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TNT Toning

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Objectives: Develop strategies and principles for safe, effective and fun aquatic resistance training.

Problems to address:

How to create:

1. resistance exercises cardiovascular enough to maintain intensity and body heat.
2. different training levels and progressions in class with varying fitness levels.
3. sufficient overload with aquatic equipment.

We will adapt the principles of resistance training to an aquatic environment, and have creative ways of using equipment and sequencing in order to achieve sufficient overload.

Principles:

1. Minimize Change Time by sequencing the exercises to flow from one exercise to another with minimal equipment changes while avoiding overuse injuries.
2. Keep Moving by combing exercises with simple cardiovascular movements to that help maintain body heat without compromising exercise.
3. Overload by Sets by sequencing and utilizing resistance training techniques to create the overload.
4. Multilevel Exercise Instruction by teaching the base exercises with individual pieces of equipment; then teach advanced combination of using two exercises with two pieces of equipment at once to create high levels of overload giving the option to stay at the lower level.
5. Plan Out Sequences to promote muscle balance, minimize overuse fatigue, maintain momentum of class and teach form in progressions to accommodate many fitness levels.

Muscle Work Overview and Force Analysis

Effective programming for our classes requires an understanding of the muscle worked. Because buoyancy and resistance dominate over gravity in the water, the muscle force analysis is much more complex.

Forces in the Water:

Floating Equipment: Buoyancy dominates up/down motions with the force acting upward with an isometric. Resistance dominates side/side or front/back motions with the forces acting against the direction of movement.

Sinking Equipment: Gravity dominates up/down motions and the force is down. Resistance dominates side/side or front/back motions with forces against the direction of movement.

Neutral Equipment: Resistance dominates and the forces are against the direction of motion.

Many instructors memorize free weight exercises where gravity is the main force to determine muscle work. Orientation, environment and/or equipment change the type and direction of the force as well as the type of muscle contractions.

Basic TNT Class Format and Equipment Requirements

Equipment:

1. Buoys
2. 8” inflated balls
3. Figure 8 resistance bands.
4. Noodles.

Equipment Disadvantages:

Equipment	Disadvantage
Small 8”-balls	Static grip. Stress on wrist/hands. Exaggerates poor posture. Unbalanced muscle work.
Buoys	Static gripping. Isometric on Trap III and/or Lats.
Figure 8-bands	Uncomfortable on ankles and may not allow full ROM. Stress on wrist/hands.
Noodles	Static Grip in hands Require Skilled participant under feet.

General Format:

Warmup

Single body part/piece of equipment exercises in a repeated, planned, continuous sequence with continued movement to maintain intensity level.

Multi- body part/pieces of equipment exercises where option for maintaining the single body part exercises follows what was taught in previous section.

Return to single body part exercises or optional pair work with partners for overload generation.

Cool/Warm Down

Applied Strength Training Techniques

In order to build muscle mass/definition, we must overload the muscle. We will utilize water-adapted sequenced pyramid, triangle, sawtooth, and endurance strength training formats to create a powerful toning class. Examples of each include:

Triangle Sets (Light to Heavy): A series of sets of 2 or more exercises where the load increases with decreasing repetitions.

Example with Buoys

1. Triceps/biceps concentric. Stand at the surface drag the buoys in and out bending at the elbow. 32 times
2. Chest/back concentric. Stand at the surface drag the buoys in and out keeping the elbow straight. 32 times
 - 1a. Triceps concentric/eccentric. Stand with both buoys and push the buoys down and up in the water bending at the elbow. 16 times
 - 2a. Chest concentric/eccentric. Stand leaning over and push the buoys down and up in the water elbows fixed. 16 times
 - 1b. Triceps. Repeat 1a with both buoys in one hand. 8 times each arm
 - 2b. Chest. Repeat 2a with both buoys in one hand. 8 times each arm

Pyramid Sets Variable Resistance(Light to Heavy to Light): This is basically the triangle working up in force and down in reps and then working down in force and up in reps. For the above example, we would add on the following:

- 1c. Triceps. Repeat 1a 16 times
- 2c. Chest. Repeat 2a. 16 times
- 1d. Triceps/biceps. Repeat 1. 32 times
- 2d. Chest/back concentric. Repeat 2 32 times

Pyramid Sets Constant Resistance(Super Sets): A series of sets of 2 or more exercises where the load stays the same and the number of reps increases.

Example with Figure 8-band.

- Outer thigh concentric/eccentric. With the band around the arches perform 16 jumping jacks.
 - Hamstring concentric/eccentric. With the band around the arches stand on the band with one foot and curl other leg back 16 times each leg.
- Repeat with 24 reps each, 32 reps each, 24 reps each and 16 each. Total 5 sets.

Tri/Quad/Giant Sets: Three or more exercises for the same muscle group repeated 3 or more times.

Example with Figure 8-band

- Outer Thigh isometric/concentric/eccentric with band around arches of feet. 16 standing wide squats, 16 one leg lift to side each side, 16 jumping jacks repeat from squats 3 times.

Sawtooth sets: Either 2 or more exercises where the sets alternate from high reps/low load to high load/low reps 5 or more times.

Example with buoys

Chest concentric/eccentric. In a suspended 45 degree face down position, use the one buoy in each hand, push into the water keeping the abs contracted and the spine straight. 32 reps

Lats concentric /eccentric. Using one buoy in each hand perform jumping jack arms. 32 reps

Chest. In a suspended 45 degree face down position, use the two buoys held together in one hand push into the water. 16 reps each arm.

Lats. Using both buoys in one hand perform jumping jack arm. 16 reps each arm.

Repeat these 4 ending with the high reps sequence with either 5 or 7 sets.

Sequencing Exercises

This is where planning is important and creativity required. The following examples show using the same piece of equipment for upper and lower body exercises to minimize overuse injuries and equipment change time. Create sets from the previous section for overload with the following type of sequencing.

Figure 8-Band:

Back (Pulls out at Chest level) and External Rotator cuff (elbows at waist rotating forearms out) followed by Outer thigh (jacks) and Hamstring (one leg curls).

Noodles

Chest (Push downs leaned over) and triceps (push downs upright) followed by Inner thigh (jacks with noodles under feet) and Quad (noodle hooked on foot behind extending down)

Small 8"-ball

Chest (Push downs leaned over and squeezes) and triceps (push downs upright) followed by Inner thigh and Quad combined (ball squeezed between either upper or lower legs jumping into a double heel lift behind)

Buoys:

Bicep/Tricep at surface (in and out bending at elbow and lats (jumping jack arms) followed by low back (clamp buoys between thighs and perform abs crunch) and obliques (tuck and shoot side to side)

Progressions:

The following is a sample of multilevel progressions and sequencing for the heart of a TNT toning class. Correctly choose single exercises and training technique to be able to be combined into combination progression.

Equipment	Training Technique	Exercises	Cardio option
Figure 8-band	Pyramid/constant resistance	Back/Biceps (one arm at time)	Jumping jacks or run
		Outer Thigh/Hamstring (one leg at a time)	Jumping jacks arms and cross country arms
8"-ball	Pyramid/constant	Chest/Triceps (one arm at	Squats and run

	resistance	a time	or suspended isometric contraction
		Inner thigh squeeze with squat and hamstring squeeze with glute extension (one leg at a time, bent knee holding ball clamped behind knee rotate from surface in front to knee pointing down)	Jumping jack arms and cross country arms or suspended with scull.
Combination Equipment	Training Technique	Exercise Combinations	Lower level option
Band and Ball	Pyramid/constant resistance	Band outer thigh and ball chest Band one leg hamstring with Ball one arm tricep	Use ball to help stabilize exercise form for balance
		Band back with ball inner thigh squeeze and squat Band one arm biceps with ball one leg hamstring squeeze and glute extension	Just hold ball between legs instead of performing leg movement.

Major Safety Issues

1. Recovery and breathing should be taught by emphasizing exhalation on the main exertion and sequencing exercises to allow recovery and work complimentary muscle groups.
2. Form and technique should be enforced. Encourage participants to work at their own level with or without equipment and progress only after they can perform all the basic exercises correctly.
3. Hyperextension and ROM/angle concerns are higher in the water. The forces are different than land and control/speed must be adapted to prevent hyperextension. Utilize exercises that are full ROM and not just pulse or incomplete ROM.

This is a small sample of the concept. The TNT toning workshop is available through A-PAI at www.aquacert.org and carries AEA, ACE and AFAA credits.

Reference/Background Material:

“AFAA Weight Room Certification Workshop Manual”, 1994 Edition, Aerobics Fitness Association of America, Fitness Resource Associates, 1993.

CEC ARTICLE TEST QUESTIONS
VOL 1, 2004: TNT Toning

1. What are the 3 major problems addressed in TNT ?

2. What are the 5 principles addressed?

3. Why is muscle analysis so hard in the water?

4. What type of equipment has upward forces?

5. What type of equipment has downward forces?

6. What type of equipment has drag forces?

7. Describe the progression sequencing with equipment for TNT?

8. What are three types of training techniques we can adapt to the water?

9. Give an example of a sawtooth set.

10. What are the guidelines for breathing?

11. Are all exercises eccentric/concentric?

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