

DRYLAND STRENGTH TRAINING & CONDITIONING



Sport Performance Consultants
Club Development Division

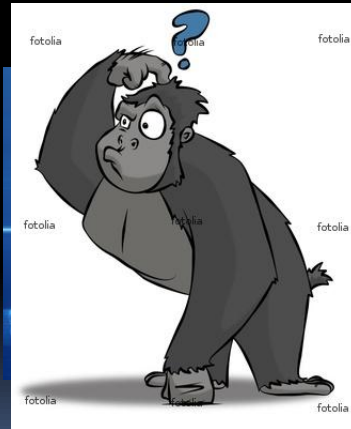
What are the critical factors contributing to swim performance ?



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Is Dryland Training Beneficial ?

- Research does not conclusively support for swimming*
- Anecdotal information
- Who is correct ?



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Those advocating for using Dryland Training

- National Strength & Conditioning Association
- American Swimming Coaches Association
- USA Swimming top age group programs
- USA Swimming National Team Members



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What is Dryland Training ?

- Broad definition
 - Any form of strength and conditioning work done outside of the pool
 - Dryland strength training
 - Development of **STRENGTH**
 - Dryland conditioning training
 - Development of energy system pathways



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Goals of Dryland Training

- Develop Strength
 - General
 - Upper body
 - Lower body
 - Core



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BODY BUILDING.com



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Goals of Dryland Training

- Sport Specific Strength
- Supplemental conditioning



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Goals of Dryland Training

- Injury prevention



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Goals of Dryland Training

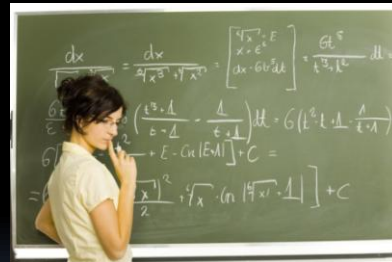
- Develop coordination
- Improve motor patterns
- Increase recruitment of motor units
- Improve muscle synergies
- Improve strength



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Theory

- Strength gains made from Dryland training may lead to an increase in power output per stroke cycle. This increase in power per stroke can lead to greater propulsion when combined with an optimum stroke technique that minimizes drag.
- Simply : The way to swim fast is to maximize propulsion and minimize drag. Dryland aids in maximizing propulsion.



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Types of Dryland Training

- Weightlifting
 - Traditional
- Circuit
 - Medicine ball
 - Tubing
 - Running
 - Mixed
- Plyometrics
- Functional



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Weightlifting

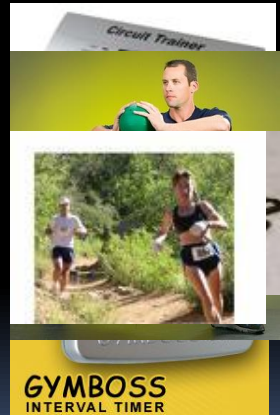
- Olympic Lifts
- Dumbbells
- Equipment



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Circuit Training

- Weight Circuit
 - Weight machines
 - Free weights
- Medicine ball
- Tubing
- Running
- Combination



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Plyometrics

- What are Plyometrics ?
 - An exercise that enables a muscle to reach maximum force in the shortest possible time . The muscle is loaded with an eccentric (lengthening) action, followed immediately by a concentric (shortening) action.



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Functional Strength Training

- What is Functional Strength Training?
 - Training that enhances the bodies kinetic purpose and provides significant transfer to a target activity.
 - Training movements. De-emphasizing single joint movements.
- What makes a movement functional?
 - Its relationship to the target activity
 - The exercise's application not the actual exercise.
 - The exercise is a means to the end.



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Functional Strength Training

- In order for functional strength exercises to successfully transfer the exercises need to mimic the goal movement by incorporating several factors.
- These factors include:
 - Coordination
 - Types of muscle contractions (concentric, eccentric and isometric)
 - Speed of movement
 - Range of motion



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Circus Acts

- Harder is not always better.
- For movements to be functional they must be purposeful and have direct transferability.



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Functional - Combining workloads

- Strength work while HR is elevated
- Crossfit
 - 50 BW squats
 - 10 muscle up
 - 10 cleans
 - 4 x
- Is this Functional?
 - Relationship to swimming?



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Functional - Combining workloads

- Is this Functional?

- Relationship to swimming?
- Can we adapt this to our Age Group swimmers?
- HR
- Factors
 - Coordination
 - Types of muscle contractions (concentric, eccentric and isometric)
 - Speed of movement
 - Range of motion



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Functional - Combining workloads

- Functional

- Coordination
- Types of muscle contractions (concentric)
- Speed of movement
- Range of motion
- The exercise's application is important.
- The actual exercise will not always be perfect.
- The exercise is a means to the end.



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From Theory to Practice

- Dryland Strength Training

- Start early
- Continue through program development
- Track your progress
- Test
- Have fun !



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From Theory to Practice

- What can we do?

- Playgrounds
- Body weight exercises
- Rope Climbing
- Sandbags
- Weights
- Bands
- Rings



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From Theory to Practice

- Be Creative
 - Make training interesting
 - Where to train?
 - ANYWHERE
 - Think safety
 - Explain & demonstrate
- Limitations
 - No \$\$\$\$ for equipment
 - Body weight training
 - Boosters
 - Newsletter
 - Fundraiser
 - Parents like to raise money for something tangible
 - What is available at your facility
 - Craigslist, EBay, yard-sales
 - Build equipment
 - Home Depot, Lowes, Ace, WallMart

Final thought : HAVE FUN !!

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