

Deep Resistance

Presented by Craig Stuart
IAFC 2011

Learning Objectives

- Learn the HYDRO-FIT Method of teaching deep water exercise to develop safe and effective deep water workouts.
- Learn and apply principles of exercise design, water-specific training methods, movement vocabulary, teaching terminology, and HYDRO-FIT equipment options.

Skill Objectives

- Understand and demonstrate the basic skills used in deep water exercise to maintain balance, stability and alignment
- Apply water-specific training principles to provide variety in movement, exercise selection and intensity progressions
- Understand and demonstrate knowledge of deep water equipment options for a variety of students

The Deep Difference

- Buoyancy Creates Instability –
 - Results in an unstable working environment
 - Challenges balance & coordination
 - Exaggerates action/reaction effect
 - Alters perception of exercise intensity
- Water is 360° Resistance –
 - Increases overload for skeletal muscles
 - Enhances muscle recruitment & synergy
 - Recruits core musculature

Specificity of Training

- The body adapts specifically to whatever TYPE of overload it is given during an activity. Movement patterns, muscle groups, and specific metabolic systems used for each activity are different.
- Land activities performed in the water without appropriate modification produce different training responses than they do on land.

Intensity

The amount of energy expended during physical activity

How hard a person is working

- should be progressive in order to provide sufficient levels of overload to create positive training responses

Intensity – Two Types

-
- Heart, lungs, circulatory system
- Aerobic Capacity
- Cardiovascular Endurance
-
- Muscles, joints, skeletal system
- Muscular Strength & Endurance

H2O Specific Intensity

- Regulated by varying the *surface area* of the moving levers. (streamline vs. broad & flat)
- Varied by increasing or decreasing *force* where force is the intensity of muscular effort used to perform the exercise.

H2O Intensity Variables

- Force and Acceleration
- Drag / Surface Area (streamline vs broad)
- Levers (short vs long)
- Hand & Wrist positions
- Frontal Resistance (travel - assist vs resist)
- Buoyancy (elevation & propulsion)
- Tempo (cadence & music)

The HYDRO-FIT Method

The key to optimizing both aerobic fitness and muscle conditioning benefits is to teach students how to move a *greater volume of water* around their bodies and to work with *more muscular effort* by pushing forcefully against the water's resistance.

Use Force not Speed

- Speed X Force = Acceleration
- Speed increases risk of injury
- Speed reduces range of motion
- Speed has a negative effect on movement quality
- Cue: “*move more water & push harder*”

Teaching Progression

1. Set Up Position & Posture
2. Adjust Surface Area & Lever Length
3. Cue Direction of Force
4. Increase/Decrease Force (muscular effort)
5. Vary the Movement Pattern

Terminology

The HYDRO-FIT Method uses standardized terminology for the naming of exercises and the cueing of basic joint actions.

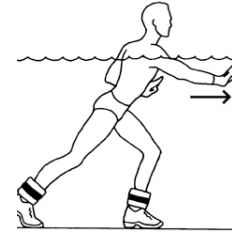
The consistency and continuity it creates increases your effectiveness as a teacher and enhances your student's ability to learn and perform exercises correctly.

Terminology

Joint Actions of the Upper Body

- PUSH

- when water is pushed away from the body

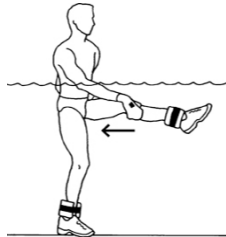


Terminology

Joint Actions of the Upper Body

- PULL

- when water is pulled in toward the body

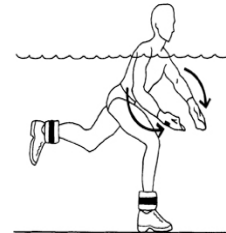


Terminology

Joint Actions of the Upper Body

- SWEEP

- when arms move forward / backward in the horizontal plane or diagonally

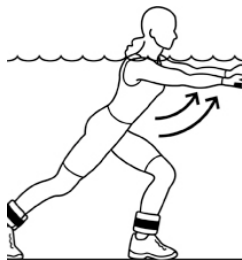


Terminology

Joint Actions of the Upper Body

- SCOOP

- when arms move forward in the sagittal plane

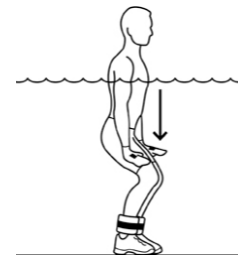


Terminology

Joint Actions of the Upper Body

- PRESS

- when water is pressed down
(vertical or multi-plane)

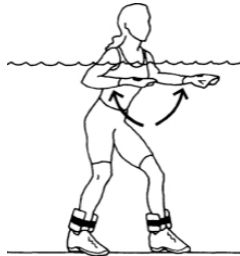


Terminology

Joint Actions of the Upper Body

• **LIFT**

- when water is pushed upward
(vertical or multi-plane)

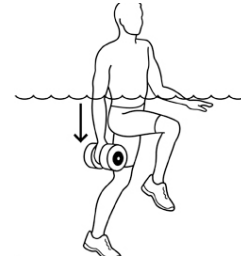


Terminology

Joint Actions of the Upper Body

• **PLUNGE**

- when buoyancy equipment is held and pressed down in the water



Terminology

Hand and Wrist Positions

• **SLICE**

- hands streamline through the water with fingers straight, wrist held firm & aligned



Terminology

Hand and Wrist Positions

• **FIST**

- hands held in a fisted position with wrist aligned in neutral



Terminology

Hand and Wrist Positions

• **CUP**

- hands are used to scoop the water with the surface of the palm, wrist is held firm



Terminology

Hand and Wrist Positions

• **WEB**

- hands move through the water with fingers spread apart, wrist held firm and aligned



Deep Water Skills

Sculling

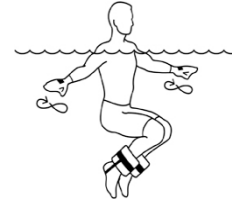
- essential skill for balance and control

Postural Awareness and Core Strength

- ability to engage the core muscles (stabilize) to maintain proper alignment, posture and balance responding to force and load of limbs moving against water's resistance

Sculling

Tuck & Hold



Class Structure

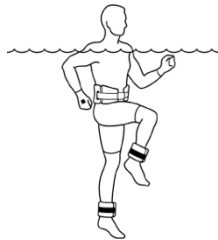
- WARM-UP 5-10 min
- AEROBIC INTERVALS 20-40 min
- STRENGTH TRAINING 10-20 min
- FLEXIBILITY / COOL DOWN 5-10 min

Foundation Exercises

- KNEE HIGH JOG pg 1-3
- STRADDLE JOG pg 3-4
- X-COUNTRY SKI pg 4-6
- RUN pg 6
- JACKS pg 7
- KICK pg 8
- ABS pg 9-10

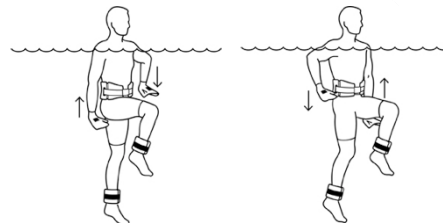
KNEE HIGH JOG Series

- KNEE HIGH JOG
Arms Pump at Sides



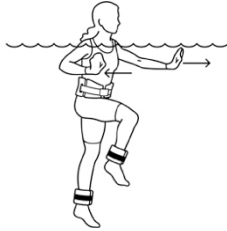
KNEE HIGH JOG

Press



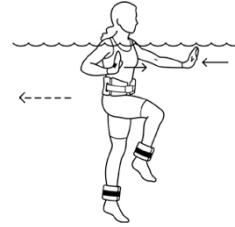
KNEE HIGH JOG

Push Pull



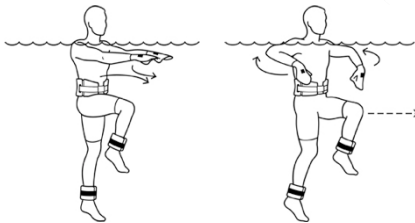
KNEE HIGH JOG

Travel - BACK / Push - ALTERNATE



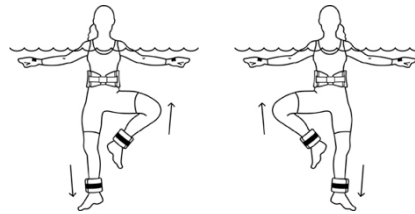
KNEE HIGH JOG

Travel - FORWARD / Breaststroke Pull



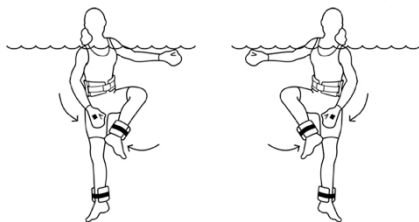
STRADDLE JOG

Scull



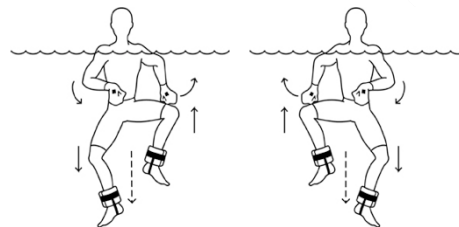
STRADDLE JOG

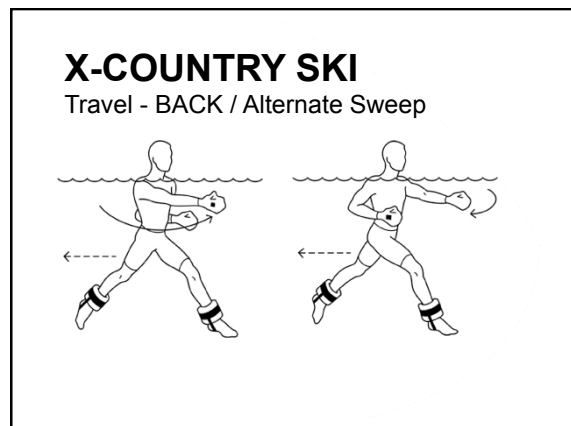
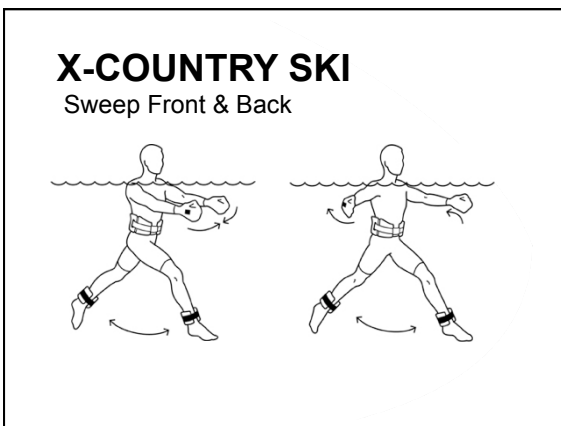
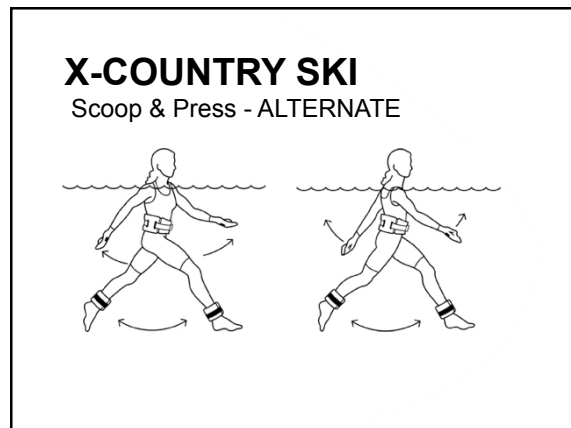
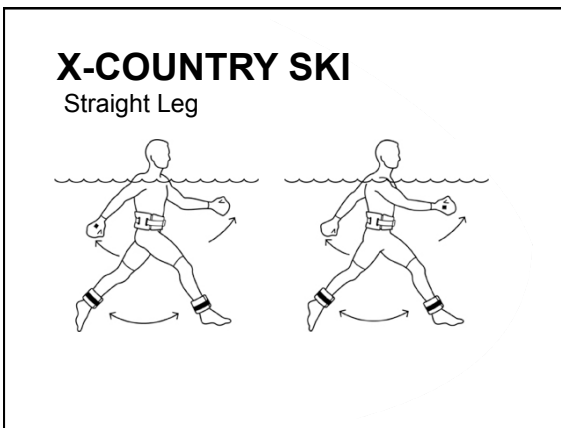
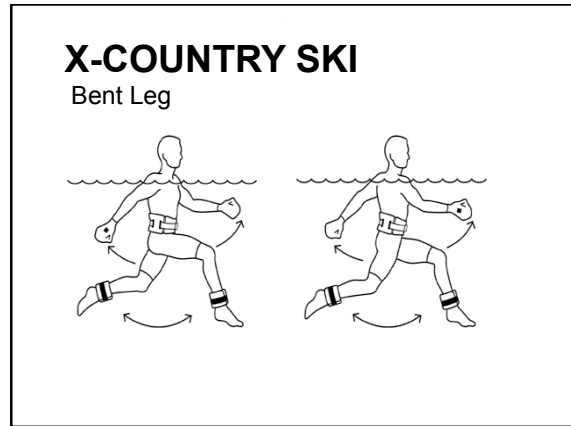
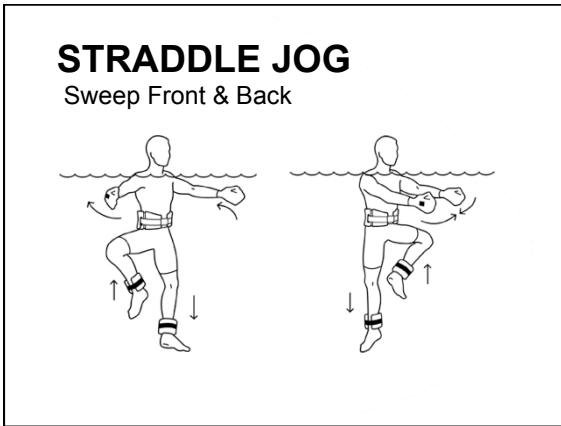
Instep Sweep



STRADDLE JOG

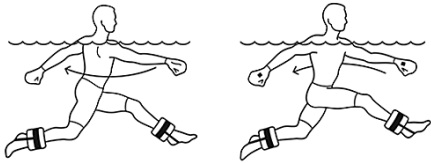
Travel FORWARD / Paddle Sweep





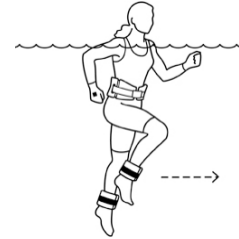
X-COUNTRY SKI

Travel - FORWARD / Overstride



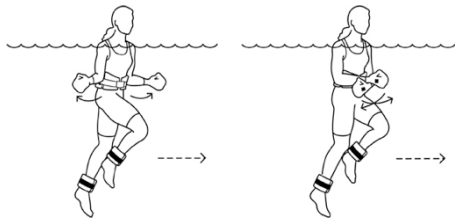
RUN Series

- RUN - Travel Forward
Arms Pump at Sides



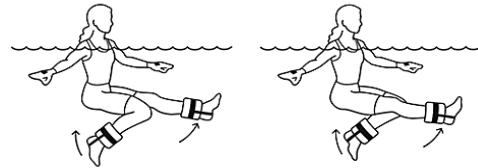
RUN

Travel - FORWARD / Rotator Cuff Sweep



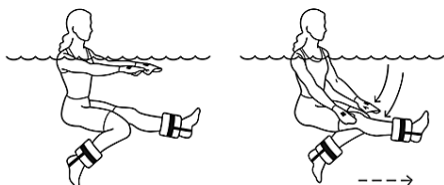
SIT KICK

Scull

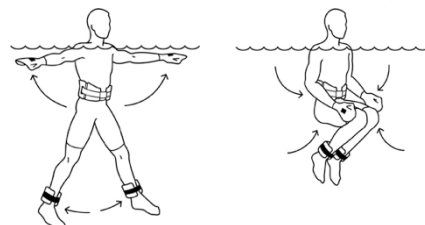


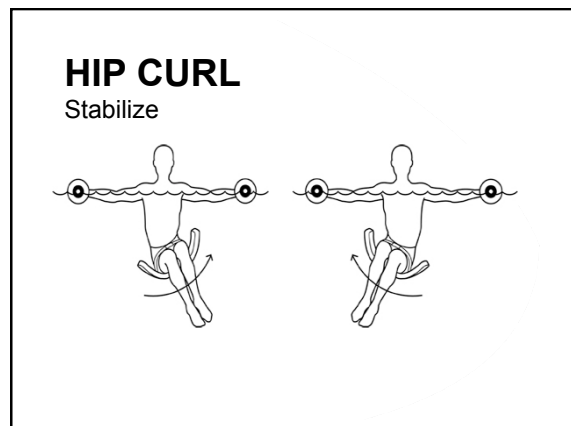
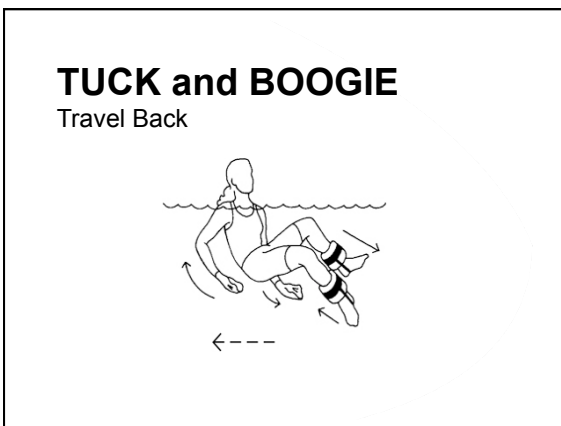
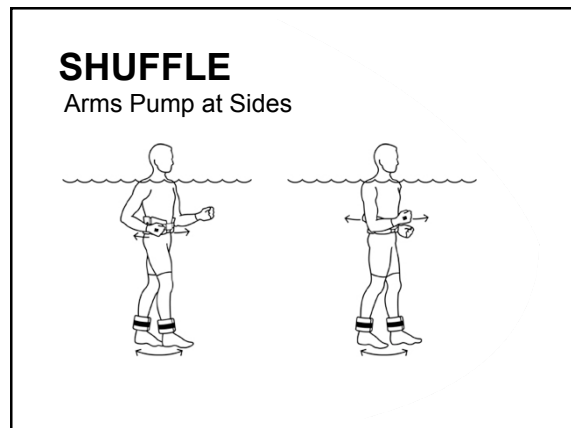
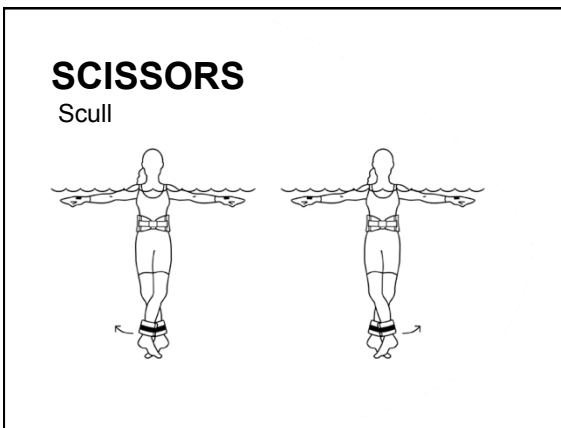
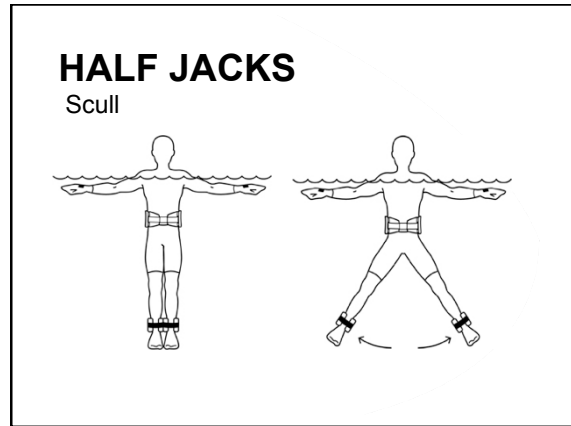
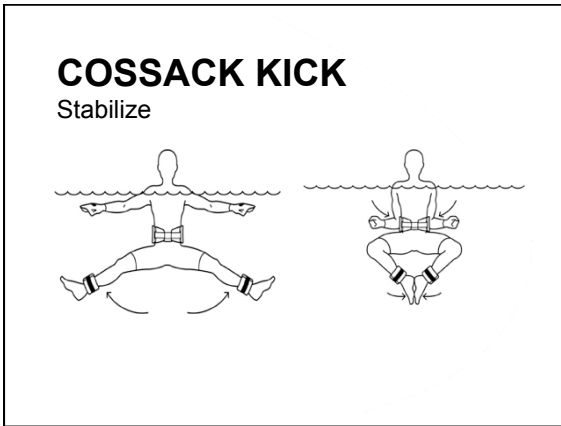
SIT KICK

Travel - FORWARD / Shoulder Press



TUCK JACKS





Deep Resistance

