



Collars for Core and Other Equipment Anomalies

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Recipe: Take one non-swimming individual who does not have vertical balance and cannot weight bare but who needs to develop core strength. Add a dash of weak shoulder girdle. For good measure, assume the individual is overweight. Mix well with water. But then what? Once in the water, what type of therapeutic aquatic program will develop core for an individual who has no is non-weight bearing, vertical balance and very limited shoulder function, and is overweight?

Standing exercise is ruled out. Hanging from the wall is questionable. The individual is a non-swimmer. Developing core would be excellent. However, there are not many avenues through which to address this problem.

Working in prone and in vertical positions is not practical at this point. That leaves supine. Support from another person might be possible, but core work can be strenuous. Obtaining the benefits of the water resistance and turbulence is desirable. What will allow exercise in the supine position without inhibition of physical contact with another person? Try a flotation collar!

Flotation Collars

Flotation collars come in a variety of sizes and configuration. From pediatric to large adult, there are collars to fit every body type. The amount of flotation in each collar varies. Some are filled with individual sheets of foam, allowing the aquatic professional to add or subtract layers to adjust flotation. Some are inflatable, allowing buoyancy to be controlled by the amount of air in the device. Some are pellet filled, allowing for flexible configuration around an irregular body type. A collar can be selected to fit the needs of almost any individual.

Core Exercises

Once in a supine position, supported by an appropriately worn and secured collar, a variety of core exercises can be performed, including, but limited to –

Leg Tucks – alternately flex and extend at the hips, knees and ankles, drawing the legs into a tight tuck and then extending fully. Can be done one leg at a time or both legs together.

Leg Splits – Open legs into a wide separation and then close tightly. Keep knees straight throughout. Can be performed with hips in parallel position or externally rotated.

JJ's – Perform *Leg Splits* and add arm action, abducting arms, with elbows straight, out to shoulder level and then adducting them back to the sides (a supine jumping jack).

Skiing – From a position of full leg extension, legs on the surface of the water, leg one leg drop down toward the pool bottom. Once one leg has reached its lowest position, switch legs. Continue switching legs, alternately pushing one leg down and bringing the other leg to the surface. Keep knees straight throughout.

Bicycle – Bike pedal with both legs, pulling the body in a feet first direction, or, pedal backward (pushing water with the top of each foot), moving the body in a head first direction. Pedal reciprocally or with

both legs together. Quickly alternate directions (taking advantage of turbulence). Pedal in a circle spin and reverse direction or combine with forward and backward.

Soccer Kicks -- Raise both legs to the surface and using a single leg from the knee down, let the lower leg (knee to toes) sink down and then kick back to the surface. Keep knee at the surface. Alternate kicking leg.

Equipment Anomalies

Flotation collars are not traditionally thought of as equipment to develop core strength. There is a vast array of equipment available for use in therapeutic aquatics. Most come with suggestions for specific applications, and for many individuals the specific use is just fine. But what about the individual who presents a greater therapeutic challenge? What about an individual with a more severe disability or multiple disabilities?

Core strength is a physical fitness component. Everyone needs to develop physical fitness. Using equipment in non-traditional ways (equipment anomalies) can help even the most challenged participant meet fitness goals. Examples of this degree of disability include, but are not limited to individuals who –

- Are quadriplegic.
- Have two or more missing limbs.
- Have severe limitations in ability to plan and/or control voluntary motor skills.
- Have limited cognition in addition to a physical disability.
- Individuals who have extreme fear.
- Individuals who have extensive abnormal reflex patterns.
- Individuals who are challenged by extreme variations in physical form.

For these individuals, movement in water will probably be much easier than voluntary movement on land. This means movement in water has great potential to enhance physical fitness, contributing to not only health, but also quality of life. Movement in water also contributed to self-esteem. In water, with equipment, some individuals can be independent, where that independence is impossible anywhere else.

The two major goals for use of equipment in non-traditional ways are to increase physical fitness and encourage independence.

How does the aquatic professional make the decision to use equipment? Consider the goals and capabilities of the individual. It is always best to start without equipment, using hands-on assistance to determine buoyancy, the ability of the person to position him or herself, breath control, and mobility without equipment. Once this has been determined, there are many purposes for using equipment to facilitate mobility, including, but not limited to –

- Provide a more stable position in water.
- Assist in assuming a more horizontal position in water.
- Provide buoyancy for individuals with little natural buoyancy.
- Increase drag, to provide a sense of where the body is.
- Lessen or eliminate abnormal reflex patterns.
- Equalize size differential between individual and therapist/teacher/aide.
- Increase power application for greater movement.
- Equalize use of both sides of the body.

Equipment should never take the place of close supervision, nor should equipment ever take the place of a currently certified lifeguard whose sole responsibility is to maintain surveillance and respond to emergencies.

Types of Equipment

The following chart lists traditional equipment, traditional uses, and non-traditional modifications to facilitate mobility.

Chart 1 Equipment Modifications

Equipment	Traditional Use	Non-traditional Use
Life Jacket	CG Approved, correctly sized, worn jacket style, and clipped down.	For support, worn backward, clips in back or as “water wings”; could be worn a size larger to provide additional support.
Belts	Worn around waist for support.	Worn around chest or pelvis for support; worn under chest or upper back, without straps, for support to allow lateral roll.
Long Bar Bells	Held in both hands.	Arms places over bar for shoulder/chest support.
Hand Held Bar Bells	Held in each or both hands.	Places under one or both armpits for support.
Cuffs	Worn on ankle or wrist.	Worn around leg or arm at any point.
Arm Floaties	Worn on upper arm.	Worn on leg or arm at any point.
Foam Pieces	Part of flotation equipment not usually used out of that equipment.	Tucked into swim suits for flotation of trunk at whatever point needed.
Burdenko Boards	Deep water for lower extremity resistance work.	Strapped to legs to inhibit abnormal reflex patterns; held as kickboard but with strap grip; held by therapist (lower straps) and client (surface straps) to facilitate balance and direction.
Sweat Clothing	Not pool equipment, but can be worn to add weight.	Can be worn to increase sensory stimulation and/or increase weight to improve kinesthetic awareness and reduce buoyancy.
Aqua Shoes	Improve traction.	Add weight and increase kinesthetic awareness of feet and lower extremities.
Neck Collars	Stabilize head above water during passive exercise.	Stabilize head above water during supine movement if movement of extremities has extensive extraneous movements.
Flotation Swim Suits	Increase support of trunk.	Increase support of trunk through modification of where flotation material is placed (required suit modification).
Wet Vests	Contain body head; provide flotation.	Increase sensory stimulation of trunk.
Fins	Worn on feet to enhance propulsion.	Worn on hands or on arm/leg stumps to enhance propulsion; worn to negate hand fisting.
Mitts	Worn on hands to increase	Worn on hands to decrease fisting and provide

	propulsion and water resistance.	better hand position.
Hand Paddles	Worn on hands to increase propulsion.	Worn strapped to wrist to enhance propulsion; worn on bottom of feet for water walking to enhance power surface for step-down.
Weight Belts	Worn around the waist/hips to decrease buoyancy.	Worn around waist/hips to increase kinesthetic sense of weight in water.
Ankle/Wrist Weights	Worn to increase arm strength.	Worn to decrease buoyancy of misaligned limb.
Noodles/Squoodles	Variety of uses for support and mobility.	Under arms for support; under hips/waist for support.
Foam Mat	Not usual water use.	Flotation support for trunk and lower extremity while arms reach and pull body forward (mat sized to participant to lessen drag).

Almost any traditional aquatic equipment, and many types of non-traditional equipment can be used to develop physical fitness. Creativity counts and aquatic professionals should not be afraid to experiment. If one type of equipment or equipment arrangement is not effective, continue to try alternatives until the desired result occurs. The following chart lists traditional equipment, traditional uses of that equipment, and non-traditional uses of the same equipment. Some of this equipment is traditionally used for safety and/or rescue. If you are going to use safety and/or rescue equipment for mobility remember two things –

First, never take a piece of rescue equipment that is positioned for rescue use in the pool and use it for some other purpose. Rescue equipment needs to be where it is supposed to be – ready for rescue use – at all times. If you want to use equipment designed for rescue, ask first and then use a “spare” from storage.

Second, remember a piece of safety equipment used in a nontraditional way, will NOT retain it’s safety capability. For example, a Coast Guard approved personal flotation device/life jacket, worn correctly, will keep a person afloat and could save his or her life. That same device worn backward may not keep a person afloat and may not save his or her life in an emergency.

Conclusion

Think creatively, practice safety, experiment, evaluate – just as the individual working to develop core strength can meet that goal through use of a flotation collar, so can other, more challenged individuals meet their therapeutic aquatic goals. Those equipment anomalies aren’t really anomalies – they are just equipment uses that have not been discovered yet.