

Dynamic Deep Designs

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Course Description:

Experience an assortment of deep water cardio and muscular endurance exercises designed to challenge the power of water's resistance. Be ready to experiment with movements changing angles, levers, and travel using a variety of teaching formats guaranteed to challenge the core. Push and pull with power as you experience creative multi-plane progressions in an innovative approach to total body conditioning.

Course Objectives:

1. Understand the concept of dynamic stabilization when exercising in deep water.
2. Understand common alignment errors and corrective solutions.
3. Be able to demonstrate effective total body conditioning techniques.
4. Experience how to apply progressive overload using progressive resistance.
5. Learn effective strategies using change in angles, levers and travel to vary intensity.

Dynamic Stabilization:

- Ability to maintain neutral, or near neutral postural alignment while moving
- Places the spine in strongest, safest alignment
- How does dynamic stabilization differ in shallow vs. deep water?

Teaching Dynamic Stabilization:

- Warm up – include stationary exercises and provide corrective feedback
- Frequently visit neutral postural alignment
- Ensure equipment does not hinder ability to achieve neutral alignment

Common Alignment Errors:

- Forward head position
- Lumbar hyperextension
- Side leaning
- Shortened ROM
- Forward or backward lean

Functional Resistance Training:

- Levers
- Angles
- Travel

Dynamic Deep Designs
Worksheet #1 -
Dynamic Stabilization & Progressive Resistance Concepts

BASE MOVE	Change lever length	Experiment with Angles	Add Travel
Alternate Moguls	Seated (in a hammock) Short lever rock	Repeater mogul in one direction or Mogul with twist and extension to the front corner and return to center	Repeater moguls Lateral travel
Cross Country Ski	Bilateral shoulder internal/external rotation; progress to large ROM bilateral arm sweeps Bent knee cc ski (small ROM) "crawling on your knees"	Side lying ski Ski up to the side; moving from vertical to side lying	Side lying ski Lateral travel
Alternate (or repeater) Knee reach	Alternate (or repeater) Shin/ankle reach	Seated (in a hammock) Alternate shin/ankle reach "Pendulum"	Repeater Ankle reach Lateral travel away from working leg
Narrow twist	Hip & Knee Flexion Twist foot of front leg on shin of the back leg	Alternating Side Scissor Supine narrow twist	Bent knee twist in seated position Lateral travel
Hurdle	Seated alternating leg curl	Hurdle repeater with rotation	Jog forward x 4 – tuck – hurdle
Straight leg front kick			
Drop kick 4 th down			
Leg curl			
Jumping Jacks			
Side Kick			

Improving Dynamic Stabilization:

- Symmetrical Movements vs. Asymmetrical Movements

Why Symmetrical & Asymmetrical with Angles, Levers & Travel?

LOCAL Core Muscles	GLOBAL Core Muscles
<p>The deepest layer Contract in response to sudden postural disturbances Important for stabilization</p> <ul style="list-style-type: none"> * <i>Multifidus</i> * <i>Rotators</i> * <i>Intertransversalis</i> * <i>Interspinalis</i> * <i>Transverse abdominis</i> * <i>Internal obliques</i> * <i>Quadratus lumborum</i> 	<p>Capable of high levels of force production Important for stabilization during motion</p> <ul style="list-style-type: none"> * <i>Rectus abdominis</i> * <i>External obliques</i> * <i>Erector spinae</i> * <i>Latissimus dorsi</i> * <i>Hip flexors & extensors</i> * <i>Hip abductors & adductors</i>

Worksheet #2

Choreography Style A: Add-on & Layering Techniques

Introduce the new move or pattern in place; increase intensity by adding travel in the next layer

Warm Up - In place

Knee high jog

Right leg – kick front, kick back, kick side & pause

Knee high jog

Left leg – kick front, kick back, kick side & pause

Travel forward – Knee high jog

Right leg – kick front, kick back, kick side & pause

Travel backward - Knee high jog

Left leg – kick front, kick back, kick side & pause

Repeat one more time

Change the kick front, kick back, kick side & stomp foot down to
kick front, kick back, kick side & drag down (Adduction)

Combo A Add-on choreography

Teach A: Skateboard travel forward (right leg scoots, left leg drags)

Wide jog (vertical)

Run legs up to the surface to supine wide jog

Travel back with reverse breast stroke arms only (drag the body)

Teach B:

Right leg Reverse diagonal lunge (starts with both legs in a tuck position)
cross back, diagonal back, cross back, return to center

Right leg Drop kick 4th down (knee flexion / extension 3 and for the forth close center)

Repeat with Left leg

Put A + B together

Short levers to warm up
Use tempo / rhythm change for variety

Change/Layer: By adding travel to knee high jog & increasing lever length on kick combination

Increase Intensity: By adding travel and changing lever length from short (stomp) to long (adduction)

Increase Intensity:

Overload the muscles of the scooter leg by **dragging** the opposite leg AND shift the workload to the upper body by using arms only to travel & **dragging** the body

Teach C:

Moguls 3 and down center (R,L,R, then both legs push down center)
 Moguls 3 and down center (L,R,L, then both legs push down center)

Put A + B + C**Teach D:**

Arm reach to opposite calf / ankle – pull the water to the back...travel
 forward (free arm drags out to the side – transverse abduction)

Seated single right leg – knee flexion / extension with emphasis on flexion - travel backward

Repeat again but travel in opposite direction and change to left leg seated single knee

Put A + B+ C + D Together

Moguls:

If students have difficulty with mogul-tuck combination, replace the touch down center with a center stop & hold.

Choreography Style B: Pure Repetition**Cardio 1**

Climber (prone)-Climber (side lying right)-climber (prone)-Climber (side lying left) **Travel forward**
 Seated flutter kick **Travel backward**

Endurance & Recovery

Bent knee cross country ski “running on your knees”

Seated (in a hammock) pendulum “slow ankle reach”

Cardio 2

Knee high jog 4(R, L, R, L) then tuck both legs & shoot out into a hurdle – travel forward
 Kick & Stomp (R- front karate kick, R-stomp down, L-front karate kick, L-Stomp down, R-
 diagonal karate kick & Stomp, L-diagonal karate kick & stomp) turning around to face back wall

Facing the back wall: Hurdles only move forward

Kick & Stomp (R- side karate kick & stomp down, L-side karate kick & Stomp down, R- back
 Karate kick & Stomp, L-back karate kick & stomp) turning around to face front wall

Endurance & Recovery

Side lying cross country ski to vertical ski to side lying cross country ski

Seated (in a hammock) pendulum (**vary using unilateral repeater & lateral travel**)

Perform 16 reps of each exercise. Repeat 2-3 sets.

Cardio 3

Jack-Heel Diamond (bidirectional hip abduction/ knee flexion soles of feet touch center)

R Ankle reach/L Heel Reach – L Ankle reach/R Heel Reach

Double leg corner kick, tuck, double leg press to pool bottom with the arms moving in opposition of the legs

Jumping Jacks

Endurance & Recovery

Short lever rock mogul (like a buoy)

Bent knee twist in seated position **using lateral travel**

Cardio 4

Power run – Power run (side lying right) - Power run – Power run (side lying left) **Travel fwd**

Narrow tuck (seated)– Side Mogul (repeat R) - Narrow tuck– Side Mogul (repeat L) **Travel back**

Power run – Power run (side lying right) - Power run – Power run (side lying left) **Travel fwd**

Flutter kick (supine) – Flutter kick (on R) - Flutter kick (supine) – Flutter kick (on L) **Travel back**

Repeat sprints 2-3x

Endurance & Recovery

Mogul with twist and extension to the front corner and return to center

Alternating side scissor (**vary using repeater**)

Bibliography

1. AEA. (2018). Aquatic Fitness Professional Manual, 7th Ed. Champlain, IL. Human Kinetics.
2. AEA. (2012) Deeper Applications Workshop. Nokomis, FL
3. Bintzler, S. (November 1 2006). Research update: water works wonders: aquatic therapy has great potential for improving ailments and promoting general health. Parks & Rec Journal.
4. Boda, W., Burch, D., Gayle, J.B., Marra, D.J., & McHugh, E. (March 1, 2001). Effects of Vertical Water Exercise on Selected Muscle Strength Measures Among Women Ages 24-55 Years. Research Quarterly for Exercise and Sport.
5. Damiano, D.L., Dodd, K.J., & Taylor, N.F. (November 1 2005). Progressive resistance exercise in physical therapy: a summary of systematic reviews. Physical Therapy Journal.
6. Filho, W. J, & De Carvalho, B.A. (September 1, 2004). Effect of an exercise program on functional performance of institutionalized elderly. Journal of Rehabilitation Research & Development.
7. Janz, K. F., Nielsen, D.H., & Puthoff, M.L. (January 1, 2008). The Relationship between Lower Extremity Strength and Power to Everyday Walking Behaviors in Older Adults with Functional Limitations. Journal of Geriatric Physical Therapy.
8. Mabey, R. (October 1, 2001). Aquatic Exercise, 2d ed. (Reviews). Physical Therapy Journal.
9. Nielsen, D. H., & Puthott, M.L. (October 1, 2007). Relationships among impairments in lower-extremity strength and power, functional limitations, and disability in older adults. Physical Therapy Journal.
10. Patton, J. (September 30, 2005). Exercise ETC's Review of Exercise Related Research.
11. Poyhonen, T., Keskinen, K.L, Hautala, A. & Maikia, E. (2000). Determination of hydrodynamic drag forces and drag coefficients on human leg/foot model during knee extension. Department of Health Sciences, University of Jyväskylä. pp. 256-260.
12. Sanders, M.E.; Constantino, N. and Rippee, N. "A comparison of results of functional water training on field and laboratory measures in older women." Medicine & Science in Sports & Exercise 1997;29:ixx-ixx.