Dryland Certification
http://iyca.org/

Dryland Certification
http://www.issaonline.com/
Best Sit Ups Ever?
How important is **physical literacy**? Think of it this way, we are asking athletes to go out on the field, track, court or pool & write the equivalent of the great American novel sometimes several times a week and we have not taught them the alphabet - ABC's of movement. You wonder why there are the injuries that you see at highest levels of sport, it goes back to poor fundamental movements. Too much sport specialization too early & not enough emphasis on mastery of movement skills.
Safety First!
Age Appropriate (Not!)
Technique Counts
More Than the Number of Reps
It’s Not Just “Tire” Them Out...Anymore

Now...It’s train them with a purpose
Why Dryland Training?

Two ways to swim faster:

- Minimize Drag
- Maximize Propulsion

Dryland aids in maximizing propulsion
Dryland Training Benefits

Maximize Athletic Potential
Get what you can’t in the pool

Injury Prevention
Recover from Injuries faster - Minimize Risk
Dryland Training Benefits

Improve Overall Athleticism
Coordination, Muscular Balance, Variability, Core Stability
Dryland Training Benefits

Improve Flexibility
Proper Body Alignment, Minimize turbulence in water
Goals of Dryland Training

Motor Unit Recruitment

Improve Motor Patterns
Goals of Dryland Training

Improve Muscle Synergies

Develop Coordination
Goals of Dryland Training

Build Strength/Power

Build Endurance
Goals of Dryland Training

Build “Character”
Before or After Swim Practice?

**Before:**
- Maximize Strength
- Swim stretches out

**After:**
- Swim with good “feel”
- Weights are secondary

**Reality:**
- Whenever it is available! (even during swim practice)
- Even colleges have conflicts
Before or After Swim Practice?

Nick Folker

GOALS

- BETTER TECHNIQUE
- MORE ENERGY

- Training first has obvious benefits. Increased energy levels and lower levels of fatigue will allow for peak training performance.
- If you are focusing on improving the basics, practice first!

GOALS

- STRENGTH GAINS
- INJURY PREVENTION

- Strength training before practice is an excellent way to maximize strength gain and prevent injury.
- Pre-practice strength training ensures maximum muscle growth opportunities and a reduced chance of a strength training mishap.
Functional Movement Screen
Functional Movement Screen

- Predicts future injuries
- Points out weaknesses
- Provides specific “pre-hab” exercises
- Costs money
Functional Strength Training

Enhances kinetic purpose

Significant transfer to target activity.

Train movements/motions
De-emphasize single joint movements/exercises
What makes a movement functional?

- The exercise’s application (not the actual exercise)
- Its relationship to the target activity
Weightlifting: Machines

- Safer
- Less Core Work
- Muscle Isolation
- Not Functional
San Ramon Valley Livermore Aq.
Flexibility
Flexibility

Before Practice: Dynamic Stretches
Part of Warm Up
Ready the Joints

After Practice: Static Stretches
Part of cool down
Increase Flexibility
3 Planes of Motion

Transverse

Frontal

Sagittal
Dynamic Flexibility (Warm Up)

Frontal
Dynamic Flexibility (Warm Up)

Sagittal
Dynamic Flexibility (Warm Up)

Transverse
Dynamic Flexibility (Warm Up)

Courtesy Jeremy Bagshaw - Cal Berkley
Dynamic Stretches (Warm Up)

Courtesy West Hartford Aquatic Team
Dynamic Flexibility (Warm Up)

Courtesy West Hartford Aquatic Team
Dynamic Flexibility (Warm Up)

Courtesy West Hartford Aquatic Team
Static Stretches (After Training)

Latissimus

Pectorals

Triceps

Hamstrings

Quads

Courtesy Glenn Shepherd: Swim with Science
Ankles
Natalie Coughlin

Stretch and Cool Down
Hamstring and Spine
5 Pillars of Dryland Training

- Balance & Alignment
- Type of Contraction
- Coordination
- Range of Motion
- Speed of Movement
Training enhances the working relationship between the muscles and neurological system.

1. Balance & Alignment

Muscles → Neurons

Performance
2. Type of Contraction

- **Eccentric**
  (Lengthening)

- **Concentric**
  (Shortening)

- **Isometric**
  (Stabilizers)
3. Coordination

Ability to coordinate the timing of contraction of all muscles involved in movement
4. Range of Motion (ROM)

Greatest gains in ROM of exercise

Exercise ROM >= Activity ROM.
5. Speed of Movement

Movements performed at the same speed as target activity have greater strength transfers

Train Slowly = Perform Slowly
What is Appropriate?

<table>
<thead>
<tr>
<th></th>
<th>8-Under</th>
<th>9-10</th>
<th>11-12</th>
<th>13-14</th>
<th>15-18</th>
<th>College</th>
<th>P.G.</th>
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<tbody>
<tr>
<td>Coord/Proprio</td>
<td>X</td>
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<td>X</td>
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<td>Pilates/Yoga</td>
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<td>x</td>
<td>X</td>
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<tr>
<td>Flexibility</td>
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<td>x</td>
<td>X</td>
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<tr>
<td>Body Weight</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Weighted Lightly</td>
<td></td>
<td>x</td>
<td>x</td>
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<tr>
<td>Plyometrics</td>
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<td>x</td>
<td>X</td>
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<tr>
<td>“Heavy” Weights</td>
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<tr>
<td>&quot;Circus Acts&quot;</td>
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<td>X</td>
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<tr>
<td>Group</td>
<td>Sessions per week</td>
<td>Time</td>
<td>Key Skills</td>
<td>Focuses</td>
<td>Example Exercises</td>
<td></td>
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<tr>
<td>White</td>
<td>3</td>
<td>7-10 minutes</td>
<td>play, run, jump, tumble</td>
<td>create motor skills and coordination</td>
<td>rolling, jumping, running, leap frog, side roll, forward roll, wheelbarrel, crab walk, bear crawl</td>
<td></td>
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</tr>
<tr>
<td>Red</td>
<td>3</td>
<td>10-15 minutes</td>
<td>run, jump, crawl, tumble</td>
<td>body awareness, create athleticism, multi-sport play</td>
<td>jumping rope, push up progression, balance drills, jumping, hopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>4</td>
<td>15-20 minutes</td>
<td>skipping, lunging, squatting, push-ups skills, jumping</td>
<td>start to build general fitness and strength, general athleticism, control, use all 3 planes for mastered skills</td>
<td>squatting, lunging, push up progression, tri plane footwork skills (running, jumping, skipping, hopping, shuffling)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Group 1 / Junior 1</td>
<td>4</td>
<td>15-20 minutes</td>
<td>push-ups skills, jumping, squatting</td>
<td>build general fitness and strength, general athleticism, body awareness and control, use all 3 planes</td>
<td>single leg exercises, jumps in all 3 planes sagittal, frontal traverse (forward/back, side/side, rotate) with an emphasis on the following: speed-height-distance, dead bug, superman, pelvic diver, lunging/squatting in multiple directions</td>
<td></td>
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</tr>
<tr>
<td>Age Group 2 / Junior 2</td>
<td>4</td>
<td>15-25 minutes</td>
<td>advanced plane, lunging, jumping, squatting, balance</td>
<td>general fitness and strength, body awareness and control</td>
<td>single leg jumps in 3 planes no foot touch, lunges/squats/push-ups in all directions, all Jumping Jack matrix patterns, inchworm, 45 push ups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Group 3</td>
<td>5</td>
<td>20-30 minutes</td>
<td>balanced jumping, power, advanced core control, reaction time</td>
<td>general fitness and strength, intro to senior level movements</td>
<td>intro in movement patterns for Med Ball Exercises, lunge jumps, 20 correct dead bug, single leg jumps in 3 planes, squat jumps, loop bands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Senior 1/Pre-Sen. 2</td>
<td>5</td>
<td>25-35 minutes</td>
<td>swimming specific movements, advanced balance drills, start building strength</td>
<td>general fitness and strength, prepare for senior training</td>
<td>intro medicine balls - non partner, intro Kettle Bell Exercises, squats on 1/2 foam, superman's and dead bug on blue disk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior 1</td>
<td>5</td>
<td>30-45 minutes</td>
<td>pull-ups, push-ups, medicine balls, strength</td>
<td>general fitness, advanced movements, strength</td>
<td>medicine ball partner and individual - phase 1&amp;2, exercises on 1/2 foam and blue disk, 10 correct push-ups, girls 1 correct pull up, boys 3 correct pull up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior 2</td>
<td>5</td>
<td>30-45 minutes</td>
<td>pull-ups, push-ups, medicine balls, kettle bells, strength and power</td>
<td>swimming specific strength, advanced swimming specific fitness</td>
<td>medicine ball partner and individual- advanced phase, all Kettle Bell exercises, girls 3 pull up min. boys 5 pull up min., 20 correct push-ups, simple cord exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Elite</td>
<td>5</td>
<td>30-45 minutes</td>
<td>advanced swimming specific exercises, advanced swimming strength and power exercises</td>
<td>advanced swimming specific strength, and fitness</td>
<td>30 correct push-ups, girls 7 pull ups, boys 10 pull ups, Medicine Ball and Kettle Bell exercises on 1/2 foam &amp; blue disk, advanced cord exercises, boxes, dumbbell weights</td>
<td></td>
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</tr>
</tbody>
</table>

What is Your Plan?

Courtesy First Colony Swim Team
## What is Your Plan?

<table>
<thead>
<tr>
<th>Group</th>
<th>Per Week</th>
<th>Time</th>
<th>Key Skills</th>
<th>Focuses</th>
<th>Example Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>3</td>
<td>7-10’</td>
<td>Play, run, jump, tumble</td>
<td>Create motor skills &amp; coordination</td>
<td>Rolling, jumping, running, leap frog, side roll, forward roll, wheel barrow, crab walk, bear crawl</td>
</tr>
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<td>Red</td>
<td>3</td>
<td>10-15’</td>
<td>Run, jump, crawl, tumble</td>
<td>Body awareness, create athleticism, Multi-sport play</td>
<td>Jumping rope, push up progression, balance drills, jumping, hopping</td>
</tr>
<tr>
<td>Blue</td>
<td>4</td>
<td>15-20’</td>
<td>Skipping, lunging, squatting</td>
<td>Start to build general fitness and strength, General athleticism, control, Use all 3 planes of mastered skills</td>
<td>Squatting, lunging, push up progression, tri-plane footwork skills (running, jumping, skipping, hopping, shuffling)</td>
</tr>
</tbody>
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Courtesy First Colony Swim Team
<table>
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</thead>
<tbody>
<tr>
<td>SR 1</td>
<td>5</td>
<td>30-45’</td>
<td>pull ups, push ups, medicine ball, strength</td>
<td>General fitness, advanced movements, strength</td>
<td>med ball partner and individual, exercises on ½ foam &amp; blue disk, 10 correct push ups, correct pull ups: girls 1, boys 3</td>
</tr>
<tr>
<td>SR 2</td>
<td>5</td>
<td>30-45’</td>
<td>pull ups, push ups, medicine balls, kettle bells, strength &amp; power,</td>
<td>swimming specific strength, advanced swimming specific fitness</td>
<td>med ball partner and individual (Adv Phase), all kettle bell exercises, 20 correct push ups, correct pull ups: girls 3, boys 5 simple cord exercises</td>
</tr>
<tr>
<td>SR 3</td>
<td>5</td>
<td>30-45’</td>
<td>advanced swimming specific exercises, advanced strength &amp; power exercises</td>
<td>start to build general fitness and strength, General athleticism, control, Use all 3 planes of mastered skills</td>
<td>med ball and kettle bell exercises on ½ foam &amp; blue disc, 20 correct push ups, correct pull ups: girls 7, boys 10, advanced cord exercises, box jumps, dumbbell weights</td>
</tr>
</tbody>
</table>
Strength Training During Practice

Courtesy:
Redbird Swim Club
Coach John Almeida
Strength Training During Practice

Pull Med Ball

Kick with Sneakers
Strength Training During Practice
Circuits
Circuit Training

Use a Timer App
Have a Station Time

“Ready GO!”
“STOP!”

Search for
“Gymboss” or
“Round Timer”
Circuit Training – Single Stations

12 → 11 → 10 → 9 → 8 → 6 → 5 → 4 → 3 → 2 → 1
Circuit Training – Double Stations
Circuit Training – Cluster Stations

1 → 2 → 3 → 4

5 ← 6 ← 7 ← 8

15 ← 14 ← 13

12 ← 11 ← 10

16 ← 13
Circuit - Old Dominion Aquatic Club
Circuit – Bolles School Sharks
Proprioceptive Training
Coordination/Proprioceptive Training
Proprioceptive Training: Swing Jump
Proprioceptive Training: Fly Recovery
Proprioceptive Training: Elbow Up
Proprioceptive Training: Streamline
Proprioceptive Training: Streamline
Squats
Squats – Natalie Coughlin

Warm-up
Genie Squats
(10 Total)
Squats
Squats
Squats – Natalie Coughlin
Push Ups
Body Weight - Pushup Variations

11 Killer Pushup Variations
Core: Yoga Push Ups

Courtesy The Race Club
“Reverse Push Up”
“Reverse Push Up”
“Reverse Push Up”
Body Weight - Pushup Variations
Body Weight - Pushup Variations
Pull Ups
Body Weight
Monkey Bar Gym – Pull Up Assist
Monkey Bar Gym - Pull Up Progression
The Plank
Forearm Plank
Side Plank
Single Leg Plank
Medicine Ball Plank
Stability Ball & BOSU (Both Sides Utilized)
Kicking for Speed

Courtesy Coach Braden Holloway, NC State
Stability Ball - Scorpion

Courtesy Coach Braden Holloway, NC State
Stability Ball - Scorpion

Courtesy Coach Braden Holloway, NC State
Stability Ball

Courtesy Coach Braden Holloway, NC State
“Wheels”
Medicine Balls
“Medicine Ball” - Mike Barrowman
NC State Medicine Balls
NC State Medicine Balls
NC State Medicine Balls
NC State Medicine Balls
Chest Pass
Reality!
Reality!
Abdominals
Core: Bridge

Courtesy The Race Club
Core: Sit Ups

Courtesy The Race Club
Core: Crunches

Courtesy The Race Club
Core: Straight Leg Kicks

Courtesy The Race Club
Core: Yoga Push Ups

Courtesy The Race Club
Japan
Pilates/Yoga
Pilates/Yoga
Pilates/Yoga: “Swim-lates”
Pilates/Yoga
Weightlifting: Free Weights
Plyometrics
What is Plyometrics?

- Reaches maximum force in shortest time
- Muscle is loaded with lengthening action
- Followed immediately by a shortening action
Plyometrics
Plyometrics

BOX JUMP
USOC Staff: Scott Riewald
Shoulder Stability
Yoke
Rope Drills - Bluefish Age Group
Rope Drills - Horizontal
Starts

Courtesy Grass Valley

Courtesy Grass Valley
Starts
Starts

Courtesy Coach Doug Cornish

Courtesy Coach Matt Kredich
“Circus Acts”
Muscle Ups
“Circus Acts” - Mike Barrowman
“Circus Acts” – Cullen Jones
“Circus Acts” - Dagny Knudson
“Circus Acts” - Dagny Knudson
“Circus Acts” – WHAT
“Circus Acts” – 4DPro (Bolles)
From Theory to Practice

- Be Safe
- Age Appropriate
- Technique Counts
- Team-Wide Progression
- Test and Track Progress
From Theory to Practice

Flexibility: Before & After
Use What You Have
Improvise Equipment
Keep Mixing it Up
From Theory to Practice

Train ‘em, don’t tire ‘em out

Proprioceptive?

Conditioning?

Strength/Power?

Have Fun!
Make it Fun!!

Thanks to: Amanda Whittenmeyer, MS, SCCC, USAW-SP USOC
Keenan Robinson, USA Swimming High Performance Director