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ADAPTING TO THE USRPT FORMAT

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One of the original users of USRPT penned the following opinion.

Thank you for sending that exchange, Cameron.

I think that it takes a while for coaches and athletes with the conventional mind-set to grasp the concept that in a USRPT set failure is completion and completion is failure; or, failure is success, and success is failure. I found that if before starting a set I revealed to swimmers the target number of repeats in the set, 20 or 30 or whatever, that they would fixate on that number, so ingrained was the habit. Then, if they did not complete that number, which of course they were not supposed to, they would consider themselves to have been unsuccessful in the set and begin to look demoralized. But if I kept the target number to myself and just told them to do as many repeats as they could at a certain pace with a certain rest interval, they would instead derive a sense of accomplishment, especially if they knocked off more repeats than they had on their previous attempt. When they eventually achieved the (secret) target number of repeats, I would congratulate them on having become too fast for the current pace and announce, as though I were conferring a badge of honor, that they had earned a faster pace the next time out.

The above proposal is one way of handling a perceived problem. However, to this writer's way of thinking the problem should never arise. With the introduction of USRPT some time has to be spent in adapting the swimmers to different and as was rightfully pointed-out, contrary concepts of training set completions. A major characteristic of USRPT is that some motivational factors are intrinsic to the correct execution and interpretation of the experiences. Those factors change the role of the training experience so that it will not be compared to, equated with, or classed as similar to traditional training. There are several stages in the introduction that should allow swimmers to change their expectations for and perceptions of valuable repetition training.

The steps in introducing USRPT can be conducted as single or multiple sessions. This writer recommends at least two exposures to each step for senior/serious swimmers and probably even more repetitions of each step for younger swimmers. The aim of the introduction should be to have swimmers recognize USRPT as a completely new training experience that is not confused with or compared to any other form of familiar training.

Steps in Introducing USRPT

1. *Step 1 - Introducing race-pace targets in an ultra-short format.*

The purpose of Step 1 is to have the swimmers take responsibility for the mundane tasks of measuring repetition time and starting on a set interval.

The coach should explain the value of swimming at race-pace and its relevance to the specific race for which it is designed. Then explain why short distances on short-intervals produce the closest simulation of actual racing which will yield the greatest training benefits for swimmers. All swimmers should be responsible for using the pool clocks to measure their repetition times (i.e., faster or slower than race-pace) and when each repetition should start. The coach should not provide any times or start signals. Only when errors in repetition start times occur or the organization gets confused should the coach interact with the swimmers about the conduct of this partial-USRPT set.

Starting repetitions on the exact interval is imperative in USRPT work. Too many swimmers drop below the water and push-off several seconds before the accurate start time occurs. The false time that results from that behavior destroys some of the value of USRPT work.

In this first step, set a task where most swimmers will complete all the repetitions although not necessarily with ease. Two example sets are:

- 12 x 25 FS at 200 pace on 30 seconds¹, and
- 12 x 50 FS at 400 pace on 50 seconds.

The coach should monitor the precision of the swimmers' adherence to repeating the target swims and frequently ask all swimmers what their performance was in the latest repetition.

2. *Step 2 – Introduce the concept of momentary failure and recovery.*

The purpose of Step 2 is to introduce the concept of race-pace failure, short-term recovery, and re-attainment of race-pace.

The same rules of conduct as indicated in Step 1 should be retained. The previous sets are doubled, with the hope that no swimmer will be able to complete a full set. The two example sets would be:

- 24 x 25 FS at 200 pace on 30 seconds, and
- 24 x 50 FS at 400 pace on 50 seconds.

It should be explained to the swimmers that because this is "new" training, most will not be able to complete the full set at race-pace. Not completing one repetition to criterion is not a disgrace but signals an opportunity to recover and have an improved chance of achieving more repetitions at race-pace.

The rules that should be added and explained are as follows:

- a. It is likely that somewhere in the set, race-pace will not be achieved in a repetition. When that occurs, the swimmer should miss the next repetition and stand to the side of the lane so that swimmers will not be interfered with as they continue on.
- b. During the missed or recovery-repetition time, the swimmer should focus on how race-pace will be achieved in the next repetition "to get back on track". Usually, it is best to advise even-pace (constant velocity) swimming just as one should do in a race to make up some ground on another swimmer if a "too-slow" lap was swum. The false logic of making up ground very quickly by producing an energy-sapping spurt should also be explained. [It is the even-paced race-pace swimming in the attempt to recapture a certain velocity that contributes to the swimmer learning the characteristics of the critical pace

¹ Two examples are offered. It is assumed that the total training session will be devoted to USRPT for several events.

for achieving a target time for a race. Coaches should welcome these opportunities and pay attention to whether a swimmer is successful in recapturing the desired pace. Feedback should be provided if the attempt to re-institute the correct velocity was successful.]

If a swimmer fails to achieve the target race-pace after missing one repetition, the procedure should be repeated. As far as the swimmer is concerned, the reason for trying again is to see if performance recovers after even more rest. When a swimmer tries three times to produce a race-pace repetition, it is reasonable to suggest to the swimmer that he/she go to the recovery lane and do easy swimming or kicking or any activity until the next race-specific set begins.

- c. Swimmers should remember how many repetitions were achieved and at what number repetition the first failure occurred.

3. Step 3 – Introduce the notion of striving for maximum yardage at race-pace.

The purpose of Step 3 is to orient swimmers to perform as many strokes as possible at race-pace within a USRPT set. That does not require completions to be in consecutive repetitions. Within the USRPT set, failed and recovery repetitions do not contribute to the total yardage at race-pace but successful repetitions after a failed and recovery repetition do.

Silverman (1996) summarized very useful guidelines for developing skilled behaviors within linear activities such as swimming. Although not mentioned directly, the Principle of Specificity was broken down into elements of good instruction. Those elements are essential for athletes to learn improved functional aspects of the movement complex in which they are engaged. Some of the highlights of his recommendations were as follows:

- *Time spent in activities that are specific to competitions is related to learning and performance change. That time should conform to good instructional dynamics of blocks of repetitions with feedback.*
- *Individual athlete practice is the single most important determinant of success in learning a motor skill. The more an athlete practices at a high rate of success, the more likely learning will occur. Thus, individual, challenging, and successful practice is the most effective activity for altering skill competency.*
- *Inappropriate or unrelated practice is negatively related to achievement. This is why USRPT is promoted and traditional swimming training rejected.*
- *The amount of activity time athletes spend engaged at an appropriate difficulty level is the most important variable in predicting learning/performance achievement. This holds true with skill learning in sports. Effective practice time is called "beneficial training time". USRPT provides individualized levels of difficulty (race-pace), a direction toward achieving the greatest amount of race-pace practice possible, and a structure for achieving the highest amount of beneficial practice time.*
- *Organizational strategies which promote appropriate practice are important. Students and athletes need to spend sufficient time for learning to occur and to be translated into consistent performance. Practicing for a day or two and expecting refined movements to result is a misconception that underlies many poor swimming programs. Practices structured around USRPT formats provide opportunities for the greatest amount of improvement in race-pace specific skills and conditioning because they provide the greatest amount of beneficial practice time.*

Ashy, Landin, and Lee (1988) investigated the learning of specific skills in fourth-grade students. It was found that the number of practice trials was not related to achievement but the number of correct trials was. Thus, the performance of non-race-pace swimming would not contribute to swimming improvement but race-pace swimming would. Performing practice trials without attention to correct technique does not improve skill acquisition whereas correct practice trials do. The best avenue for enhancing swimming performance is to increase the volume of properly executed practice trials. USRPT provides the avenue for maximizing the volume of strokes swum at a velocity that duplicates that required for successful racing. When seeking to improve performances, errors, incorrect, and/or irrelevant trials should be minimized because they are a waste of time.

USRPT requires swimmers to reject the traditional completion of every programmed repetition whether at correct or incorrect velocities and to focus purely on the total amount of correct swimming achieved in a set. Not attempting to swim a repetition after a missed race-pace time is not a negative event, but rather it provides an opportunity for the swimmer to gather his/her resources and swim intelligently to achieve one or more repetitions within the remainder of the set. It does not matter when failed and recovery repetitions occur. It is the judgment of the swimmer to achieve the greatest accumulated volume of beneficial training time that is of importance. That leads to one index of training improvement: Is the total yardage of successful swimming achieved in the most recent set better than, equal to, or less than the previous best?

- When it is better, improvement has occurred.
- When it is equal it still is a meritorious achievement but can modifications to completing the set be instituted on the next occasion and improvements be achieved? This consideration is similar to analyzing a race-performance and seeking modifications that will result in performance improvements. Such an analysis is equally applicable to racing as it is to USRPT sets.
- If performance is worse, the coach should handle the situation appropriately because there may be reasons for the swimmer having an inability on that day to perform to "normal" standards. External factors such as inadequate rest, increased emotional stress, demands of educational activities, particularly examinations, personal difficulties, etc. all have the potential to lessen practice performance potential (Rushall, 1981).

The outcome of the practices devoted to developing this swimmer-controlled aspect of USRPT is that swimmers know the total yardage of beneficial training achieved and how many repetitions were successfully achieved before the first failed-repetition. Without any input from a coach, every swimmer should be able to evaluate what was achieved in the most recent USRPT and whether or not performance improved.

4. *Step 4 – How long before the first failed repetition occurs?*

The purpose of Step 4 is to add one more feature for evaluating the quality of performance demonstrated in a completed USRPT set that being the number of repetitions completed before the first failure.

It is a swimmer's responsibility to record and remember the total yardage covered in a USRPT set. As was pointed out in Step 3, the number of repetitions completed before the first failed-repetition should also be noted. Consequently, in succeeding sets, the number of successful repetitions completed before the first failure should be compared to the previous

set completion to determine if it is or is not an improvement. An improvement will be indicated by enduring more task-repetition completions before failure. One could infer that the swimmer's endurance or skill at allocating personal resources to a particular race-pace improved so that more total distance was covered before failure.

Since there are two criteria involved in determining if the completion of a USRPT set is an improvement, an equal best, or a worsened performance, the decision is not as clear cut as when only one criterion is applied. The possibilities for inferences about swimming capabilities based on two criteria are listed in Table 1.

TABLE 1. INFERENCES ABOUT SWIMMING CAPABILITIES FROM TWO SET-COMPLETION CRITERIA IN USRPT WHEN COMPARED TO PREVIOUS USRPT COMPLETIONS.

| Total yardage achieved | Number of repetitions to first failure | Decision about swimming status |
|-------------------------------|---|---------------------------------------|
| Increased | More | Improved |
| Increased | Same | Improved |
| Increased | Less | Improved |
| Same | More | Improved |
| Same | Same | Same |
| Same | Less | Indeterminate |
| Reduced | More | Improved |
| Reduced | Same | Worse |
| Reduced | Less | Worse |

Two criteria for evaluating the quality of completion of a USRPT set means that the motivation to complete the set is more than when only one criterion is used.² When an "indeterminate" or "worse" conclusion is drawn, it would be a good coaching ploy to discuss the outcome with the swimmer and determine if a better approach to the task is possible; if there are factors that could be modified that would allow better completions; or if there are external factors that affected the conduct of the set.

Not all swimmers adopt the initial stance of swimming as many repetitions as possible before the first failure. Some take a voluntary rest when the level of difficulty becomes notably high. Others inject rests for other reasons. These various ploys are designed to yield the greatest race-pace yardage possible. While acquainting swimmers with the possibility of them taking a rest not necessarily after a failure is not encouraged, it should be allowed because it allows swimmers to begin thinking about allocating resources to a task, which is a major ingredient in learning to correctly pace a race.

² The number of incentives to complete a behavior determines the level of motivation involved in the task. The two discrete criteria used in this description enhance a swimmer's motivation to complete the set more than if only one of the two criteria was used.

Eventually, swimmers should stabilize with a certain total yardage and a maximum number of successful repetitions before failure. Some swimmers, particularly those with enhanced endurance capacities could get to the stage of completing all repetitions successfully. For those individuals the coach has to decide if the rest interval should be shortened or the target race-pace time should be made more difficult. It should be noted that increasing the number of repetitions is not recommended. That is because there is a number of repetitions that can be completed after which continued swimming starts to become tiresome in a "boring" sense. A large number of repetitions to be completed consumes time that could be applied to one or more other events. Also, having the quality of swimming improve in a USRPT set rather than the quantity is the preferred avenue for swimming faster in races.

For a particular USRPT set, there is a time when it is no longer maximally challenging, or the swimmer no longer is improving in either or both of the completion criteria. At that time, the coach should determine how best to change the USRPT set dimensions to spur continued improvement in the swimmer's training quality and response. Oftentimes, a change in technique that fosters improved swimming efficiency will produce better USRPT responses.

The purpose of this description was to suggest a procedure for preserving the intrinsic values of USRPT when it is introduced. If the appreciation that USRPT is very different to traditional training and in no way should be compared to or confused with traditional training is established, then the approach of a swimmer to USRPT should always be positive and will stimulate maximal application and benefits. USRPT provides opportunities for maximal beneficial training time better than any other format of swimming training.

Changing from Traditional Training to USRPT

It has been observed by a number of coaches and this writer that traditionally trained swimmers, no matter what their performance level, are not fit enough to handle the specific demands of USRPT without some transitional experiences. Immersing traditionally trained swimmers into a full USRPT workout has been tried but difficulties and swimmer exhaustion has quickly become apparent, often with the attribution that USRPT is too hard and unreal. Two different options are recommended for attempting a program conversion from traditional training to USRPT.

Start of a New Season

Many high school and summer league teams start the season with swimmers who are very much unconditioned. Traditional training would suggest low-intensity high-yardage workouts as a way to establish a fitness base. USRPT also can be used to develop fitness in school-age swimmers but as has been reported for several sports (Beidaris, Botonis, & Platanou, 2010; Helgerud et al., 2007; Wee, McGregor, & Light, 2007), the development is faster and better with USRPT than traditional forms of training.

With relatively unfit swimmers, a full format of USRPT can be programmed. The one aberration is that race-pace is not used, but one of slower than race-pace work should be programmed. Swimmers need to experience as many training effects as possible. Some guidelines for initial programming in seasonal programs follow. They suggest structuring sets that are attainable to some degree and not too hard to the extent of demoralizing the swimmer(s).

1. Select a repetition distance (75, 50, 25 m/y) and pace that will give swimmers a good opportunity of completing 12-15 repetitions before the first failure. A possible target number of repetitions could be 20.

2. Inter-repetition rest intervals should remain in the 15-20 seconds range.
3. The failure rule applies. As soon as the first failure is incurred, the swimmer should miss the next repetition to gain more recovery and re-enter the set the next repetition after the rest. When there are a total of three failures or two successive failures, the swimmer should cease doing the set and engage in recovery prior to attempting the next USRPT activity.
4. Program three to four sets employing all swimmable strokes for each session with approximately five minutes of any-activity recovery between sets.
5. As soon as a swimmer completes one set without failure, the pace time should be increased in difficulty so that the challenge of working with purpose is maintained.
6. All swimmers should keep track of the structure of the set, how many repetitions were completed before first failure, and the total yardage completed within the set that met the race-pace criterion.
7. Depending upon the rates at which swimmers adapt to the USRPT directives, the constituencies of groups likely will change so that lanes contain swimmers who are close to being homogenous in their performances.

The aim of the early weeks is to have participants working to better themselves in terms of total session yardage completed and improved target times. A reasonable target for a team should be to engage in actual race-pace training within four weeks. That assumption is dependent on the number of attendances per week of the swimmers. The above outline is designed for swimmers who will be full-time participants.

There are no magical formulas for determining any of the repetition/set characteristics for unfit swimmers. Manipulating the rest intervals, the shorter the interval the more challenging is the set, is all that the coach needs to vary for each repetition race-distance set.

Gradual Introduction

An increasingly common scenario is changing from traditional training to USRPT in season. An immediate total change is unwise because the energy capacities developed in traditional training only partially transfer to USRPT. Traditionally-trained swimmers have difficulty in coping with a full USRPT program. The best alternative would be to introduce USRPT incrementally to replace traditional training items.

Because there is no research that has evaluated this phenomenon, it is recommended that the following be implemented. Variations based on sound reasoning are possible.

1. In the first week, program one USRPT set per session. Provide the opportunity to experience the same set at least twice among all the new-format sets. It is during these sets that the correct swimmer conduct in the USRPT format should be developed.
2. In the second week, program two USRPT sets for half the training sessions and one for the remaining sessions. Repeat the same or equivalent sets to those offered in the first week. Be wary of swimmers becoming too exhausted because of lack of familiarity with the energy demands of USRPT. If necessary, such swimmers should be given substitute recovery activities rather than pushing on unsuccessfully and possibly unpleasantly. [In USRPT it is successful swimming that is important, not hard/grinding swimming.]

3. In the third week, program two USRPT sets for all training sessions. The variety of sets should be gradually expanding to include more strokes, race-paces, and repetition numbers.
4. In the fourth week, program three USRPT sets for half the training sessions making them the only serious content in those sessions. In the other half of the sessions continue with two USRPT sets and the remainder of the session being traditional-training activities.
5. In the fifth week, program three USRPT sets for all sessions. If fatigue appears to accrue over the first several days, introduce skills training (e.g., turns, dives, double-leg kicking) as lower stress time-consuming relevant activities as replacements for some of the USRPT sets.
6. From the sixth week on, dedicate the whole program to three or four USRPT sets per session with skills training spread throughout the week. Because 50 m/y events need not conform to USRPT principles, specific training activities for those events should be experienced at least three times per week as the first activities in the training session before any fatigue or training effects are evident in the swimmers.

The introduction of USRPT experiences to replace traditional training activities should be gradual but the progress of swimmers during the allocated time will be quite variable. The coach will have to accommodate those who tire easily as much as those who are not challenged enough in the initial introductory attempts.

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