



The Ad Astra Skill Development System

This is the playbook on how we want to develop all Ad Astra swimmers in our Skill Development System. Coaching is challenging. Coaching a team is challenging, especially in a club setting with swimmers over a wide range of ages and abilities and with multiple training groups and coaches. It's hard getting everyone moving in the same direction in an organized manner; but when we can, it's magic. We're going to cover our step-by-step process in building our skill development system that creates the magic. Let's cover the why, what and how.

Why does Ad Astra have a Skill Development System?

Retention

We have specific goals when running Ad Astra:

- Provide Lawrence and the surrounding area youth with an awesome swim team experience
- Produce fast swimmers and align our team performance goals so we are competitive on a National Level
- Run a successful business

Therefore, goal number one is **getting swimmers to want to come to practice and getting them to come to practice consistently**. Retention is important for Ad Astra because it is:

- Necessary to providing swimmers with a great experience
- Necessary to running a viable business
- Necessary to developing a high-performance team

Financial

To retain customers and to get new customers, Ad Astra must provide our members with a terrific experience. The better the experience, the more current customers will stick around and the more it will attract new customers. For everything to work, there must be a system in place to provide a service that is consistently awesome.

For Ad Astra to be a financially viable business, we need to provide a service that is superior to the competition. Without a financially viable business, there is no Ad Astra. We must provide an unbelievable athletic experience to attract swimmers and keep them. In summation, customers must be attracted and retained:

- Ad Astra is a business
- Ad Astra needs customers
- Ad Astra needs swimmers to be financially stable

Ad Astra is a non-profit business. Our financial viability takes into consideration our day-to-day operation costs. Fees/dues are for (but not limited to):

- Pool rent
- Coach salaries
- Office utility, web and business expenses
- Social activities
- Program enhancements
- Coaches travel
- Pool supplies



The Feel-Good Experience

People play sports to feel good about themselves. Learning makes people feel good about themselves. Improving makes people feel good about themselves. Winning, however it's defined, makes people feel good about themselves. Being part of a supportive group at Ad Astra working towards a common goal makes people feel good about themselves.

To retain swimmers, we must help Ad Astra swimmers feel good about themselves. If we retain swimmers, we're able to continue to help them feel good about themselves. One of the benefits of retaining swimmers is having the opportunity to provide them with a life-changing experience. Afterall, swimming is a life-sport where individuals can enjoy it's benefits and lessons for years into the future. Ad Astra coaches want to:

- Help our swimmers learn
- Help our swimmers improve
- Help our swimmers win/compete
- Create a supportive environment for Ad Astra swimmers and families
- Give swimmers important **life-skills** through the sport of swimming

Performance

Some swimmers are just good. Having such athletes can be pure luck. Relying on luck is **not** the best strategy. Having performance goals on Ad Astra helps our coaches build swimmers systemically by developing the skills needed to swim fast.

The number one rule of development is that swimmers must come to practice to get better. That's why retention is so important. If swimmers aren't showing up, achieving performance goals is impossible.

Once swimmers show up, having a system for developing their **skills and fitness** is critical. For fitness, another seasonal Ad Astra goal is getting as many athletes as we can trending towards attending the vast majority of their group's practices during each season.

Going fast comes down to having great skills, the fitness to execute those skills at a high level, and the fitness to sustain those skills throughout an entire race. Fitness comes from sustained periods of attending practices and working hard at those practices. Skills must be performed at race speed for them to "stick" in races. Here are 3 truths:

- Skill and fitness are necessary for fast swimming
- Fatigue is necessary for improving fitness
- Too much fatigue leads to poor skills

To ensure every swimmer gets the best chance to perform to their potential, Ad Astra coaches work together to develop the same skillsets. With the goal to help as many swimmers as possible perform to as high a level as possible, our system is in place to make this happen. Since skills are a primary driver of fast swimming, they are a part of our system. Having a system to develop skills is a **competitive advantage** for Ad Astra. Consistently producing great swimmers doesn't happen by chance. It happens because we systematically develop the skills needed to swim fast. Here is a breakdown:

- **Ad Astra swimmers must attend practice to improve**
- Fitness is necessary for improvement
- Certain skills and abilities lead to fast swimming
- Performance is more predictable when the key skills and abilities are improved
- Planning is necessary to make it happen



Staffing

Ad Astra coaches are passionate about swimming. You won't find a more dedicated, family friendly and professional staff in the country. With Patrick and Katie's 15+ years of experience working together, Ad Astra can offer a consistent, unified and proven coaching environment for all swimmers from day one. This is a unique advantage to being part of our team. Combine this with a support staff of homegrown coaches and Ad Astra is ahead of the curve by having a staff familiar with team expectations and the Ad Astra skill development process.

We want the expectations for each Ad Astra training group to be very clear. This way, coaches at each level of our team know what needs to get done. This makes it easier to see any shortcomings and take steps to resolve the any issues - ambiguity disappears. With clear training group goals, group transitions become black and white. With clear goals, it's much easier for Ad Astra coaches to work towards those goals - eliminating disputes because swimmers are prepared for the next step anyway.

Consistency

All the positive outcomes we've discussed can happen at any given time.

- Ad Astra can have a great year financially
- Ad Astra can have a great year from a performance perspective
- Ad Astra can have a great staff that works together effortlessly and effectively
- Ad Astra can have lots of happy and engaged swimmers

Ad Astra's goal is to accomplish all these objectives consistently and reliably. For that to happen, we need a plan and there needs to be a system in place to ensure that it happens. **Occasional success happens by chance, but consistent success happens by design.** The goal isn't to have a great season. It's to make every season great.

Building The System

On Ad Astra, we have a developmental system that provides the best opportunity for every swimmer to develop the skills and the fitness they need to have a great swimming experience. Our skill development system helps swimmers learn the appropriate skills and develop the appropriate fitness. It is built into everything we do during each practice - every week - every month - all season long.

Our system, while always being reviewed, tweaked and upgraded over the past 15 years, has proven to be a success over time when considering our:

- Athlete retention
- Financial stability
- Great swim experience
- Fast swimming results
- Administrative and coaching continuity
- Overall program consistency



What is the Ad Astra Skill Development System and How do we work on it to help swimmers.

Step #1- The Fundamentals of Speed

What: There are technical factors related to creating speed. There are physical factors related to creating speed. The technical factors and physical factors are intertwined. For Ad Astra to develop fast swimmers, we work weekly on the skills, abilities and types of fitness that lead to fast swimming.

How:

Underlying principles:

1. Swimmers need to proficiently interact with the water to produce as much forward speed as possible.
2. Swimmers need to be able to produce as much energy as possible for as long as possible to power those skills.

Speed is created by:

- $\text{Speed} = \text{stroke rate} \times \text{stroke length}$
 - Stroke length increases much more than stroke rate as swimmers improve over time
- $\text{Speed} = \text{propulsion} - \text{drag}$
 - Stroke length is a function of the ability to increase propulsion and decrease drag

Ad Astra swimmers will use similar general strategies to create speed in every stroke, but they'll use specific variations of those strategies in each stroke. There are specific skills that create speed, as much propulsion, great rhythm/timing and as little drag as possible in each stroke.

General:

- Proper propulsion from the pull and the kick
- Proper alignment (body, head, arm recoveries, breathing)
- Proper timing (breath, recovery, rotation)

Butterfly

- Low, forehead leading breath
- Powerful dolphin kicks / underwaters
- High hip alignment
- Appropriate breath control pattern for all race distances and for each level of development/ability
- Arm recovery remains consistent and to full extension throughout a race

Backstroke

- Still head position
- Drives hand into the water with intensity on the recovery
- Fast feet to maintain body position
- Powerful underwater dolphin kicks off walls
- Extension of the arm through the recovery

Breaststroke

- Achieve a horizontal body alignment after each stroke cycle – the line
- Finish kick on each stroke
- Hold as much water on the catch as possible without disrupting the momentum



- Fast in sweep
- Body is forward on the breath
- The kick determines the speed of the stroke

Freestyle

- Constant Kick
- Low, fast breath
- Proper efficiency + stroke rate for each event

Underwater Dolphin Kick

- Breath control
- Appropriate undulation or up + down on the kick
- Hold as much water as possible + speed of kick
- Appropriate transitions post underwater travel for each event/set

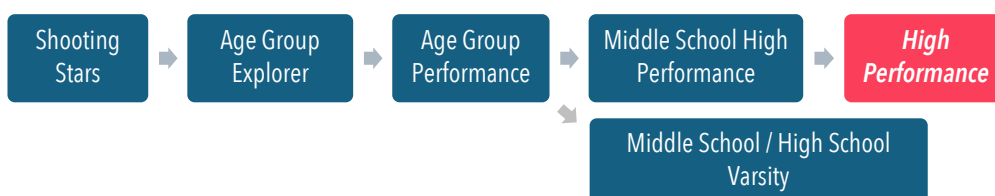
Energy must be created to execute skills. In simple terms, there is short-term and long-term energy. Short-term is characterized by very high rates of energy production, but energy can only be produced quickly for a very short amount of time. In contrast, long-term energy supply is characterized by slower rates of energy production that can be sustained over much longer periods of time. **Both energy sources must be developed for swimmers to perform across all distances.** The relative importance of each source will differ as a reflection of the racing distance and a swimmer specialties.



Step #2- The Finished Ad Astra Swimmer

What: Our skill development system aims to **develop an “Finished Product” Ad Astra swimmer who is aerobically fit and versatile enough to train, improve and compete in all strokes/disciplines while also working with coaches to focus on their natural strengths, events and disciplines (specialty events/strokes).** We believe more aerobically fit swimmers are typically faster swimmers.

Ad Astra Group Progression:



How:

1. Ad Astra will produce swimmers who:

- Can train IM or each of the (5) strokes at practices
 - Freestyle
 - Butterfly
 - Backstroke
 - Breaststroke
 - Underwater Dolphin Kick
- Strive to always improve in each stroke/discipline/race from season to season.
- Race at the appropriate number of swim meets (when ready) and in a variety of strokes/disciplines at each meet
- Race and train with enthusiasm and grit
- Are fit enough to compete for the duration of all attended meets and for all sessions of those meets without issue
- Work with coaches on how to capitalize on individual strengths in strokes, races and fitness levels (swimmer specialties)
- Swim relay legs with enthusiasm and effort
- Are supportive, positive teammates
- Work with coaches on feedback

2. Ad Astra swimmers will display these skills and abilities:

- [See Stroke PDFs](#)

3. Ad Astra swimmers will excel in:

- Individualized stroke and event strengths – the swimmer's specialties
- 100/200/400 IM
- Relay performances
- IMX / IMR event improvements season to season
- Events other teams' swimmers may not be willing to do

Fitness Levels

In terms of improving fitness, the most important factor is **consistency**. Developing fitness is a multi-year process. The type of consistency your swimmer needs is defined by what their end goal is (a time standard, end of season goal, post high school swim goal.)



4. Ad Astra swimmer fitness levels will:

- Align with the meets they attend
- Align with the events they participate in
- Align with the group they are in
- Always be improving throughout the season
- Always be improving throughout their careers
- Allow swimmers to complete workouts without stopping in the groups they are in

5. Competing at the *Local* and *National Level*:

Competing at a Local Level - *How much should my swimmer swim to make the following standards? What should their skill and fitness levels be?*

Your consistency, fitness level and skills must align with your competition goals. For swimmers setting goals of achieving a championship meet cut, we suggest systemically working hard on consistency, fitness levels, skills and abilities throughout the entire swim season.

The number of workouts offered for your group/age is in place to ensure your swimmer can achieve at the highest level in their age group. Attending the max workouts offered gives each swimmer the **BEST** opportunity to improve quickly and resulting in the possibility of reaching the swimmers championship meet goals in their age group.

Competing Locally - Local Standards

Ad Astra swimmers need these things to compete at the Local level:

Qualify for Districts:

- 10-U – likely average 3 workouts per week
- 11-12 – likely average 3-4 workouts per week
- 13-14 – likely average 4 workouts per week

Score at Districts (Score Top 3, likely a championship time standard)

- 10-U – likely average 3 workouts per week
- 11-12 – likely average 4-5 workouts per week
- 13-14 – likely average 4-5 workouts per week

Qualify for Champs:

- 10-U – likely average 3-4 workouts per week
- 11-12 – likely average 4-5 workouts per week
- 13-14 – likely average 4-5 workouts per week
- 15-O – NA*

Score at Champs:

- 10-U - average 4 workouts per week
- 11-12 - average 4-5 workouts per week
- 13-14 - average 4-5 workouts per week
- 15-O – NA*

**15-O - these time standards are slower than 13-14-time standards and are designed to maximize inclusion and participation. If you had district times at age 13-14, you generally are qualified in many events from 15-O Championships.*



Competing at a National Level - *How much should my swimmer swim to compete Nationally? What should their skill and fitness levels be?*

Ad Astra swimmers need certain things to compete at the National level. By working to a higher standard, a higher number of Ad Astra swimmers are going to improve, even if they don't get there. A realistic goal for Ad Astra is to have regular scoring swims and representation at the Region VIII Sectional Meet along with producing qualifiers for national level meets, including USA Swimming Futures, Junior Nationals, Nationals and Olympic Trials. While not all Ad Astra athletes might have the natural ability to achieve these goals, at least one swimmer on the club will have the desire and the ability to do so.

Percent of USA swimmers by **time standard*

The following offers a look at the percentage of swimmers who hit National time standards. Naturally, the higher your goals of achieving a certain time standard are, the more dedication it usually takes to achieve the time standard.

**Sectional and Futures Times may correlate to national time standards (AAA, AAAA) for certain events and reflect those percentages.*

Nationals	1.09%
US Open or Faster	1.24%
Juniors or Faster	2.14%
AAAA or Faster	5.71%
AAA or Faster	13.36%
AA or Faster	21.55%
A or Faster	29.00%
BB or Faster	46.58%
B or Faster	52.44%

Percentage of USA Swimmers Achieving Certain Time Standards.

- Olympic Trials: Approximately 0.5% of USA Swimming members, or 1 in 200, qualify for the Olympic Team Trials.
- Olympic Team: About 3% of those who qualify for the Trials make the Olympic team, making the odds of making the US Olympic swimming team roughly 1 in 15 million.



Time Standards by Percentile

AAAA	98%	This standard means your swimmer is ranked in the top 2% of swimmers their age-group, their same sex, in that stroke and distance.
AAA	94%	This standard means your swimmer is ranked in the top 6% of swimmers their age-group, their same sex, in that stroke and distance.
AA	92%	This standard means your swimmer is ranked in the top 8% of swimmers their age-group, their same sex, in that stroke and distance.
A	85%	This standard means your swimmer is ranked in the top 15% of swimmers their age-group, their same sex, in that stroke and distance.
BB	65%	This standard means your swimmer is ranked in the top 35% of swimmers their age-group, their same sex, in that stroke and distance.
B	45%	This standard means your swimmer is ranked in the top 55% of swimmers their age-group, their same sex, in that stroke and distance.
C		This standard is for all swimmers with times below the "B" standard. Everything from 0.00 up to the "B" standard is a "C" time.
Notes		It is very normal for your swimmer to have different time standards for different strokes. They may even have different standards for the same stroke but different distances. As your swimmer matures their best stroke and distances may change. A swimmer should not specialize until they have completed physical maturation. Swimming all the strokes and all the distances will only improve your swimmers physical and mental development throughout their career.

Bottom line - Time standards are great for goal setting and should be used to motivate your swimmer, but while improvement is desired it should not be required. Be patient and let your athlete improve at their own pace. P.S. Never compare your swimmers success to another swimmer. All swimmers are individuals with unique abilities and each will develop at their own rate.

Important Considerations:

- Age Group Participation: Participation in age group swimming has a "long tail." Many swimmers compete infrequently, while a smaller group competes much more often. The most active 50% account for nearly 90% of all age group swims.
- Motivational Times: Time standards like AAAA, AAA, AA, A, BB, and B serve as benchmarks to gauge progression. These percentages are calculated based on the percentage of swimmers hitting those times, not a linear progression.

Bottom line - Time standards are great for goal setting and should be used to motivate your swimmer, but while improvement is desired it should not be required. Be patient and let your athlete improve at their own pace.

P.S. Never compare your swimmer's success to another swimmer. All swimmers are individuals with unique abilities, and each will develop at their own rate.

USA SWIMMING Progression of Swim Meets



Ad Astra swimmers need these things to compete at the [National level](#):

Qualify for Zones (14 & under):

- Be in the top 6% of all USA Swimmers in their Age Groups
 - 10-U - attend nearly all offered workouts
 - 11-12 - attend nearly all offered workouts
 - 13-14 - attend nearly all offered workouts
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Your practice habits should align with the top percentage of swimmers in the charts above.

Score at Zones / All-Star (14 & under / Score Top 8):

- Be in the top 2-4% of all USA Swimmers in their Age Groups (Generally a AAAA time)
 - 10-U - attend nearly all offered workouts
 - 11-12 - attend nearly all offered workouts
 - 13-14 - attend nearly all offered workouts
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Your practice habits should align with the top percentage of swimmers in the charts above.

Qualify at the Region VIII Sectional Meet

- Sectional Times are similar to AAA times in the 15-16 Age Group.
- Swimmers wanting to achieve at this level rarely miss and should have attendance above 90%.
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Be in the top 13% of all USA Swimmers.
- Your practice habits should align with the top percentage of swimmers in the charts above.



Score at the Region VIII Sectional Meet (Scoring Top 16)

- AAA, AAAA and Futures times qualify swimmers in the Top 16.
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Be in the top 10% of all USA Swimmers.
- Swimmers wanting to achieve at this level rarely miss and should have attendance above 95%.
- Your practice habits should align with the top percentage of swimmers in the charts above.

Score at the Region VIII Sectional Meet / Futures (Sectionals Top 8 / Futures Top 16)

- Futures, Juniors and Nationals times qualify swimmers in the Top 8.
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Be in the top 6% of all USA Swimmers.
- Swimmers wanting to achieve at this level rarely miss and should have attendance above 98%.
- Your practice habits should align with the top percentage of swimmers in the charts above.

Qualify Juniors, Nationals, US Open & Olympic Trials:

- Swimmers wanting to achieve at this level rarely miss and should have attendance above 98% or usually higher, only missing for extreme illnesses or injury.
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Be in the top 2% or higher of all USA Swimmers.
- Your practice habits should align with the top percentage of swimmers in the charts above.

Score at Juniors, Nationals, US Open & Olympic Trials:

- Swimmers wanting to achieve at this level never miss and should have an attendance of 100%.
- Sustained periods of consistent, quality training for multiple seasons back-to-back.
- Be in the top 1% or higher of all USA Swimmers.
- Your practice habits should align with the top percentage of swimmers in the charts above.



Step #3 Group Skill Goals

What: Each Ad Astra training group has clear goals. Each group has skills swimmers are going to learn. Swimmers can't learn everything at once, and some skills are better learned at certain points in time. Some skills need to be learned before others.

Learning to swim fast is a lot like learning calculus. No one is going to learn calculus if they haven't learned how to add numbers, how to multiply numbers, or how to solve algebraic equations. No one is going to be able to execute race-winning skills during the last quarter of a race if they haven't learned to float effectively, manage their body position, time their stroke, and create a lot of propulsion, all at speed and with fatigue. It's a step-by-step process where each step builds on the previous one.

Learning is a progressive process. **Swimmers must be able to do it 'right' before they can do it fast, and they must be able to do it fast before they can do it fast AND tired.**

On Ad Astra, skills are going to be emphasized in each training group and ensure that those skills are being addressed progressively.

How:

Developing the skills that create speed is a progressive process as swimmers move from training group to training group. Certain skills are learned in a certain order. Here is a broad framework of foundational skills:

1. Flotation skills
2. Alignment skills
3. Timing skills
4. Propulsion skills

Step #4- Group Training Goals

What:

Developing high-level fitness is a long-term process that must be delivered progressively. Swimmers need the fitness to execute skills at speed, delay fatigue, and maintain skills when fatigue occurs. Since a "Finished Product" Ad Astra swimmer is aerobically fit and versatile enough to train, improve and compete in all strokes/disciplines, aerobic fitness and focusing on each stroke during the week are primary training goals for each Ad Astra group. These goals will be progressively developed from group to group over time.

How:

Clear goals focus us on what needs to happen, and they provide clear feedback as to whether our efforts were successful or not. By creating concrete training goals, it's also possible to create a clear progression pathway from the initial groups to the final groups. This allows for patient progress, always moving forward with intent and without rushing. That leads to better training outcomes, more consistently.

Step #5- Skill Development Strategies

What:

The best skill development strategies lead to faster, better, and easier improvement. Over the years, our staff has found certain strategies work better than others. On Ad Astra, we want strategies that improve each skill as quickly, effectively, and easily as possible.

- Swimmers must be ready to do strategies well
- Strategies are part of a progressive plan, so swimmers are challenged over time
- Avoid trying to do too much at one time with one skill



Step #6- Progression Strategies

What:

Ad Astra swimmers must be challenged to improve over time. The more the progression of the challenge is planned flexibly, the more likely it is that swimmers will be challenged appropriately and improve accordingly.

Skills that need to be challenged over time:

- Adding speed
- Using stroke counts
- Using stroke rates
- Using different training aids
- Changing hand postures
- Adding resistance
- Adding fatigue
- Implementing variability

How:

How to challenge training and fitness over time:

- Increasing volume
- Increasing intensity
- Changing the rest intervals
- Increasing frequency
- Increasing density
- Adding stroke counts
- Adding stroke rates
- Adding dolphin kick counts
- Adding resistance
- Longer practices
- More practices

Step #7- Benchmarks

What:

Each Ad Astra group has specific performance benchmarks to ensure swimmers can perform desired skills. A benchmark is a specific set that swimmers should be able to complete.

Sets generally have a skill component and a training component that reflect the designated target goals for the training group. By the time swimmers have finished working in the group, they should be able to perform the set. It is the benchmark they are trying to achieve.

How:

Again, these benchmarks are progressive and changing over the course of the season and over the course of a swimmer's career. While the benchmarks for the beginner groups stay more consistent year to year, swimmers in the High-Performance groups have benchmark sets which change more frequently as swimmers improve – or as they achieve different level meets or time standards.



Step #8- Weekly Targets

What:

For Ad Astra swimmers to improve skills, abilities and fitness must be worked on consistently. Specific skills will need be addressed each week within each training group. It's about execution and it's about accountability. Weekly targets make planning more effective, and they ensure swimmers are getting the necessary exposure to improve the skills that will allow them to swim as fast as possible.

How:

Some basic rules:

- If it's addressed twice per week, it's very likely to improve
- If it's not addressed at least every other week, it's going to get worse.

For each skill, for each stroke, for each group – skills, abilities and fitness will need to be addressed. This ensures the right skills get developed with the right emphasis.

The most important skills for each group should be addressed twice per week. The least important skills should be addressed once every other week. Everything else can fall somewhere in between. These are the minimums. There will be leftover time, and Ad Astra coaches can spend more attention and time on areas they believe need it.

Step #9- Documentation

As a coaching staff, documentation creates clarity for our swimmers, parents and assistant coaches as to exactly what needs to happen and how it needs to happen. Clarity means action - action means results. The following documents layout:

- What skills are the Ad Astra Groups Working on?
- How will Ad Astra swimmers train in each group?
- How will Ad Astra perform Skill Development Strategies for each group?
- What are the Ad Astra Progression Strategies for each group?
- What are the Ad Astra Benchmarks for each group?
- What are the Weekly Targets for each Ad Astra group?

Ad Astra Group PDFs:

[Shooting Stars](#)

[Age Group Explorer](#)

[Age Group Performance](#)

[Middle School High Performance](#)

[High Performance \(13-Over\)](#)

[Varsity](#)

Step #10- Tracking

What:

On Ad Astra we track what gets measured and what gets managed.

How:

Coaches keep track of their weekly plans, workouts and test sets.



Step #11- Iteration

What:

On Ad Astra, we aim to constantly make the system better. No matter how well it's done, it can always be done better. Any good system needs to evolve. The system adapts over time to achieve better results.

How:

If problems come up, we identify the problem, make the change and document.

Ad Astra coaches will innovate. Coaches are innovators, and they will find better solutions than the ones built into the system. If it's something that is only relevant to a particular group, we will make the change there. If it's something that can benefit every group, we will make the change everywhere. Our system is flexible enough to absorb better ways of coaching – when we discover better ways to help swimmers go fast.