	1:03	1:36	2:11	3:19	4:28	5:36	1:38	0:40	1:02	1:25	2:11	2:59	4:31	6:05	7:38
	0:30	0:46	1:04	1:38	2:14	3:23	4:33	5:43		0:41	1:03	1:27	2:13	3:02	4:36	6:11	7:47
	0:31	0:47	1:05	1:40	2:16	3:27	4:38	5:50		0:42	1:04	1:29	2:16	3:06	4:41	6:19	7:56
1:13	0:30	0:46	1:04	1:38	2:13	3:22	4:32	5:41	1:39	0:40	1:03	1:26	2:12	3:01	4:33	6:08	7:43
	0:30	0:47	1:05	1:39	2:16	3:25	4:37	5:48		0:41	1:04	1:28	2:15	3:04	4:39	6:15	7:51
	0:31	0:48	1:06	1:41	2:18	3:29	4:42	5:54		0:42	1:05	1:30	2:17	3:08	4:44	6:23	8:01
1:14	0:30	0:47	1:04	1:39	2:15	3:24	4:35	5:46	1:40	0:41	1:03	1:27	2:14	3:02	4:36	6:12	7:47
	0:31	0:48	1:06	1:41	2:18	3:28	4:41	5:52		0:42	1:04	1:29	2:16	3:06	4:41	6:19	7:56
	0:31	0:49	1:07	1:43	2:20	3:32	4:46	5:59		0:42	1:06	1:31	2:19	3:09	4:47	6:26	8:05
1:15	0:31	0:47	1:05	1:40	2:17	3:27	4:39	5:50	1:41	0:41	1:04	1:28	2:15	3:04	4:39	6:16	7:52
	0:31	0:48	1:07	1:42	2:19	3:31	4:44	5:57		0:42	1:05	1:30	2:18	3:08	4:44	6:23	8:01
	0:32	0:49	1:08	1:44	2:22	3:35	4:50	6:04		0:43	1:06	1:31	2:20	3:11	4:50	6:30	8:10
1:16	0:31	0:48	1:06	1:42	2:19	3:30	4:43	5:55	1:42	0:42	1:04	1:29	2:16	3:06	4:42	6:19	7:57
	0:32	0:49	1:07	1:44	2:21	3:34	4:48	6:02		0:42	1:06	1:31	2:19	3:10	4:47	6:27	8:06
	0:32	0:50	1:09	1:46	2:24	3:38	4:54	6:09		0:43	1:07	1:32	2:22	3:13	4:53	6:34	8:15
1:17	0:31	0:49	1:07	1:43	2:20	3:33	4:46	6:00	1:43	0:42	1:05	1:30	2:18	3:08	4:45	6:23	8:01
	0:32	0:50	1:08	1:45	2:23	3:37	4:52	6:07		0:43	1:06	1:31	2:20	3:11	4:50	6:30	8:10
	0:33	0:51	1:10	1:47	2:26	3:41	4:58	6:14		0:44	1:08	1:33	2:23	3:15	4:56	6:38	8:2



FOUNDATIONS OF *Coaching*

Team Administration Table of Contents

1. Parents' Meeting Agenda:
 - *A sample agenda for a new parents' orientation meeting.*
2. Topics for Parent Education:
 - *A list of pertinent topics to be addressed with parents.*
3. Parent Code of Conduct:
 - *Sample letter and Code of Conduct for team parents.*
4. Monthly Coach's Report:
 - *A sample form for a coach's monthly report.*
5. Including Swimmers with a Disability:
 - *A guide for working with swimmers with a disability.*
6. Working with Officials:
 - *A guide for coaches when working with officials at a swim meet.*



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Agenda for a Team Parents' Orientation Meeting

This is a suggested agenda for parents who are brand new to your club. Perhaps they are also brand new to your sport. Remember that what seems obvious to you may not be obvious to "rookie" parents.

Date of Meeting:

Location of Meeting:

Time of Meeting:

Suggested length of meeting: 60 minutes

10 minutes: Welcome and Introduction.

1. Introduce yourself, giving your full name and title (Head Coach, etc.)
2. Introduce any other members of your staff who may be present. Give full names and a brief summary of the staff members' responsibilities or role on the team.
3. Introduce any key volunteers who are present such as the Team President, Treasurer, etc.
4. Give a brief statement of your background and qualifications.

10 minutes: Team Philosophy and Goals.

1. Briefly state what it is that your club does, giving some background and history about the team.
2. Describe who owns and governs the team and its policies.
3. State your goals for the season.
 - a. For the team as a whole
 - b. For the new athletes

15 minutes: Team Rules and Expectations for Athletes

1. Explain team rules about attendance and practice
2. Explain competitions that the athletes will be involved in
3. Briefly discuss disciplinary procedures

15 minutes: Expectations for Parents

1. How to communicate with the coach(es)
2. How to help the team: fundraising or volunteer commitment
3. Where to go for information (team website, bulletin board, experienced parents)
4. Team uniforming and equipment requirements
5. How to support your child

10 minutes: Questions and Conclusions

1. Field general questions (encourage appointments or private discussion for individual concerns)
2. Handouts: team rules, handbooks, schedules
3. Announcement of upcoming meetings or social events



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Topics for Parent Education

So let's assume that you have made a commitment to devote time and effort to educating the parents of your athletes. Where do you begin? What topics should you include?

Preseason

- **For all of the parents.** During the pre or early season it is important to make both new and old members feel welcome to your program. Traditionally coaches have a Parents' Meeting packed with information about the upcoming season, usually focusing on procedures, rules, uniforming, volunteer recruitment, financial commitments and fundraising. It is very important to set the tone for the season. This is your opportunity to sell yourself, your program and your ideas. Look, speak and act professionally!
- Sample topics include:
 - Your coaching philosophy and expectations
 - Your goals and plans for the season
 - Workout and practice policies, especially any changes over the previous season
 - Volunteerism
 - Communication: how to get in touch with a coach
 - Staff responsibilities: who does what
 - A complete agenda is included on this CD.
- **For new parents.** The general meeting may be a bit overwhelming to brand new parents who may not even have the sport vocabulary mastered as you start talking about different levels of competition or training groups. While these new parents should attend the general meeting, it is a good idea to have a separate meeting, with written handouts, for new parents only. (See New Team Parents' Orientation Meeting.)
- **Other parent education topics.** During the season, plan to conduct periodic meetings and make written communications available on a variety of pertinent topics. Where applicable, consider having an outside speaker present to the parents. If you are not an expert on a topic, bring in some one who is!
- Tailor your parent presentations to the level and age of their athletes. Talking about the college recruiting process does not really interest the parents of novice swimmers.



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Suggested Topics for Each Basic Level

Recreational or Novice Level

- Basic rules of the sport
- Benefits of participation at this level
- What is the child doing in practice
- Basic expectations for being a team member
- How the team functions: administrative, governance, team rules
- How to contact the coach and where to get information
- How to help and volunteer
- Reasonable expectation of child's progress
- Introductory level competition: expectations for the parent and child
- The 10 Commandments
- Intro to growth and development

Mid Level

- Benefits of participation at this level
- Understanding basic child growth and development (early vs. late maturers)
- Understanding basic child psychology and goal setting
- Levels of competition: moving up the steps
- Dealing with success and disappointment
- What to expect during the season (competitions, season plan, expectations of athlete performance during various phases)
- Basic nutrition
- Intro to drugs and supplements
- Expanding commitment of parent: appropriate parental involvement and volunteerism
- Increased commitment of the child
- Coach-athlete-parent: communication and roles

Senior and/or Elite Level

- Body changes, puberty and growth
- Drugs and supplements
- Injury and illness: prevention and coming back from
- College recruiting
- Reaching the highest levels: what is it and how to get there, plateaus, focus, taper
- Dealing with success and disappointment
- Expectations for parents: optimal push and letting go
- Coach-parent-athlete: communication and roles
- Fueling for training and competition

This is not an all-inclusive comprehensive list but it should certainly get you started. There will be other topics related specifically to your sport or to the level of athlete in your program. Remember, the more time and effort you spend educating parents, the better the chances that you will have the parents "on the team!"



FOUNDATIONS OF
Coaching

Parent Code of Conduct

Dear Parents and Members:

As our organization grows and we continue to expand our programs, we seek to establish or clarify our policies. Our policies help to guide the organization and ensure continued success. One of the first areas to be addressed is parent behavior, specifically, what type of behavior is expected of sports parents.

Our organization is fortunate to have highly experienced, professional coaches working to develop our children into better athletes and more importantly, disciplined people. As parents, it is absolutely essential that we give our coaching staff the respect and authority they deserve to run our team. Our coaches are hired for that purpose.

We as an organization highly encourage the following parental behavior:

- Open communication between parents, athletes and coaches emphasizing goal-setting and focusing on the performance expectations of both the athlete and the parents
- Meeting with the coaches/athletes/parents during normal operating hours to discuss issues
- Positive reinforcement of all athletes in all situations; team spirit, team loyalty
- Parental involvement on the Board of Directors and in organizing and running of competitions and other team events

We as an organization will not tolerate the following behavior from parents:

- Coaching your children at practice or during competitions: that is the coach's job
- Interrupting or confronting the coaching staff during practice or competitions
- Abusive language towards coaches, athletes, parents, officials and your own children
- Any behavior that brings discredit or disruption to our athletes and our organization

Enclosed is a Parent Code of Conduct. The Code was developed as a standard to emphasize our organization's commitment to making everyone's involvement with our club a positive experience.



FOUNDATIONS OF *Coaching*

Sample Parent Code of Conduct

As a parent of an athlete and a member of the organization, I will abide by the following guidelines:

- I. Practice teamwork with all parents, athletes and coaches by supporting the values of Discipline, Loyalty, Commitment and Hard Work.
- II. As a parent, I will not coach or instruct my child or any other athlete at a practice or competition (from the stands or any other area) or interfere with coaches.
- III. Demonstrate good sportsmanship by conducting myself in a manner that earns the respect of my child, other athletes, parents, officials and the coaches at meets and practices.
- IV. Maintain self-control at all times. Know my role.

Athletes – Compete

Coaches – Coach

Officials – Officiate

Parents – Parent

- V. As a parent, I understand that criticizing, name-calling, use of abusive language or gestures directed toward the coaches, officials, and/or any participating athlete will not be permitted or tolerated.
- VI. Enjoy involvement with organization by supporting the athletes, coaches and other parents with positive communication and actions.
- VII. During competitions, questions or concerns regarding decisions made by officials are directed to a member of our coaching staff. Parents address officials via the coaching staff only.

Sanctions. Should I conduct myself in such a way that brings discredit or discord to the club, or national governing body, I voluntarily subject myself to disciplinary action. The club maintains the right to terminate any membership with/without cause in the interest of our vision, mission and objectives.



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Monthly Coach's Report

Month:

Submitted by:

Date Submitted:

I. Numbers Report: Competitive Groups:

	8 & Un	9-10	11-12	13-14	15+	Total	
Girls							
Boys							

Training Groups name)	(by	Current Month	Last Month	This Month, Last Year
Total				

Number of new swimmers this month:

Number of swimmers lost this month:

Other Groups: (Fun and Fitness, Masters, etc.)

Group Name	This Month	Last Month	This Month, Last Year
Total			

Swim Lessons:

This session	Last Session	This Session, Last Year

Total Program Participants:

Program Name	This Month	Last Month	This Month Last Year
Competitive Team			
Swim Lessons			
Total			



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II. Times Standards: Number of Swimmers with at least one time standard.

Time Standard	9-10		11-12		13-14		15+		New Standards Achieved this Month	Standards Achieved Year to Date	Standards Achieved Last Year to Date
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys			
National Juniors											
Total											

III. Meet Report:

Date	Meet	Type	# of Swimmers	# of Swims	# of Best Times	% of Best Times

Brief Summary of Meet Results: (Team placing, individual results, etc.)

IV. Publicity:

Newspaper Articles, Radio, TV, Web articles: Location, Date, Topic	This month	Year To Date	This Month Last Year to Date



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V. Financial - see attached sheet for line items

Variations from Approved Budget:

	This Month	Year to Date
Income:		
Expenses:		
Total Variation		

Explanation of Variations:

VI. Travel:

This Month:

Future Scheduled Travel:

VIII. Special Projects:

IX. Staff Notes:

X. Workout Schedule/Notes:



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XI. Goals:

This Month:

Achieved?

Wet Side Goals:

Dry Side Goals:

Next Month:

Wet Side Goals:

Dry Side Goals:



FOUNDATIONS OF *Coaching*

Including Swimmers with a Disability

Swimmers with a disability participate in USA Swimming programs for the same reasons as “able-bodied” swimmers: they want to have fun, they enjoy swimming, they want to be with friends and make new friends, they want to “get in shape” and stay healthy, they want to improve their skills and performances and they enjoy competition. Swimmers with a disability are participating in greater numbers every year.

Coaches may need guidance when faced for the first time with the opportunity to work with swimmers with a disability. The content is based upon advice from coaches who have experience working with swimmers who have a disability. Emphasis is placed upon common-sense solutions that accommodate individual differences and that rely upon typical coaching expertise.

Why Include?

Inclusion of swimmers with a disability is a practice that is easy to justify, with obvious benefits for all members of the swimming community. Inclusion is simply the right thing to do!

Benefits for Swimmers with a Disability

Athletes with disabilities who join USA Swimming clubs benefit from sport-specific coaching, more rigorous training, more competition in practice, and higher expectations than they are likely to receive in other settings. Other benefits include socialization opportunities, greater independence in activities of daily living and improved ability to cope with disability issues. The opportunity to be part of a team is especially important to athletes whose educational experiences may have been routinely individualized. The opportunity to demonstrate ability and educate others can be a very satisfying experience for persons who are frequently judged on the basis of what they cannot do.

Benefits for “Able-Bodied” Athletes

The whole team benefits from inclusion of swimmers with disabilities. New friendships and experiences enrich the lives of every member of the team. In addition, “able-bodied” swimmers learn to appreciate the concept of focusing on ability rather than limitations by observing the similarities between themselves and their teammates who have disabilities. These include common motives for swimming, shared performance goals, and similar responses to training regimens. Some coaches report that including athletes with disabilities increases motivation and decreases whining by other swimmers during practice.

Benefits for the Coach

Coaches hone their skills with respect to communicating with athletes, teaching technique, and modifying activities and equipment. Another benefit for coaches who include athletes with disabilities is the possibility of being selected to coach at camps and competitions for athletes with disabilities.

Benefits for the Club

In some cases, a swim program might get more publicity because it includes athletes with disabilities. Because the Americans with Disabilities Act puts pressure on community agencies to make programs and facilities accessible to persons with disabilities, clubs that practice inclusion may get more facility time at a lower cost than programs that do not welcome athletes with disabilities. Similarly, external funding such as sponsorship support and small grants could be easier to obtain.

How to Include

The USA Swimming rulebook defines disability as “a permanent physical or mental impairment that substantially limits one or more life activities.” This definition encompasses swimmers who are deaf, swimmers who are blind, swimmers with cognitive disabilities such as mental retardation, severe learning disabilities, or autism and swimmers with physical disabilities such as amputations, cerebral palsy, dwarfism, spinal injury, or other mobility impairments. The advice provided in this article focuses on common-sense adaptations to coaching methods that will help coaches accommodate swimmers with any of these disabilities.

Get to Know the Swimmer



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How should a coach respond when a swimmer with a disability asks to join the club or moves up into a new practice group? First, understand that it is no big deal. The most important ingredients for successful inclusion are an open mind, common sense and a willingness to try. Inclusion may require extra effort by the coach, especially during the swimmer's first few weeks with the club, but the rewards to the coach and swimmers outweigh any extra effort.

Second, get to know the athlete. Focus on the individual, not the disability. Meet with the swimmer to discuss his/her abilities and goals. Watch the athlete swim and experiment with different stroke techniques.

Third, seek advice from experienced coaches about ways to accommodate the athlete. Methods of coaching swimmers with a disability are usually not covered extensively in swimming textbooks or coaching clinics, so experienced coaches often are the best source of ideas. Although how-to-coach information is somewhat limited, information about disabilities and physical activity is readily available in most libraries and on the internet.

Have the Same Expectations

Coaches should have the same general expectations for swimmers with a disability as for their teammates. All swimmers should be expected to comply with team rules and policies, demonstrate a good work ethic and exhibit good sportsmanship. All swimmers should contribute to the team by supporting their teammates and helping with team activities. The swimmer with a disability should enjoy the same opportunities as other swimmers, such as promotion to a more advanced practice group, participation in meets and participation in team social events.

What is Classification?

Domestic Contacts for Classification are as follows:

Paralympic Eligible (physical disabilities, blind/visually impaired)

Paralympic Division, U.S. Olympic Committee

www.usparalympics.org

(719) 866-2030

paralympicinfo@usoc.org

Deaf

Joanne Weeden

USA Deaf Swimming

6weedens@wekz.net

Intellectual/Cognitive Disability

USA Swimming

Chair, Disability Swimming Committee

www.usaswimming.org

(719) 866-4578

clubdevelopment@usaswimming.org

Process for Functional Swimming Classification – IPC Swimming

The functional classification system is based on the maximized ability of elite competitive swimmers with a physical disability. For a swimmer to compete he or she must be classified.

Consent Form

Before commencing the process all swimmers are required to sign a consent form.

Process

The swimming classification process involves three parts:

Bench Test – that is usually performed by a doctor or physical therapist familiar with the testing protocol



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Water Test – a technical test usually performed by a technical specific person

Observation – during competition

A swimmer can only be granted an international classification if classified by two IPC Authorized Swimming Classifiers (one medical and one technical).

Levels of Classification

There is an International system for Classification that makes it possible for the swimmer to gain a temporary classification that makes him or her eligible to compete and have times entered into the IPC Swimming ranking database.

There are currently **trainee** classifiers, **regional** classifiers (either technical or medical) and **international** classifiers (when working alone) in each country who are able to provide the swimmer with a temporary recognized classification. The classification sheet must be forwarded to the Chair of IPC Swimming and the classification information recorded into the IPC Swimming database for the swimmer's times to be acknowledged and entered into the rankings.

N Status

A trainee classifier, regional classifier or one authorized classifier can only provide classifications for the swimmers from his or her own nation or region (= 'N'). Usually a swimmer is initially classified at the national or regional level. This classification makes it possible for the swimmer to compete at the National level or at some international competitions. The status of the swimmer will be recorded as N status.

P Status

For a classification to gain a permanent international status (= 'P'), the swimmer must be classified by two internationally authorized classifiers (one medical and one technical).

R Status

Occasionally a swimmer classified by two internationally authorized classifiers will be given an "R" or review status. This will normally be due to doubt by the classifier of the swimmer's classification. These swimmers will be required to attend the classification process at a major IPC competition, i.e. Paralympic Games, IPC World Championships or IPC Regional Championships.

Reclassification

Once a swimmer has been internationally classified, the swimmer can only be reclassified if there has been a change in the swimmer's disability or a change in the classification system.

No change can be made to an international classification at a national competition when there are less than four internationally authorized [two medical and two technical] classifiers present and three of the four classifiers having not previously classified the swimmer within the past 18 months.

Layman's Guide to Classification

Swimming is the only sport that combines the conditions of limb loss, cerebral palsy (coordination and movement restrictions), spinal cord injury (weakness or paralysis involving any combination of the limbs) and other disabilities (such as dwarfism and major joint restriction conditions) across classes.

Classes 1-10 – are allocated to swimmers with a physical disability

Classes 11-13 – are allocated to swimmers with a visual disability

Class 14 – is allocated to swimmers with an intellectual disability

Class 15 – is allocated to swimmers who are deaf

S denotes the class for freestyle, backstroke and butterfly.

SB denotes the class for breaststroke.

SM denotes the class for individual medley.



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The range is from the swimmers with severe disability (S1, SB1, SM1) to those with the minimal disability (S10, SB9, SM10).

In any one class swimmers may start with a dive or in the water depending on their condition. This is factored in when classifying the athlete.

The examples are only a guide. Some conditions not mentioned may also fit the following classes.

Functional Classification System

S1 SB1 SM1

Examples: Swimmers with very severe coordination problems in four limbs or who have no use of their legs, trunk, hands and minimal use of their shoulders only. Swimmers in this class would usually use wheelchairs and may be dependent on others for their every day needs. These swimmers usually swim only on their backs.

S2 SB1 SM2

Examples: Swimmers able to use their arms with no use of their hands, legs or trunk or have severe co-ordination problems in 4 limbs.

S3 SB2 SM3

Examples: Swimmers with reasonable arm strokes but no use of their legs or trunk; swimmers with severe coordination problems in all limbs and swimmers with severe limb loss to four limbs.

S4 SB3 SM4

Examples: Swimmers who use their arms and have minimal weakness in their hands but have no use of their trunk or legs; swimmers with coordination problems affecting all limbs but predominantly in the legs; swimmers with limb loss to 3 limbs.

S5 SB4 SM5

Examples: Swimmers with full use of their arms and hands but no trunk or leg muscles; swimmers with coordination problems.

S6 SB5 SM6

Examples: Swimmers with full use of their arms and hands with some trunk control but no useful leg muscles; swimmers with coordination problems (usually these athletes walk); swimmers with major limb loss of 2 limbs; Little People (< 130cm for women and 137cm for men).

S7 SB6 SM7

Examples: Swimmers with full use of their arms and trunk with some leg function; coordination or weakness problems on the same side of the body; major limb loss of 2 limbs.

S8 SB7 SM8

Examples: Swimmers with full use of their arms and trunk with some leg function; limb loss of 2 limbs; swimmers with the use of one arm only.

S9 SB8 SM9

Examples: Swimmers with severe weakness in one leg only; swimmers with very slight coordination problems; swimmers with one limb loss. Unless there is an underlying medical condition all of these athletes will usually start out of the water.

S10 SB9 SM10

Examples: Swimmers with very minimal weakness affecting the legs; swimmers with restriction of hip joint movement; swimmers with both feet deformed; swimmers with minor limb loss of part of a limb.

Visually Impaired Classes

S11 SB11 SM11



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These swimmers are unable to see at all and are considered totally blind. To swim in this class, the swimmers must wear blackened goggles. The swimmers will also require someone to tap them when they are approaching a wall.

S12 SB12 SM12

These swimmers can recognize the shape of a hand and have some ability to see. There is a large range of vision ability within this class.

S13 SB13 SM13

Swimmers who are the most sighted but are considered to be legally blind.

Cognitive Class

S14

Swimmers who have cognitive disabilities.

Deaf Class

S15

Athlete must have a hearing loss of at least 55db in the better ear (pure tone average at 500, 1000, and 2000 Hertz, ISO 1964 Standard).

Biomechanics

Adapt Start, Turn, and Stroke Techniques

Most coaches already have the expertise, creativity and common sense needed to adapt start, turn and stroke techniques for swimmers with a disability. The principles of biomechanics are universal and apply to all swimmers. Resistance training can help all swimmers to develop better muscular strength and endurance. Training equipment such as kickboards, pull buoys and fins help all swimmers to isolate or emphasize certain movements. Disability-specific suggestions are presented in the following paragraphs:

Swimmers who are deaf: Swimmers who are deaf have the physical ability to correctly perform strokes, turns and starts. Coaches should use frequent demonstrations and should ask the swimmer to repeat the desired motions to insure understanding of correct techniques. Also, remember to teach the athlete to use a strobe light as a starting signal.

Swimmers who are blind: Vision loss may affect swimming techniques in several ways: (a) it is often more difficult to learn a physical skill through verbal instruction than by demonstration; (b) many blind swimmers are unable to use vision to determine proper head position while swimming; (c) some blind swimmers are reluctant to move their hands and arms away from the torso; and (d) blind swimmers need ways to know when they are approaching the end of the pool. Coaches should use rich verbal descriptions during demonstrations and videotapes. Move the athlete's body through the desired movements when teaching stroke, start or turn techniques. Teach the swimmer to use stroke counts to estimate the length of the pool. Experiment with different methods of tapping to determine the best method of assisting the swimmer at meets. A tap on the leg or foot can be used to notify the swimmer to start his/her leg of a relay swim. It is important for tappers to hone their skills at practices in order to mold a successful partnership.

Swimmers with cognitive disabilities: Swimmers with disabilities such as mental retardation, severe learning disabilities, and autism generally have the physical ability to perform strokes, turns, and starts using correct technique. However, coaches will need to give extra attention to principles of motor learning, especially when introducing new skills. Use simple one-part or two-part directions, introduce new skills gradually and review instructions frequently.

Swimmers with amputations: Arm or leg amputations might contribute to problems with balance and body roll while swimming and might affect the swimmer's ability to generate uninterrupted propulsion. Therefore, coaches must be creative when applying principles of biomechanics for these swimmers. Some examples of coaching solutions include teaching swimmers with single-leg amputations to center their kick behind the body rather than the same-side hip, or to use a four-beat kick in backstroke, kicking twice to the right side then twice to the left side. Swimmers with leg amputations might also require alternate positions on the starting blocks. Swimmers with arm amputations must be careful



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to maintain symmetry and level shoulder positions when swimming breaststroke or butterfly. Use of equipment such as fins, hand paddles, and pull buoys can help swimmers with amputations to develop better stroke technique, as well as to keep up with other swimmers during practice sessions.

Swimmers with dwarfism: The most common form of dwarfism is characterized by short arms and legs in relationship to the head and torso. Short arm and leg length affects the swimmer's ability to generate propulsion, while overall short stature and body shape contribute to greater drag when swimming. In addition, some dwarf swimmers have limitations to range of motion, especially in the elbows, hips and knees. Distance per stroke and pulling under the center of gravity are important elements of stroke technique for dwarf swimmers, but a high stroke rate in comparison to their longer-limbed peers is necessary.

Swimmers with neurological conditions: Swimmers with disabilities such as cerebral palsy, stroke and head injury have difficulty coordinating and controlling their movements. The more severe the disability, the more likely it is that the swimmer will also experience limitations in functional range of motion. The coach's goal should be to help the swimmer achieve greater motor control and greater flexibility. Visualization is an effective practice method for many swimmers with neurological disabilities, especially when used in combination with demonstrations or videotapes. Instruction is often more effective when the swimmer's body is moved through the correct motions. Coaches should use resistance training such as bands, stretch cords, or hand paddles to help the swimmer develop a better feel for the desired movements. Repetition, either through dryland work or swimming drills, will help the swimmer to practice good technique. When leg function is severely limited, the coach and swimmer should experiment to determine whether it is better to swim without kicking. When one side of the swimmer's body is severely affected, it might be preferable to swim with only one arm. Remember that officials are instructed to judge body parts that are used while swimming.

Swimmers with spinal injuries and other mobility impairments: Typical stroke technique problems for swimmers with little or no ability to kick include difficulty with horizontal and lateral body positions, inadequate shoulder roll, a truncated arm pull characterized by a short deep catch and a short weak finish, a wide straight pulling pattern often with dropped elbows, a wide arm recovery and early breathing. Compromised arm and trunk strength and mobility for swimmers with higher-level spinal injuries may exacerbate these stroke technique problems. Regardless of the severity of disability, these problems can be minimized with good coaching. Pull-buoys or other leg floats help swimmers to complete longer more intense practice sets. Practice sets that require swimmers to use their legs, where possible, help to maintain residual leg function and may eventually improve stroke technique. If the kick will be used in competition, it must be legal. Although a variety of in-water, on-deck, and on-the-block starting positions are allowable, most swimmers with spinal injuries and leg dysfunction can learn to perform effective sitting or standing dives.

Freestyle

Disability Considerations

- Head position may need to be higher or lower than able-bodied athlete to balance the body.
- Is the swimmer able to rotate?
- Is the swimmer able to kick for stability? Propulsion?
- Use distance per stroke measurement to look for issues with propulsion in the pull.
- Pay attention to stroke rate in hand/arm amputees.
- Use of arm when restricted (i.e. CP) – is the swimmer faster using the arm or not using arm?

Backstroke

Disability Considerations

- Head position may need to be higher or lower than able-bodied athlete to balance the body.
- Is the swimmer able to rotate?
- Is the swimmer able to kick for stability? Propulsion?
- Use distance per stroke measurement to look for issues with propulsion in the pull.
- Pay attention to stroke rate in hand/arm amputees.
- Use of arm when restricted (i.e. CP) – is the swimmer faster using the arm or not using arm?



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Breaststroke

Disability Considerations

- Head position may need to be higher or lower than able-bodied athlete to balance the body.
- Shorter glide or no glide when there is limited leg function.
- Is the swimmer able to kick for stability? Propulsion?
- Use distance per stroke measurement to look for issues with propulsion in the pull.
- Pay attention to stroke rate in hand/arm amputees.
- Pay attention to stroke rate when there is limited leg function.
- Use of arm when restricted (i.e. CP) – is the swimmer faster using the arm or not using arm?
- Is swimmer able to use trunk for 'wave' motion?

Butterfly

Disability Considerations

- Head position may need to be higher or lower than able-bodied athlete to balance the body.
- Is the swimmer able to kick for stability? Propulsion?
- Use distance per stroke measurement to look for issues with propulsion in the pull.
- Pay attention to stroke rate in hand/arm amputees.
- Use of arm when restricted (i.e. CP) – is the swimmer faster using the arm or not using arm?
- Is the swimmer better breathing to side or front?
- Is the swimmer able to use hips/trunk for kick undulation?

Starts

Types of Starts for Swimmers with Disabilities

- Dive (standing) start from block
 1. Without assistance
 2. With assistance
 3. Use of a starting device
- Sitting start from block
- Touch start
- Water start
 1. Without assistance
 2. With assistance
 3. Use of a starting device
- Feet start
- Backstroke start
 1. Both arms (traditional backstroke start)
 2. One arm

Modify Swimming Practices

Coaches shoulder considerable responsibility for making inclusion work. When they develop positive relationships with swimmers who have a disability, they serve as models for teammates and other members of the swimming community. Coaches are also responsible for resolving many of the logistical challenges related to inclusion, such as finding lane space and providing disability accommodations. More importantly, coaches make a major contribution to the athlete's development and success in the sport by adapting practice sets as needed and including the swimmer in ancillary activities such as weight training and mental training. All swimmers need personal attention and instruction from the coach to develop their talents as athletes. Some coaches (and parents) are concerned that inclusion of swimmers with a disability may take time and attention away from other swimmers; however, this is not usually true. If the swimmer with a disability is placed in an appropriate training group, there is no need for a substantial shift in the coach's attention to that one swimmer. And all swimmers in the practice group are likely to benefit when the coach provides disability accommodations such as frequent demonstrations or more comprehensive verbal instructions.



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- Finding lane space to accommodate a swimmer with a disability may be a challenge. Consider different practice group placements for the swimmer with a disability, such as with same-aged swimmers, same-speed swimmers, same-ability swimmers, or a combination of placements. The goal should be to identify the most enabling environment for the swimmer. Instruct swimmers in workout etiquette. Swimmers with a disability who are slower than their teammates can become “speed bumps” in practice if they don’t learn how to circle swim, pass and be passed, and clear the path at turns and finishes.
- Some swimmers with a disability have the ability and speed to participate in practices without accommodations, and some will be leaders in practice. However, in other cases coaches will need to adapt practice sets to help the swimmer achieve his/her goals and to maximize use of lane space.
- Use the same principles of conditioning for able bodied swimmers and swimmers with a disability. Consider the race duration rather than the distance when designing practice sets. For example, if the time for swimmer’s best event is four minutes (regardless of the distance), train the swimmer as a middle distance swimmer.
- Adapt sets in the same way as for swimmers who are injured. For example, if the swimmer with a disability completes 50s in the time it takes teammates to complete 100s, the swimmer should complete half of the prescribed distances unless otherwise instructed.
- Do not underestimate the swimmer with a disability. All swimmers need challenging workouts to help develop skill, speed, and conditioning. Self-esteem is enhanced when the swimmer masters a difficult challenge.
- Include the swimmer in ancillary activities such as resistance training and mental training. Adaptations to resistance training exercises may include different equipment choices, using elastic bands to help the swimmer grip the apparatus or helping the swimmer to maintain a stable position on the apparatus. Use common-sense adaptations to mental training. For example, allow deaf swimmers to keep their eyes open during relaxation training, and position yourself so that they can read your lips or signed instructions. Focus on all of the senses, vision, hearing and proprioception, when conducting visualization sessions. Treat the swimmer with a disability the same as any other swimmer.

Use Disability Accommodations

Most accommodations needed by swimmers with a disability are common-sense adaptations to coaching methods or practice facilities that involve little or no cost to the club. In some cases, the swimmer with a disability simply needs permission to provide his or her own accommodations, such as a parent or friend to help with personal care in the locker room. The following guidelines are useful to coaches. Remember that accommodations should be tailored to the individual’s unique needs.

Swimmers who are deaf. Speak slowly and face the swimmer when giving instructions to facilitate lip-reading. Use a chalkboard or white board to communicate practice sets. Learn sign language, at least enough to communicate typical instructions, corrections, praise and greetings. Use handouts or e-mail to communicate information such as practice times, meet schedules, or team policies. At swimming meets, ask the referee to place the strobe light where it can be seen by the swimmer and to move the strobe light or use an auxiliary strobe light for backstroke events or a start at the opposite end of the pool. Be sure that someone notifies the swimmer about important announcements.

Swimmers who are blind. Conduct a tour for the swimmer to orient him/her to the practice facility. Use rich verbal descriptions and “hands-on” demonstrations to communicate instructions and stroke techniques. Teach the swimmer how to use training equipment safely and effectively. Develop a reliable method of warning the swimmer of impending turns or finishes if she or he is unable to see the end of the pool. Possibilities include tappers (helpers who tap the swimmer’s body with a soft-tipped pole), a system that drips water on the swimmer as she/he passes under the backstroke flags (possibly a sprinkler hose attached to the flags), or an underwater sound source. Keep the pool deck and other traffic areas as free from obstacles as possible. Service dogs help blind swimmers to be more independent and should be



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permitted on the pool deck. At swimming meets, inform the referee and meet director if the swimmer needs help locating and stepping onto the starting block, if the swimmer needs tappers or if the swimmer needs a service dog.

Swimmers with cognitive disabilities. Ability to understand instructions will vary considerably among swimmers. Some need simple vocabulary. Some benefit most from one-part or two-part directions. Some need demonstrations coupled with verbal instructions. Many swimmers with cognitive disabilities learn better when instructions are reviewed frequently. At meets, a buddy can help by facilitating communication and by reminding the swimmer about meet routines and procedures.

Swimmers with physical disabilities. Keep the pool deck and other traffic areas as free from obstacles as possible to accommodate swimmers who use mobility equipment such as wheelchairs, crutches, or walkers. Heavy doors should be propped open or removed. Use accommodations such as mats at pool edge to facilitate safe wheelchair transfers, towels on starting blocks to prevent abrasions, and step stools in locker rooms for dwarf athletes to reach shower controls and other appliances. Most swimmers with physical disabilities enter and exit the water independently; however, some athletes may need help from a “lifter.” Always ask rather than assume that a swimmer needs help. Finally, it is polite to sit or kneel when speaking to a wheelchair user or someone of short stature so that the swimmer doesn’t need to look up to see the speaker.

Promote Safety

Many coaches fear that safety is a bigger concern for swimmers with a disability than for other swimmers. This is rarely the case. With a few common-sense precautions, most safety risks can be minimized or eliminated.

Emergency action plan. Consider the adequacy of emergency signals for swimmers who have disabilities. Visual signals are needed by persons who are deaf; auditory signals are needed by persons who are blind. Develop an evacuation plan that specifies assistance for swimmers who are blind or those who have cognitive or physical disabilities. Remember that elevators may be inoperable in an emergency.

Slippery pool deck. A slippery deck is especially hazardous for swimmers who use mobility equipment such as crutches, canes and walkers. Many slips and falls can be prevented by keeping the pool deck as clean and dry as possible.

Cluttered pool deck. A cluttered pool deck impairs mobility for swimmers who are blind and for those who use wheelchairs or other mobility equipment. Keep traffic areas clear of obstacles to prevent accidents. Personal equipment such as wheelchairs, prostheses, or other mobility equipment should be moved to a safe location during practice and returned to the swimmer when she/he exits the pool.

Sharp lane lines. Sharp-edged lane lines may be an unavoidable problem for some swimmers who are blind, causing cuts, scrapes and bruises. This problem can be minimized during practice by wearing gloves or taping the swimmer’s hands and fingers.

Health concerns. Some swimmers have health conditions such as seizures, lack of sensitivity to touch or pain, brittle bones, lower maximum heart rate, temperature regulation problems, or latex allergies that place them at increased risk for accidents or injuries during swimming practices. A meeting should be held to discuss the demands of the sport, safety risks and methods of minimizing the risks so that the swimmer and his or her parents can make an informed decision about joining the team and so that the coach is aware of common-sense accommodations that promote safety.

Resources

INAS-FID – www.inas-fid.org

International Paralympic Committee (IPC) – www.paralympic.org

U.S. Deaf Swimming – www.usdeafswimming.org

U.S. Olympic Committee – www.usoc.org

U.S. Paralympics – www.usparalympics.org

USA Swimming – www.usaswimming.org



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Other sources of information include:

- IPC Swimming Classification Manual
- IPC Swimming Online Classification Course
- IPC Swimming rulebook
- USA Swimming rulebook
- Cranfield, A., Seley, D., & Strom, A. (1984). Esso Swim Canada program for the physically disabled: Instructor manual. Ottawa, Ontario: Canadian Federation of Sports Organizations for the Disabled. Distributed by Swim Canada.
- Goodman, S. (1995). Coaching athletes with disabilities: General principles. Belconnen, ACT: Australian Sports Commission.
- Green, A. (1992). Coaching methods when working with swimmers with a disability. Belconnen, ACT: Australian Sports Commission.
- Lockette, K. F., & Keyes, A. M. (1994). Conditioning with physical disabilities. Champaign, IL: Human Kinetics.
- Miller, P. D. (Ed.). (1995). Fitness programming and physical disability. Champaign, IL: Human Kinetics.
- National Center on Physical Activity and Disability. Online at www.ncpad.org



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Working with Officials

The roles of the coach and official have the potential to cause conflict on the pool deck. Many people think about that interaction when they think of these two roles. And there are instances where a difference of opinion, particularly with respect to judgment calls, comes into play. However, the opportunity exists for many more positive relationships in the interactions of coaches and officials. Promoting positive communication is an absolute key to generating a healthy environment, avoiding problems and reinforcing coaching observations.

Training for Officials

In USA Swimming, most officials are volunteers who find officiating a rewarding and valuable way to contribute to the development of the young people in athletics. Their approach is to be professional in executing the job of an official. Officiating is necessary in the sport to provide the consistency for fairness in competition. Training programs for officials are provided by the Local Swim Committee's (LSC). Progression through certification levels is established to test rule knowledge and understanding. Deck observation and evaluation by qualified officials and the provision of specialized training clinics also are part of the training progression. The national officials committee provides materials, leadership training and focused direction for the LSC officials' committee chairs.

Sound officiating provides positive feedback and a feeling of accomplishment. Encouraging the education and growth of a solid group of swim officials within the LSC by the coaching community is essential to ensure that the competence needed is continually being developed. It takes time and practice to develop the skills and consistently apply them.

Officiating Positions

At most meets there are four general types of officiating positions. These are the referee, the starters, the stroke and turn judges and the timers. Depending on the size and complexity of the meet, there may be other position used to support the swimming competition including administrative referee, deck referee, chief judge, clerk of course, announcer, marshal and timing system operator. The referee should explain the pertinent roles of these positions at a "coaches" or general meeting prior to the competition. If a coach has any question on the assigned responsibilities he or she should ask the referee.

The starters, stroke and turn judges and timers execute specific duties as defined by the rules and assigned to them by the referee. For instance, the starter determines if the start is fair or if there is a false start. The determination of a false start requires confirmation by the referee, or designated assistant referee, so this critical call requires two people to independently agree. A similar approach is typically used for relay take-off where there is dual confirmation. The stroke and turn judges within their assigned jurisdictions observe the swimmers and report any non-conformance to the rules as a disqualification.

Because of the seriousness of a disqualification to the swimmer, each official is trained to two critical principles:

- Every swimmer receives the benefit of the doubt; the judge must be certain the observation is a violation of the rules.
- The rules of swimming define fairness so it is the responsibility of each official to protect all swimmers from the competitor who does not comply with the rules.

The exercise of these two principles ensures fairness, balance and competence in officiating.

In Case of a Disqualification or Other Issue.....

So what happens when a coach finds that one of their swimmers has been disqualified or a circumstance has occurred requiring some additional review or action? The meet referee should have covered the basics in the general meeting for how to handle these situations and to whom to direct them. If a deck referee is utilized, that referee is charged with the conduct of that specific swim. The deck referee has full authority to address the application of a rule. The administrative referee is responsible for administrative matters such as entries, seeding, scoring, and results. The meet referee is responsible for the conduct of the entire competition. The referees are the appropriate individuals to address coaching questions that arise in their area. Directing questions to a stroke and turn judge or a starter is not appropriate unless the request is coming through the referee. First, from a coaching perspective, it is desirable to direct the request to an



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individual who can decide; that is, the referee. Second, the starter or stroke and turn judge must direct their attention to the next event which is in competition.

When the coach interacts with a referee, what should the coach expect and what are the critical issues to address? First, the referee is looking for a way to not penalize the swimmer and yet treat all swimmers fairly within the rules. Even when emotions run high because a disappointing result occurs, the referee will listen carefully to a case made, investigate to determine the facts and decide based on what the rules allow. The referee will recognize that in many instances they are often the “court of last resort” and will be objective in their decisions. This capability is based on the referee’s authority specified in the rules as follows:

- Shall have full authority over all officials
- Shall enforce all applicable rules
- Shall decide all questions relating to the meet
- May overrule any meet official on a point of rule interpretation
- May overrule on a judgment decision which the referee personally observes
- May disqualify a swimmer for any violation of the rules the referee personally observes

In addressing an issue, the referee will be satisfied that the following items have been correctly addressed:

1. What was the rule violation that was observed?
2. Was the official in the correct position?
3. Was the decision within the official's jurisdiction?

This may take a few minutes to investigate so patience is necessary. The referee will communicate back to the coach on the specific issues raised. There are many positive ways a coach can obtain a fair resolution to areas where there are questions. Effective communication is the key to successfully resolving questions or concerns. Sound officiating, based on rule application and impartial observation, should reinforce the principles a coach has been teaching to the swimmers. By strengthening the relationship between coach and official, the overall swimming program will show continued growth and improvement.

Tips for Working with Officials

Do:

- Be timely in bringing issues to the referee.
- Stay as calm and objective as possible; firmness and assertiveness are expected behaviors.
- Question the rule violated and understand the application.
- Ask the referee if he or she observed the violation.
- Use the rulebook to address the specific issue.
- Make your case based on specific interpretation.
- If the issue is meet specific, raise the question based on the content of the meet information.
- If there was an extenuating circumstance or event, bring it to the referee’s attention for investigation.
- Ask questions in the general meeting

Do Not:

- Protest a judgment call based solely on your disagreement with the official’s judgment.
- Display unsportsmanlike conduct; it only hinders the case.
- Spend a lot of time questioning judgment calls requiring independent confirmation once you know two independent people participated (e.g. false starts, relay take-off).
- Attempt to delay competition once a decision has been made.