CONSTRUCT practices with SPECIFICITY, OVERLOAD, and PROGRESSION design skills.

Abstract

This article explores the fundamental training principles of specificity, overload, and progression in swimming. It aims to provide a comprehensive understanding of how these constructs interact to shape effective swimming training programs. By focusing on both physiological and psychological dimensions, the article emphasizes the importance of structured planning, individualized training, and the application of evidence-based methods. The integration of these principles ensures continual athlete development, performance enhancement, and optimal adaptation throughout the swimming season.

Introduction

Training swimmers requires a multifaceted approach grounded in scientific principles and practical application. The success of any swimming program depends on the effective use of foundational training constructs: specificity, overload, and progression. These principles form the backbone of athletic development, guiding coaches in structuring programs that balance physical conditioning, technical refinement, and mental resilience. The present work provides a detailed discussion on how to implement these principles within daily, weekly, and seasonal training plans, while maintaining flexibility to accommodate individual needs and unforeseen challenges.

Important training principles:

- specificity,
- overload, and
- progression.

Specificity

Specificity means distance swimmers often train longer repeats with shorter rests than sprinters.
Those in the backstroke events spend more practice time doing backstroke.
Specificity expands to drills, exercises at distances and speeds so as to better contribute to the swimmers' specific races.

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Overload

Practices can be challenging and difficult, as well as appropriate for training the metabolic processes which are most important in the swimmers' races.

Smart swimming coaches understand an objective with each practice and each phase of practice. All the swim sets should be done correctly, according to the plan as delivered in the directions.

Progression

The athletes' bodies adapts to the stress. The increases with appropriate stress promote continued improvements in fitness. Practices need to be aggressive enough to sense an increase in effort during the season. Late season swimming requires less effort than that performed at the start of the season. Improvements plateau when exerting less effort.

Consider the strength training journey.

1. Work primarily on the muscles that move the swimmers through the water to insure **specificity**.
2. Concentrate on maximum efforts in targeted muscles or groups to insure **overload**.
3. Increase the number of repeats and sets, and boost the weights after reaching 15 repeats, to insure **progression**.

Consider all the components to the training menu too. Apply these principles to all that is done with the team.

- weights,
- stretching,
- swim sets,
- kick sets,
- drill sets,
- pulling sets, and
- mental training.

Dick Jochams:

- Early season: Pulling 60%, kicking 20%, swimming 20%.
- Midseason: Pulling 40%, kicking 20%, swimming 40%
- Taper: Pulling 20%, kicking 20%, swimming 60%.

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PLANNING THE SEASON, THE WEEK, THE PRACTICE

As you approach practice, so shall your practice go.

If you prepare carefully and plan the practice in detail, knowing your objectives and understanding clearly what each segment of the practice is supposed to accomplish, your practice is much more likely to go smoothly and effectively.
Coaches who go in to a workout with only a vague concept in mind often have practices reflect this disorganization and lack of focus.

<p align="center">**Make an outline for the whole season.**</p>

Writing down goals and objectives and a detailed lesson plan is not only helpful, it is essential. Cover the

1. pre-season,
2. dual-meet, and
3. taper phases.

Sketch what you aim to do, in general, for all the periods of the season. For example, when, during the pre-season, you can:

- discuss diet,
- demonstrate breaststroke turns,
- go over pacing, etc.
      Then review these and other items during the season.

- Map out when you are going to:
- hold team meetings,
- work on video analysis,
- introduce training films and videos,
- host social activities
- hold intra-squad meets,
- schedule special sets and traditional workouts,
- conduct time trials,
- insert mental training, what type, when, and how often.

Blank weekly schedules start with few key ideas here and there. Mostly, though, the weekly plans should be done just before the week begins. That way, coaches can take advantage of knowing exactly how the team is performing right now, as plan are set for what needs to be done next. Scheduling various metabolic emphases at specific times during the season needs to be combined with the day-to-day details.

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Stay flexible

Advance preparation is not an excuse to being inflexible. You may well have to change the plans. Your pool might go down and you cannot practice. Snowstorms cancels workouts. Re-scheduling of meets happen, even for a lack of meet officials. The water levels may be too low or too cold or the air heavy with chlorine because of some mechanical failure.

You may discover that the swimmers are more fatigued than you had thought they would be and you have to reduce or alter the stress they were to have had in a particular set.

Indeed, you may be in the middle of practice and discover that something you are doing just isn't working. You have to be able to shift gears and change the assignment. You can do this without appearing to be wishy-washy if you truly understand your objectives and why this particular set isn't meeting those objectives, and why this other drill does.

If all we do is teach kids how to swim fast, then we really haven't done much.

The platitudes about sportsmanship, team spirit and how what we do relates to the rest of the swimmers' lives are true. But, you must plan on incorporating those and other ideals either within or outside the practices and meets. Current events, social issues and outside noises are influences that can't be scheduled and hard-wired into pre-season planning.

APPROACHING PRACTICE ON A DAILY BASIS

Lane assignment and circle swimming

Setting up swimmers in lanes for circles is important to the total flow of the day's practice. The in-water positioning reflects the organization that coaches must establish.

Many teams generally circle by freestyle speed, with the slowest swimmers in lane 1 and the fastest in lane 6 or 8.

With some squads, the even circles go clockwise and the odd circles go counter-clockwise. This approach of alternate direction circles puts swimmers going the same direction when they are swimming next to each other. This reduces the hitting of each other's hands in freestyle. The hitting of hands is a fairly common occurrence when the athletes swim at each other from opposite directions, especially with bigger people in thin lane widths.

With crowded lanes and butterfly, it is usually difficult to swim without breaking stroke while circling within a single lane. Coach Dick Shoulberg would use a pairing of lanes. Have lane 1 line up at the starting end. They go down lane 1 and back to the staring end in lane 2. Then, lane two begins at the far end of the pool. They swim down lane 2 and back up in lane 1. This is one way of reducing accidents and making the butterfly training go more smoothly.

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Save and refer to your practice logs

From year-to-year, keep track of what you did at each stage of the season. Know which sets worked and which did not. When the season is over, go back and second guess yourself — only this one time!

What would you have done differently?

How will next season be different?

Prior to the taper phase, dig out the final month's of workouts from the previous seasons. Read over them to understand what was done this year and why. Old practices help establish confidence and are often a source of surprises at what is re-discovered in by-gone practices.

Delivering written practices for in-lane placements while swimming.

Coaches often put the written workout onto papers for each lane so swimmers can better understand what is happening in the practice. Include technical information about one or more of the sets and its purpose.

Practice handouts are well suited for some affirmation or technique tip at the top or bottom of the page. Give the athletes food for thought as they swim. The printed papers are particularly valuable when trying to emphasize different ideas in the practice.

In the instructions to the sets, put down the objectives in terms of percentage of effort, pulse rate swimmers should attain, purposes in the set, a stroke technique.

Sometimes coaches have to tell the swimmers how to do the set, particularly if it isn't a set that has been used that season. For example, maybe the set is progressive by effort or by time; they need to know where to begin and how to progress it. As a result, swimmers spend more time reading and figuring out the next set than if it just is posted on the chalk board / white board.

Going an extra step, the in-lane practice logs can document the schedule for the next several days.

Variety keeps things fresh.

With the exception of a few traditional practices and test sets, do not repeat entire workouts during the season.

Repeat some sets during the year, particularly goal sets.

It might be tempting to have exactly the same warm up every day so that everyone knows what to expect. Beware. Doing the same things can make for dull practices and lackluster efforts. However, some programs that do standardized chunks in practices for logical reasons and get excellent results.

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Circulate and Coach in practices.

Coaches are never going to achieve consistency in their athlete's performance unless the coaches really coach, coach everybody and coach everybody every day.

Do not depend on having told the swimmers of a skill one time. Reinforce the messages and build on them daily.

It is so easy and so tempting for coaches to fall into the pattern of posting a workout, and then while the athletes do it (or, sometimes, don't do it!), the coach is busy with something else. Or perhaps the coaches do watch the swimmers but only serve as traffic cops. When only whistling the start of each repeat, there is not much coaching going on in situations like this.

Length of sets

Many, if not most, of the typical swim sets are 20 minutes long.

Apportion of workout time.

Within the time allotted for pool practice, coaches need to determine segment lengths to kicking, pulling, swimming, instruction, stroke drills, and all of the kinds of metabolic training. The balance within a practice or a week's work or a season's practices, is better accomplished when practices are carefully planned and checked with written principles, objectives and goals. You may want to build your own checklist to make sure you have not left out any crucial part. Given X number of practice hours per day and/or week, how much time do you give to weight work vs. pool work?

What do you do with stretching?

How does mental training fit in?

Doc Counsilman and Ernie Maglischo provided guidance as to how to arrange practice emphases. Plan practices around the various metabolic systems, or cycle your workouts,

One possible solution to this dilemma is to combine several training concepts, rather than isolating them into separate components.

For example, construct a set in which you instruct kicking ideas. The swimmers practice some kicking drills within each repeat. Plus, do the balance of the repeat as a high quality drill or short rest drill or whatever needs work.

Educate the team on the rules.

With coaching on the rules, the team is sure to get few disqualifications. If the coaches are sloppy in stroke instruction, swimmers swim sloppily. If the coaches are enthusiastic, confident, consistent, the the team is likely that way.

One primary responsibilities is to care for athletes.

We can eliminate many potential problems by simply caring for the people on our team. Everybody must know that he or she matters. Everybody must know that he or she contributes to the team in a special, unique and indispensable way. The coach's job also includes the necessity of having a positive outlook and a determination to praise and find good performances whenever possible.

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As you formulate objectives and plans for the workouts and then conduct the practice, avoid negative situations, references, and comments.

Give the athletes a positive experience. Provide sets they can do and feel good about, not necessarily always easy, but do-able.

"Must Do" and "Failure" sets.

As negative as these might appear, they are nonetheless useful in a total training package. When swimmers are told they, "Must Do" a certain number of repeats at a specified time, they may end up being at the pool for a very long time. The coach must therefore be quite certain that the swimmer actually should be able to make the time, and that the set is important enough for the coach to take a stand on and insist that it be completed.

A failure set is one in which the interval and/or goal keeps dropping until no one can make it. An example might be doing 75ss on :60, :55, :50, :45, :40, :35 or 100's on 1:05, 1:00, :55, :50; depending on how many you did at each time, how much rest, if any, between sets, most swimmers would fail at some point in this set.

Tell the team, "If I don't ask you to go farther and faster in a set like this than you think you can, how can you get to the next level of training intensity?

"If we always settle for only what we can do, what we have done in the past, we shall be quite comfortable but not make much progress.

" How will I, or how will you, know just how far you can push yourself if we always stop at known limits.

"You really do not know how strong you are.

"I hate to give students a test in which they get 100% right, because then I really don't know how much they actually know. Occasionally, we need to test ourselves and discover just what we are capable of.

"Since we all fail sometimes, I need to see your reaction when you do fail; do you simply stop, or do you continue to do the best you possibly can; how much of a fighter are you?

"It is a matter of pride — team and individual — to make as many of these as your best self can make.

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Tim Hill recommends swimming a quality set the night before you have a meet against a team you should be able to beat. This simulates at least in part the situation you will face in a meet in which you have to swim well on back-to-back days.

Use your experience in mental training along with your physical workout.

Physiological improvements are delivered by our practices in the pool.

Simultaneously working on our minds, often without our understanding it and certainly without the athletes' comprehending what is going on.

Practices can develop the mental aspects of training.

some of our seemingly impossible or simply tedious sets really make us feel tough, in addition to improving our conditioning.

Broken sets

Broken sets have been used in various ways for predicting race times. Broken sets often give the swimmers the feeling of going race speed or faster under nearly race conditions.

To swim fast, they have to swim fast, and these high-speed sets give the swimmers the confidence that they can. Plus, the broken sets develop the appropriate metabolic systems.

A broken drill with long rest between segments does not present a very realistic notion of what the swimmer is actually capable of, of course.

In practices with broken sets, swimmers can break school records, or make top-flight cut times with broken sets and extra rest. This does not mean they could do this in a meet, certainly. However, the swimmers get to learn that the human body does not disintegrate traveling at high speeds over that distance. Broken sets can teach new horizons with pace and open the door to the realm of the possible.

The mental aspects of practices should be pointed out to the swimmers so they begin to understand that there are reasons for doing a particular set in addition to the obvious physiological improvements, as important as these are.

Another way to help train the mind is to get into a relaxed state, physically and mentally, and visualize in great detail a 50-yard freestyle race in ultra slow motion.

This visualization — as concrete and specific as possible — can be used within practice to learn, reinforce, and mentally and then physically practice stroke techniques.

With practice you can help establish a Positive Mental Attitude (PMA), reduce psycho-somatic aches and pains, and psych up for a big meet

This can be done as part of the workout itself or after practice, as a separate team meeting.

Swimming Down

Swimming down after a hard repeat is usually a good idea. Do recovery swims in sets in which swimmers are striving for maximum effort and fastest possible times, such as in goal sets.

Sometimes you do not want the swimmers to do this; rather, you are trying to get them to accumulate as much lactate as possible and become even better adapted at tolerating the fatigue. At times Doc Counsilman did not have some of his swimmers swim down between repeats for that reason. For in practice swim downs, use your judgement, based on the specific objectives for the set for the swimmers,

Of course, always swim down after events in a meet if there is sufficient pool time and space.

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Try to end each practice on a positive note.

Wrap up with something that the swimmers can feel proud about. Provide an ending goal set in which they can meet the challenge. Most practices provide an opportunity to swim very fast, or a game, or a stroke or turn drill in which they learn something new. Create and effective end to practices. Give an announcement about a special treat or social event. Drop some sort of psych-up for the approaching meet before dismissals.

INDIVIDUALIZING PRACTICES

Workouts need to be set up to accommodate various ability groups. Do not train sprinters and distance people the same, nor breastrokers the same as I.M.ers. Part of each workout, and a great deal of the early season work, finds the whole team working on the same things in the same way. But as the season progresses, each swimmer gets specializes more and more.

Obviously, track coaches cannot train the competitors in the mile the same as those gearing to the 200. Swim coaches can not expect the sprinters to be able to do the same practices as those doing distance events. Likewise, distance swimmers be not be able to survive what the sprinters do.

Everybody needs to do a little bit of everything, but specificity demands an allowance for differences for individuals by strokes and distances.

Specificity does not mean that to swim the 100 butterfly, that's all we should do, swim 100 butterfly at race speed all day every day. Rather, train aerobically to improve the middle of the 100 butterfly. Plus, train anaerobically to help finish the 100 butterfly faster.

Making training specific to the event. There are better ways to develop various aspects of the 100 butterfly than just repeating 100 butterfly the whole practice.

Individualization is the foundation of modern athletic coaching and the distinguishing factor between generic training and high-performance development. In swimming, no two athletes respond identically to the same workload. Variables such as physiology, biomechanics, mental disposition, recovery capacity, and event specialization dictate that each swimmer requires a tailored approach.

1. Physiological and Biomechanical Considerations

Swimmers differ in muscle fiber composition, aerobic capacity, and anaerobic threshold. Sprinters typically possess a higher proportion of fast-twitch muscle fibers (Type II), enabling explosive speed but resulting in faster fatigue. Conversely, distance swimmers rely on slow-twitch fibers (Type I), supporting endurance through efficient oxygen utilization. Coaches must therefore manipulate training intensity, interval duration, and rest ratios to suit the metabolic demands of each athlete.

For example, a 50-meter freestyle specialist may perform short, high-intensity sets with extended rest to enhance neuromuscular recruitment, while an 800-meter freestyler benefits from longer aerobic sets with limited recovery to improve lactate clearance and energy efficiency.

Biomechanics also influence individualization. Differences in limb length, flexibility, body position, and stroke mechanics affect drag and propulsion. Video analysis and biomechanical feedback allow coaches to adjust stroke patterns, breathing rhythms, and kick efficiency to maximize performance.

2. Event-Specific Programming

Every swimming event demands unique physiological and technical characteristics. Individual Medley (IM) swimmers must balance proficiency across all strokes while managing energy transitions between them. Training plans for IM athletes include mixed-stroke sets, energy system rotation (aerobic, threshold, and speed), and frequent transitions to simulate race patterns.
Breaststrokers, on the other hand, rely heavily on hip mobility, timing, and power generation during the kick. Their dryland programs emphasize hip adductors, core stability, and explosive leg power, often distinct from other stroke groups.

For butterfly and sprint freestylers, anaerobic and neuromuscular conditioning take priority, requiring maximal effort sets with complete rest intervals to ensure high-speed quality. Distance specialists focus on aerobic development, pacing strategies, and efficiency under fatigue. Thus, a unified team practice must incorporate varied sets, lane differentiation, and customized targets.

3. Psychological and Cognitive Adaptation

Individualization extends beyond physiology. Mental resilience, motivation, and learning styles differ widely among swimmers. Some athletes respond positively to verbal feedback, while others prefer visual or kinesthetic cues.
Coaches must recognize these learning differences and provide tailored instruction and feedback mechanisms. Incorporating goal-setting, self-evaluation, and mindfulness into training helps athletes internalize their progress and remain mentally engaged throughout the season.

4. Monitoring and Data-Driven Adjustments

Modern swim programs benefit from performance monitoring tools such as heart rate tracking, lactate testing, and session-RPE (Rate of Perceived Exertion). These metrics allow for ongoing evaluation of each swimmer's adaptation and recovery status. Coaches can adjust workload and intensity in real-time, ensuring that training remains effective yet sustainable.
Individual performance profiles — including stroke rate, distance per stroke, and split consistency — serve as benchmarks for progress and indicators for training adjustments.

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5. Integration Within the Team Environment

Although individualization focuses on personalized training, maintaining a strong team environment is crucial. Group practices should encourage collaboration and mutual motivation while still allowing individual goals to guide session objectives.

Coaches can design modular training blocks, where core sets are shared by all swimmers, but intensities, distances, and recovery vary according to specialization. This hybrid approach ensures that team spirit coexists with personalized development.

6. The Coach's Role

Ultimately, the coach functions as both scientist and artist — interpreting data, understanding personality, and applying experience to create a holistic program. Individualization requires continual observation, communication, and flexibility. By recognizing each swimmer's strengths, weaknesses, and emotional needs, the coach can optimize training to develop not just faster swimmers but more complete athletes.

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Conclusion

Constructing effective swimming practices through the integration of specificity, overload, and progression requires both scientific understanding and adaptive coaching. These three principles are inseparable pillars that guide the development of training plans — from the macro (seasonal planning) to the micro (daily sessions).

Specificity ensures that every element of training mirrors the exact physiological, technical, and psychological demands of the swimmer's event. Coaches must deliberately tailor drills, distances, and intensities to enhance the particular skills and energy systems required for performance.

Overload challenges the swimmer beyond their comfort zone, eliciting adaptations in strength, endurance, and speed. Each session should have a clear objective, progressively stressing the body's systems while maintaining technical integrity and purpose.

Progression sustains improvement by gradually increasing the training demands as adaptation occurs. Without progression, performance plateaus. Planned increments in volume, intensity, or complexity maintain continuous growth while preventing stagnation and overtraining.

When these constructs are harmoniously applied, they transform practice from routine activity into purposeful performance engineering. The art of coaching lies in balancing these principles while adapting to individual differences, maintaining athlete motivation, and fostering a positive, team-oriented environment.

In essence, constructing practices with specificity, overload, and progression transforms swimming from mere repetition into a dynamic process of targeted adaptation. By thoughtfully designing, monitoring, and refining training around these core principles, coaches cultivate swimmers who are not only technically proficient but also mentally resilient and physiologically optimized for peak performance.

Best Regards
Mohammad Deljoo