

Pace	Set
REC	300 choice
EN-1	4 x 50 @ r=10 • 25 drill/25 swim
EN-1 to EN-2	<ul style="list-style-type: none"> • 1 x 600 pull @ 10:00 or r=60 <ul style="list-style-type: none"> ◦ negative split ◦ breathe 3/5/3/3 by 150's • 2 x 300 swim @ 5:00 or r=30 <ul style="list-style-type: none"> ◦ descend times 1-2 • 3 x 200 pull @ 3:20 or r=20 <ul style="list-style-type: none"> ◦ breathe 3/5/3/5 by 50's ◦ descend times 1-3 • 4 x 150 swim @ 2:30 or r=15 <ul style="list-style-type: none"> ◦ negative split each 150
REC	100 choice

Total = 3000

Pace Chart					
Pace	Effort	Perceived Exertion/Target HR	Pace	Effort	Perceived Exertion/Target HR
REC	Very Light	7-12/90-120	EN-3	Hard	17/175-185
EN-1	Fairly Light	13-14/120-150	SP-1	Very Hard	18/185-max
EN-2	Somewhat Hard	15-16/150-175	SP-2/3	Extremely Hard	19-20/max

Pace	Set
REC	<ul style="list-style-type: none"> • 200 swim • 200 kick • 200 pull
EN-1	8 x 25 drill @ r=10 <ul style="list-style-type: none"> • 2 each stroke, IM order
EN-1 to EN-3	12 x 75 @ 2:00 or r=20-30 <u>Choose 1 stroke each set of 4 x 75:</u> <ul style="list-style-type: none"> • 75 kick <ul style="list-style-type: none"> ◦ 50 kick/25 swim <ul style="list-style-type: none"> ▪ 25 kick/50 swim • 75 swim • 75 swim <ul style="list-style-type: none"> ◦ 50 swim/25 kick <ul style="list-style-type: none"> ▪ 25 swim/50 kick • 75 kick • 75 kick <ul style="list-style-type: none"> ◦ 50 kick/25 swim <ul style="list-style-type: none"> ▪ 25 kick/50 swim • 75 swim
EN-2	12 x 50 swim @ 1:05 or r=15 <ul style="list-style-type: none"> • 3 x 200 IM order
REC	200 choice

Total = 2500

Pace Chart					
Pace	Effort	Perceived Exertion/Target HR	Pace	Effort	Perceived Exertion/Target HR
REC	Very Light	7-12/90-120	EN-3	Hard	17/175-185
EN-1	Fairly Light	13-14/120-150	SP-1	Very Hard	18/185-max
EN-2	Somewhat Hard	15-16/150-175	SP-2/3	Extremely Hard	19-20/max

Pace	Set
REC to EN-1	<ul style="list-style-type: none"> • 200 swim • 200 kick • 4 x 50 (25 drill/25 swim) @ r=10 • 4 x 25 (25 scull/25 pull) @ r=5 • 4 x 25 build @ r=10
EN-1 to EN-3	<ul style="list-style-type: none"> • 1 x 400 pull @ 7:00 or r=60 <ul style="list-style-type: none"> ◦ moderate pace, breathe every 3rd stroke • 2 x 200 swim @ 3:30 or r=30 <ul style="list-style-type: none"> ◦ negative split, descend times 1-2 • 1 x 300 pull @ 5:15 or r=45 <ul style="list-style-type: none"> ◦ moderate pace, breathe every 3rd stroke • 2 x 150 swim @ 2:30 or r=15 <ul style="list-style-type: none"> ◦ negative split, descend times 1-2 • 1 x 200 pull @ 3:30 or r=30 <ul style="list-style-type: none"> ◦ moderate pace, breathe 3/5 by 25's • 2 x 100 swim @ 1:45 or r=15 <ul style="list-style-type: none"> ◦ negative split, descend times 1-2 • 1 x 100 pull @ 2:00 or r=30 <ul style="list-style-type: none"> ◦ moderate pace, breathe 3/5 by 25's • 2 x 50 swim @ 1:00 or r=15 <ul style="list-style-type: none"> ◦ negative split, descend times 1-2
REC	200 choice

Total = 3000

Pace Chart					
Pace	Effort	Perceived Exertion/Target HR	Pace	Effort	Perceived Exertion/Target HR
REC	Very Light	7-12/90-120	EN-3	Hard	17/175-185
EN-1	Fairly Light	13-14/120-150	SP-1	Very Hard	18/185-max
EN-2	Somewhat Hard	15-16/150-175	SP-2/3	Extremely Hard	19-20/max

Topic: Drag Forces - Part Two

How to minimize drag (continued):

Taper the shape you present to the water. Tapered objects meet less resistance than objects with square corners. Moreover, think of the time/money spent by Lance Armstrong et al. to reduce wind resistance when cycling (and wind resistance is far less than the resistance encountered in water).

Tips to taper your shape:

- Streamlined push-offs. Practice pushing off the wall with arms and legs in a tightly streamlined position—like a sharp pencil. Let yourself sink down as you push off the wall, arms squeezing just behind ears, one hand on top of the other, merging 2 arms into 1, pushing off about 2' below surface.
- Keep it simple and smooth. Elite swimmers look effortless; there are no extra movements. Entry and exit are smooth, there is minimal splash, and they are not creating large waves that impede progress.

Tips to promote stroke cleanliness:

- Practice "quiet" swimming. Keep entry and recovery movements soft and smooth. Your goal is to swim with little splash and no sound.
- "...elite athletes do not use significant (sic) higher propulsive forces from their arms and legs. Rather, they have better whole body streamlining which reduces the drag forces from the water. Therefore, they can achieve faster swimming velocities using similar propulsion as non-elite athletes" (Cappaert, Pease, and Troup, 1996).

Pace Chart

Pace	Effort	Perceived Exertion/Target HR	Pace	Effort	Perceived Exertion/Target HR
REC	Very Light	7-12/90-120	EN-3	Hard	17/175-185
EN-1	Fairly Light	13-14/120-150	SP-1	Very Hard	18/185-max
EN-2	Somewhat Hard	15-16/150-175	SP-2/3	Extremely Hard	19-20/max

Pace	Set
REC	<ul style="list-style-type: none"> • 200 swim • 200 kick • 200 pull
EN-1	4 x 75 @ r=15 <ul style="list-style-type: none"> • 25 kick/25 drill/25 swim
EN-1 to EN-3	12 x 50 swim @ 1:10 or r=20 <u>Stroke count set, each set is 3 x 50:</u> <ul style="list-style-type: none"> • #1: relaxed pace, count # of strokes • #2: 200 race pace, maintain same # of strokes • #3: max. speed, maintain same # of strokes
EN-1	400 pull: breathe 3/5/3/5 by 100's
EN-1 to EN-3	12 x 25 swim @ 45 or r=15 <u>Stroke count set, each set is 3 x 25:</u> <ul style="list-style-type: none"> • #1: relaxed pace, count # of strokes • #2: 200 race pace, maintain same # of strokes • #3: max. speed, maintain same # of strokes
REC	12 x 25 @ r=5 <u>4 x thru:</u> <ul style="list-style-type: none"> • 25 scull • 25 glide stroke • 25 pull

Total = 2500

Pace Chart					
Pace	Effort	Perceived Exertion/Target HR	Pace	Effort	Perceived Exertion/Target HR
REC	Very Light	7-12/90-120	EN-3	Hard	17/175-185
EN-1	Fairly Light	13-14/120-150	SP-1	Very Hard	18/185-max
EN-2	Somewhat Hard	15-16/150-175	SP-2/3	Extremely Hard	19-20/max