

# THE NLSC DAILY

Workouts | Articles | Useful Information

## So Yesterday - excerpts from Dryland with Coach Cliff

### ***Caeleb Dressel - Quarantine Core Circuit***

4 x through, \* exercises drop by 5 reps each cycle  
 \*20 x Toe Touches (legs straight at 90 degrees)  
 \*20 x Outside Ankle Touches (feet off ground, knees bent)  
 \*20 x Straight leg Crunches  
 10 x 90 degree leg raises  
 \*20 x Flutter Kicks (4 count equals 1 rep)

### ***Main Set - Video Links for Each Exercise***

[2 x Squat Jumps :45/:15](#)  
[One-legged Dead Lift Hop :30/:15, switch sides & repeat](#)  
[2 x Double Jump :45/:15 alternating sides throughout](#)  
[2 x Lateral Lunge :45/:15](#)  
[2 x Pop-up :45/:15 alternating sides throughout](#)  
[2 x Plank-Straddle Hop :30/](#)

## Dryland Resources

[Swimming Specific Yoga](#)

[Pacer Step Challenge](#)

[Coach Cliff's Zoom Dryland](#)

[Weekdays Live @ 2:20p](#)

[Recordings](#)

[The NLSC Daily Archives](#)

[100 Push-up Challenge](#)

[25 Pull-up Challenge](#)



## Race Phase Training: Training Elements

From Coach Matt

Welcome to part 4 of our discussion on Race Phase Training. After breaking down race phases and training elements, it is time to quickly go over the energy systems we use in our practices. I feel that it is important for a training swimmer to understand exactly what they can expect to feel and gain from the time and energy they put into every part of a set. This is particularly important during a blended set, where there are two or more element families in play, with a focus on strengthening multiple phase transitions. I'll discuss our main energy system structure in two categories: Aerobic and Lactic (anaerobic). When a swimmer is able to understand the target stress level (as dictated by our energy system model), add to that specific focus elements (from the compatible family of elements), and link that work directly to a specific phase or transition of a race, the long-term benefit from every bit of energy spent during every moment of time in the set can be greatly increased.



## **BAND** - our closed social media group...just for NLSC

We are using the Band app to help communicate directly with our members (parents and swimmers).

[Here is a brief explanation of how Band works.](#)

This is a closed social media group, so only NLSC members (swimmers, coaches, and parents) may join. Coach Cliff will moderate who is accepted into the group.

Just download the Band app today, or learn more by [clicking here.](#)

Once you have the Band app, just search for Northern Lights Swim Club, and ask to join!

## **Picture Book Video Challenge** - from Coach Samantha

This is not a swimming video! It is a video of a girl interpreting the pictures in her cat picture book...and it is definitely hilarious. Send us your video of you "reading" the pictures in one of your picture books!

[Kittens Inspired by Kittens](#)

Send your video to [coachcliff@nlsca.org](mailto:coachcliff@nlsca.org)

**Aerobic Energy Systems:** (Aerobic family of focus elements are active)

When breaking down the aerobic energy system portion of our model, we use a range of output percentages. It is important to keep in mind that these numbers are not a specific percentage range of race-pace, best time, or energy level on a swimmer's best day. These are real-time percentages that relate to what a swimmer brings in that day, or has left in that part of the practice. Clearly, there are more factors than we can count that might determine the bank of work energy a swimmer has on a given day. But when we look at the percentages on that relative scale, the stress effects of specific stress-range targeting are compatible from day to day, or set to set. This allows both swimmer and coach to end a set or practice with a stress level appropriate to that part of the training cycle, as determined by the overall season plan. It also allows the coach to craft a set, modify for groups, and hit (roughly) the same stress target for everyone in the pool. Using this model, swimmers can monitor their current stress level with a 10-second pulse check. I will list the target heart rate for each level next to the target percent output. The swimmer will not need to multiply anything, nor refer to a more complex chart to know if they are on track. The numbers match up pretty clearly.

### **Warm up: 80-85% / 10-second heart rate of 20-25**

This stress level is a decent place to start. It gives a general idea of where a warm up might begin. To truly be prepared for a coming main set, however, the swimmer will need to gradually touch base with higher energy systems throughout the warm up to prepare the body and mind for performance. But the average stress level for the warm up portion of a practice will probably fall in this range. Even when reaching out to higher stress ranges from time to time, little to no lactic acid is produced, and no stress is carried over to the next project.

### **EN1: 85-87% / 10-second heart rate of 25-27**

This is a curious stress level. I can probably count on one hand the number of times "EN1" has made an appearance on a whiteboard set during one of my practices in the past year. I might use this energy system to emphasize active recovery or to highlight a transition period from block to block, or when changing work tone or focus family. I would categorize this as somewhat below a steady cruising speed. The body is able to convert or dissipate any lactic acid over time faster than it is produced. Little to no stress would be carried over from this type of work.

**EN2: 87-89% / 10-second heart rate of 27-29**

This is a fun, and versatile range of stress level. A swimmer and coach can do a lot with the fast progression of physical stress experienced in these three percentage points. Breaking this range down even further can allow us to hit a target stress level to match any project in this range.

**-87-88%: Steady cruising speed.** Body produces and dissipates/converts lactic acid at the same rate. Think of this as the output in which a swimmer could move steadily forever, with no noticeable breakdown, if hydration and nutrients could be teleported into the body as needed. The body is not tired, but can be called to action at any moment. I usually use this range for tone transition, or aerobic maintenance, often balancing out a Lactic focus portion.

**-88-89%: Performance Zone.** The work/rest ratio still allows for a balanced lactic acid equation, but the body definitely feels where the tension and the weight is lurking. It will build over time, but this output is sustainable for quite a while. A 45-60 minute single-focus set at this level will feel quite productive. The stress will lean on a swimmer's pain threshold, yet not quite pop through their practice break point. I often use this range for **aggressive base building**, and transitions into or out of tactical spikes in stress range in a blended set. In my notes, I would label this as a steady **Aerobic Push**. A swimmer can imagine that they are steadily pushing their aerobic base up, or forward from below, or behind, respectively.

**-89%: EN2+: On the bubble.** At this very specific percentage point, the swimmer is building a significant amount of lactic acid. The rest interval generally provides enough passive recovery time for sustainable output before practice breakpoint for a while, but maybe not as long as in Performance Zone. I'd give a solid 40-45 min single-focus set at this stress level. In a blended set, I would couple this target point with a rhythmic bounce of EN3 slaps, or a systematic lactic spike. This stress level leans heavily on the practice break point line. When blended with spikes of stress, I label this tool **Aerobic Pull**, as the swimmer is standing on top, or in front of their aerobic base and pulling it up, or forward again and again with strong, sharp yanks.

**EN3: 90%+ / 10-second heart rate of 30+**

Any set that contains an EN3 portion can be considered high-end aerobic, in my opinion. Most swimmers dread this almost as much as coaches love to write it. In this range the body is producing lactic acid faster than it can convert or dissipate it. It is at the 90% point that a training swimmer reaches their practice break point. This is when the room gets a bit darker. Both rational and random thought are gone at this point, leaving only enough room to mentally gasp "6 more, then the last one..." "3 more, then the last one..." "1 more, then the last one...". It is a strange, almost dream-like world in which the pain exists, but, much like the race break point, doesn't really matter. The main difference between the two break points lies in the fact that the race break point signifies the final push to one single finish, while the practice break point signifies the point at which a swimmer realizes that if they blink once, let up on one turn or stroke, they won't make it to the finish. The only option is to power through. That is one of the hardest choices to make in a practice. Many do not. Most bodies are perfectly willing to slide back to Performance Zone, dabbling once in a while in the waters of EN2+, but never popping that bubble. It's quite a heavy thing to voluntarily jump over that 90% line and keep fighting the possibility that one might choose to give up. Like anything else, making that choice takes practice, and a very strong reason.

I would write a single-focus EN3 set of about 30-40 minutes. I often use EN3 chunks or spikes in conjunction with Performance Zone or EN2+ transition sections in a 40-50 minute set.

**Lactic Energy Systems: (Lactic family of focus element are active)**

Unlike the aerobic energy system model, the lactic model deals less with percentage of output, and more with where or when the body reaches failure. Whereas the aerobic model calls upon the training swimmer to make their productive energy last over 30-60 minutes to achieve an overall target stress level for the project, the lactic model asks the swimmer to experience all of the stress in a short period of time, many times. The output necessary is often higher than even EN3, so taking a 1-pulse heart rate check is unnecessary. A 3-pulse check, however, can tell a swimmer a lot about their recovery strength (one 10-second pulse immediately after finish, wait 20 seconds, another 10-second pulse, wait 20 seconds, then a third 10-second pulse). The rate of drop between first, second, and third numbers, tracked over time, can be a valuable tool in training. If your numbers are 34, 20, 11 you might need to look for a job as a super hero. If your numbers are 34, 29, 25 ... you might need to apprentice with a super hero for a while, just until you can spread those numbers out a bit. Here are some focus points, work/rest ratios, and general set examples:

### **SP1/L1: Lactic Acid Tolerance**

This energy system calls for a **perfect burn**. If the repeat distance is 50 yards, the swimmer's job is to burn everything they have exactly at 50 yards. This would represent the perfect mathematical race with nothing left over, and no deficit. The rest between intervals allows the swimmer to recover *almost* completely during each repeat. The result is that there is a gradual increase of lactic acid to *begin* each distance. If the swimmer starts the set at number one with 10 energy and 0 stress, they would start number 2 (fairly fresh) with 9 energy and 1 stress, then 8/2, then 7/3, and so on. If it is a mathematically perfect set, it would end *right before* the swimmer is required to push off the wall with -1 energy and 11 stress, each time burning everything they have in exactly the distance assigned. An L1 set generally calls for a 1:1 work/rest ratio. In a Lactic Blend set, I will often set the ratio at about 1:(.5-.75) work/rest, then break up the chunks with some sort of EN2 focus to extend the torture... I mean *set benefit*, a bit. A single-focus L1 set might be look something like 20 x 50 @ 1:20, with the target group coming in at 35-40 seconds.

### **SP2/L2: Lactic Acid Production**

This portion of the lactic model calls for an **energy/oxygen dump**. The swimmer's job in this system is to burn as much work-energy and oxygen as fast as possible then find a way to finish. L2 calls for a 1:(4-6) work/rest ratio. With so much recovery time, the swimmer will often feel fairly fresh and in control at the very beginning of each repeat. The point of failure is often affected by what the swimmers choose to do in their recovery time. A swimmer who cools down between each repeat might see a very gradual decay in finish time, and a slow migration of the fail-point. A swimmer who likes to let the acid settle in the body between intervals will see more dramatic decay and a steady rush toward the beginning of the distance for the fail-point. Both approaches have their benefits. I preferred to fully recover, then crash to failure from a very high point, again and again. Those that like to let the acid settle and stay often just feel heavier and heavier, until they can barely get on the block for the next repeat. Coaches can craft the set for a desired target stress by assigning some or all of the recovery intervals with one approach or the other. An example of a single-focus L2 set might be 8 x 100 @ 7:00 with the target group coming in at 1:00-1:15.

### **SP3/L3: Lactic Acid Conversion/Energy Production**

This is probably every swimmer's favorite energy system. In the case of a set of Rockets (fast-then-easy), the swimmer's job is to open the energy tap very wide for a very short period of time, then turn it off almost completely. When the swimmer starts that engine, the body clicks into super-work-mode and begins to work as fast as it can to make the energy it thinks it's going to need. When the swimmer stops the stress immediately, the energy-building process continues. With simple movement to keep the blood flowing to power muscles, and a huge influx of oxygen that's not

getting burned very quickly, the body's ATP factories start racking up a surplus. If a coach needs the swimmers to be bouncy and loud at the end of practice, we might see a set of 12 x 25 @ 1:00 Short Rocket (10 yards fast/15 yards jellyfish). This would fit the 1:(8-12) work/rest ratio called for in an L3 set.

## Workout Inspiration: What you might have done today

From Coach Grant, pool workout

100 Kick/50 Swim; 6-10(:40sprint wall kick, :20 Pressout)

12 x 75 Odds: 50 Streamline Kick/ 50 Front Crawl Focus: Engage Core 1<sup>st</sup>.  
Evens: 25 Streamline Kick/25 Front Crawl/25 Choice Swim, Focus:  
Plan your Breathing @ R:10-:15

2x25 fins opt. Sprint no breather under water no breather streamline dolphin. Focus: use entire body @1:00

4x25 fins opt. Sprint Swim, mid pool breakout focus: maintain your speed of the wall@ :45, 1:00 r:30 or more

6,4x25 fins opt. Odds: sprint 1st 1/2, technique 2nd 1/2. Evens: Sprint Focus: Race @ :45,1:00

5-1x( 4x75 fins opt. Strong Swim, Focus: Consistent & Balanced Breathing R:03-:07  
1x50 Fins On Sprint Flutter Kick R :60  
4x125 fins opt. Strong Swim, Focus: Consistent & Balanced Breathing R:03-:07  
4x25 No Fins Sprint Kick R:20-:40  
1x200 Fins Opt. R 2:00)

2x25 No Breather @1:00

1x100 Best Technique

Thank you



From Coach Bryan, dry-land workout

Circuit x3 Time is :30 work / :30 Rest

1- Step Ups \* If you have Med Balls or DB at home use them (keep it light)

2- Flutter Kicks

3- Burpees

4- Leg Lifts

5- Plank Forward/Left/Right \* each round do a different one

6- Burpees

7- Oblique Twists \* use MB or DB if you have them (keep it light)

8- V-Sits

Rest 1-2 Min between rounds.