# AQUATIC FITNESS

**A.A.A.I. / I.S.M.A.**

The International Standard in Exercise Science Education

AAAI/ISMA, Inc.
PO Box 663
New Hope, PA 18938

**About the Author:** Carol Rollins Maurer has a Master's degree in Exercise Physiology and Education from Temple University. She has worked at the Golden Door Health Spa and Cunard Cruise Lines. She has traveled throughout the United States and Europe as an AAAI/ISMA faculty trainer.

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# SUGGESTED READINGS FROM

# AAAI/ISMA MANUAL

# IMPORTANT!!

PLEASE READ THE FOLLOWING PAGES IN AAAI/ISMA'S MANUAL ENTITLED "STUDIES IN EXERCISE SCIENCE" (WHITE COVER).

# HYDRODYNAMICS

## HYDRODYNAMICS

As an aquatic fitness instructor your goal is to develop a program that utilizes the properties of water to their fullest extent. In order to achieve this goal we must first understand the various properties of water. The physical laws that follow are related to water fitness programs - a combination of understanding the concepts and experience will help you relate them to your own program. After reading these laws spend some time in the water so you can relate the concepts experientially and make them the foundation of your program.

## LAWS OF MOTION

When a person changes his/her location in space then motion occurs. Motion can occur within the body (i.e.- concentric & eccentric contractions) or by movement in a direction (i.e.- side to side).

<u>INERTIA</u>: A force is needed to move a body at rest, to stop a body that's moving, or to change the direction of a moving body.

Static Inertia is when a body at rest stays at rest. Every time we begin to move in the water we must overcome static inertia. Dynamic inertia is when a body in motion remains in motion. This will help you once you have begun moving but the properties of water also includes drag which will slow you down.

One uses more energy to start or change a movement than to continue in the same state. To utilize this concept in our water classes we increase our exercise intensity if we change directions and add traveling motions in our choreography. Conversely, if we choose to decrease the intensity we can stay in one location and continue the motion.

ACCELERATION: The speed of the body depends on how much force is applied and the direction of the force. A certain amount of force produces a certain amount of speed or movement and twice that force will produce twice the speed or movement. For example, if you push off the bottom, you will travel a certain distance or height. If you push off with twice as much force you will go twice as far. Your speed right after you push off the ground (or pool bottom) will be twice as fast when you use twice the force (in the water drag will start to slow you down).

When exercising in water the more force you apply against the water's resistance the more toning benefits you create for the muscle groups performing the actual movement. This also requires more effort. You must also work in both directions - for example: when we perform a knee lift on land we must think about lifting the knee but gravity

PUSHES IT BACK TO THE FLOOR. BUT, IN WATER, WE MUST THINK ABOUT LIFTING THE KNEE AND THEN PRESSING IT TOWARDS THE BOTTOM. THE MORE FORCE AGAINST THE WATER'S RESISTANCE THE MORE INTENSE THE WORKOUT.

ACTION & REACTION: FOR EVERY ACTION THERE IS AN EQUAL AND OPPOSITE REACTION.

WHEN WE ARE WORKING IN A WATER ENVIRONMENT THIS "LAW" STILL REMAINS TRUE. FOR EXAMPLE, IF YOU ARE MOVING YOUR ARMS FROM THE SHOULDER JOINT AND SIMULATING THE FRONT CRAWL STROKE WITH YOUR BODY REMAINING IN A VERTICAL POSITION, AS YOUR ARM PUSHES (ACTS) AGAINST THE WATER, THE WATER PUSHES BACK (REACTS), PROVIDING RESISTANCE TO LET YOU MOVE FORWARD.

WHEN THE LIMBS OF YOUR UPPER BODY WORK IN OPPOSITION TO THE LOWER BODY THEN MORE RESISTANCE AND TURBULENCE IS CREATED THUS RESULTING IN A MORE INTENSE MOVEMENT. REMEMBER TO TAKE INTO CONSIDERATION THE FITNESS LEVELS OF YOUR PARTICIPANTS. PROPER BODY POSITION AND ALIGNMENT MUST BE MAINTAINED AT ALL TIME.

LEVERS: THE LAW OF LEVERS STATES THAT MOVEMENT OF LEVERS IS RELATED TO THE FORCE APPLIED, THE RESISTANCE THAT OCCURS, THE FORCE ARM (THE DISTANCE FROM WHERE THE FORCE IS APPLIED TO THE PIVOT POINT), AND THE RESISTANCE ARM (THE DISTANCE FROM WHERE THE RESISTANCE OCCURS AND THE PIVOT POINT).

UTILIZING THE PREVIOUS EXAMPLE, (FRONT CRAWL ARM WITH THE BODY IN A VERTICAL POSITION), THE SHOULDER IS THE PIVOT POINT. THE ARM MUSCLES SUPPLY THE FORCE. THE FORCE ARM IS THE LENGTH OF BONE BETWEEN THE SHOULDER AND WHERE THE MUSCLE IS ATTACHED. RESISTANCE COMES FROM THE WATER ACTING ON THE ARM. THE RESISTANCE ARM IS THE DISTANCE FROM THE SHOULDER JOINT TO THE MIDDLE OF THE FOREARM.

THE LONGER THE LEVER THE MORE INTENSE THE MOVEMENT. WHEN TEACHING WATER EXERCISE ALWAYS BEGIN WITH SHORT LEVER MOVEMENTS THEN CHANGE TO LONGER LEVER MOVEMENTS. THIS WILL HELP REDUCE OR POSSIBLY ALLEVIATE ANY STRESS ON THE JOINTS THAT ARE NOT WARMED-UP.

<u>BUOYANCY</u>: WATER EXERTS AN UPWARD FORCE AGAINST AN OBJECT EQUAL TO THE WEIGHT OF THE WATER THAT WOULD BE PUSHED ASIDE BY THE OBJECT. THE EXTENT OF BUOYANCY IS DIRECTED TO THE SIZE AND DENSITY OF THE PERSON (OR OBJECT) IN THE WATER.

BUOYANCY IS DEPENDENT ON SEVERAL FACTORS;

* BODY SIZE
* DENSITY (MUSCLE MASS)
* PERCENTAGE OF BODY FAT AND
* LUNG CAPACITY.
* DEPTH OF THE IMMERSION (A BODY LOSES APPROXIMATELY 90% OF ITS WEIGHT WHEN IMMERSED TO THE NECK, 70 TO 75% IN CHEST DEEP AND 50% IN WAIST DEEP WATER.

BENEFITS OF BUOYANCY INCLUDE;

* REDUCES THE EFFECTS OF GRAVITATIONAL FORCES.
* DECREASES AMOUNT OF BODY WEIGHT COMPRESSING JOINTS.

THE CENTER OF BUOYANCY IS THE POINT AROUND WHICH THE BODY'S BUOYANCY IS EVENLY DISTRIBUTED. THIS CENTER IS USUALLY LOCATED OR ASSOCIATED WITH THE CHEST/THORACIC REGION. WE MUST ALSO BE AWARE OF THE CENTER OF MASS WHICH IS THE POINT AROUND WHICH THE MASS IS EVENLY DISTRIBUTED. THE CENTER OF MASS IS USUALLY LOCATED OR ASSOCIATED WITH THE HIP AREA.

WHEN WE COMPARE OUR "LAND" EXERCISES WITH WATER EXERCISES WE DISCOVER THAT GRAVITY ASSISTS OR RESIST MOVEMENT (REMEMBER THE KNEE LIFT EXAMPLE!) WHILE IN THE WATER BUOYANCY ASSISTS OR RESISTS MOVEMENT. ANY MOVEMENT TOWARDS THE WATER SURFACE WOULD BE ASSISTED (DUE TO THE VERTICAL/UPWARD FORCE OF BUOYANCY) WHILST ANY MOVEMENT TOWARDS THE POOL BOTTOM WOULD BE RESISTED (ACTING AGAINST THE BUOYANCY FACTOR).

<u>DRAG</u>: DRAG IS DEFINED AS THE RESISTANCE OF WATER ON A BODY MOVING THROUGH IT. THIS RESISTANCE/DRAG IS WHAT WE FEEL OPPOSING US AS WE MOVE THROUGH THE WATER. DRAG CAN HELP US VARY AND CHANGE THE LEVEL OF INTENSITY. THERE ARE THREE TYPES OF DRAG-

1. FORM DRAG IS RESISTANCE RELATED TO THE OBJECT'S SHAPE AND PROFILE. A NARROW SHAPE EXPERIENCES LESS DRAG (I.E. WALKING SIDEWAYS VS. WALKING FORWARD/INCREASED DRAG BECAUSE OF A WIDER SURFACE AREA), THE MORE STREAMLINE THE LESS DRAG.

2. WAVE DRAG IS RESISTANCE CAUSED BY WATER TURBULENCE. THIS IS DIRECTLY RELATED TO SPEED, THE FASTER YOU MOVE THE MORE WAVE DRAG OR TURBULENCE YOU CREATE. WAVE DRAG CAN ALSO OCCUR BECAUSE OF OTHERS MOVING AROUND YOU.

3. FRICTIONAL DRAG IS RESISTANCE CAUSED BY THE SURFACE TEXTURE OF THE BODY AS IT MOVES THROUGH THE WATER. A STREAMLINE SWIMSUIT WILL CREATE LESS FRICTIONAL DRAG WHEREAS A TEE SHIRT OR EXCESS MATERIAL ON A SWIMSUIT WILL INCREASE THE FRICTIONAL DRAG.

# HEART RATES AND PERCEIVED EXERTION

# HEART RATE AND PERCEIVED EXERTION

## HEART RATES

Taking the heart rate is a popular way to assess the demands of exercise because it reflects the body's oxygen uptake. Making sure that the heart rate is in a certain zone (the target heart rate zone) ensures adequate training and prevents overtraining.

However, heart rate guidelines for exercise on land do not apply to exercise in the water. Buoyancy lessens the gravitational pull on the body and the heart doesn't have to work as hard. Hydrostatic pressure also effects heart rates. It is defined as the pressure exerted by molecules of a fluid upon an immersed body. This pressure affects the body's surface and skin as well as the internal organs of the body. Hydrostatic pressure can decrease swelling and pressure and can affect the vascular and respiratory systems. Thus, making this partially responsible for lower recorded heart rates while in the water.

Many other aquatic factors can affect heart rate during exercise in the water including water temperature, water depth, body position and clothing. For example, a rubber bathing cap or shower cap worn while exercising in the water may cause body heat to be retained and the heart rate to increase. Body position can affect the exercise heart rate

BECAUSE DIFFERENT BODY POSITIONS ARE ASSOCIATED WITH DIFFERENT EXERCISE DEMANDS. FOR EXAMPLE, THE DEMANDS OF EXERCISE WHILE STANDING IN WAIST-DEEP WATER WITH BOTH FEET ON THE POOL BOTTOM ARE VERY DIFFERENT FROM THE DEMANDS OF EXERCISE WHILE FLOATING IN DEEP WATER.

RESEARCH ON THESE AND OTHER FACTORS CONCERNING HEART RATE IN THE AQUATIC ENVIRONMENT IS RECENT. IT IS GENERALLY ACCEPTED THAT HEART RATES FOR EXERCISE IN THE WATER ARE USUALLY LOWER THAN THOSE ASSOCIATED WITH "LAND" EXERCISE AT THE SAME INTENSITY LEVEL. RESEARCH SUGGESTS A DIFFERENTIAL BETWEEN HEART RATE FOR LAND AND WATER EXERCISE IN THE RANGE OF 10% TO 13%.

SEVERAL METHODS FOR HEART RATE ASSESSMENT ARE LISTED BELOW. FIND THE ONE THAT YOU ARE COMFORTABLE WITH AND THAT YOU CAN EFFECTIVELY UTILIZE WITHIN YOUR WATER PROGRAM.

J. GLENN MCWATERS, AUTHOR OF "DEEP WATER EXERCISE FOR HEALTH AND FITNESS", RECOMMENDS THE FOLLOWING FORMULA:

(205 - AGE) X 0.7 FOR LOWER LIMIT

AND

(205 - AGE) X 0.85 FOR UPPER LIMIT.

HE FURTHER RECOMMENDS ADVISING WATER EXERCISE PARTICIPANTS TO TAKE A HEART RATE CHECK OVER A 6 - SECOND INTERVAL DUE TO A MORE RAPID RATE OF RECOVERY IN WATER.

THE KARVONEN FORMULA (PAGE 4 IN AAAI'S "STUDIES IN EXERCISE SCIENCE") INDIVIDUALIZES THE HEART RATE ZONE BY UTILIZING ONE'S RESTING HEART RATE (RHR). THE FORMULA IS AS FOLLOWS:

| FORMULA | | EXAMPLE | |
|---|---|---|---|
| SUBTRACT YOUR AGE FROM 220 | | 220 | |
| | | - 20 | |
| EQUALS MAXIMUM HEART RATE (MHR) | | 200 | |
| SUBTRACT YOUR RESTING HEART RATE | | - 60 | |
| (RHR) FROM MHR | | = 140 | |
| MULTIPLY YOUR EXERCISE INTENSITY | | | |
| (50% - 85%*) | x .50 | | x .85 |
| | = 70 | | = 119 |
| ADD YOUR RESTING HEART RATE (RHR) | + 60 | | + 60 |
| INDIVIDUAL TRAINING HEART RATE (THR) | = 130 | | = 179 |
| SUBTRACT 17 DUE TO AQUATIC PROPERTIES | - 17 | | - 17 |
| INDIVIDUAL AQUATIC TRAINING HEART RATE | = 113 | | = 162 |

* ACSM (AMERICAN COLLEGE OF SPORTS MEDICINE) RECOMMENDS TRAINING BETWEEN 50 - 85% OF MAXIMUM HEART RATE (MHR).

ALSO, DUE TO THE PROPERTIES OF WATER (HYDROSTATIC PRESSURE, BUOYANCY) 17 BPM (BEATS PER MINUTE) SHOULD BE DEDUCTED FROM THE INDIVIDUAL TRAINING HEART RATE.

## Perceived Exertion

Perceived exertion is another way of assessing exercise demands. This is a subjective measure of the intensity of an exercise. Perceived exertion incorporates daily factors in capacity, such as those associated with stress, lack of sleep and hormonal changes. This measure of exertion can be particularly helpful with participants who have developed some mind/body awareness.

Perceived exertion can be measured in many ways. The Borg Scale is widely used and it measures exertion on a 20-point scale. The Borg/McWaters Scale is also used and this utilizes a 10-point scale. See below for actual models.

### BORG SCALE

| | | |
|---|---|---|
| 7 | = | very, very light |
| 8 | | |
| 9 | = | very light |
| 10 | | |
| 11 | = | fairly light |
| 12 | | |
| 13 | = | somewhat hard |
| 14 | | |
| 15 | = | hard |
| 16 | | |
| 17 | = | very hard |
| 18 | | |
| 19 | = | very, very hard |
| 20 | | |

## BORG/McWATERS SCALE

0 = NO MOVEMENT

1 = VERY, VERY WEAK

2 = VERY WEAK

3 = WEAK

4 = SOMEWHAT MODERATE

5 = MODERATE

6 = SOMEWHAT HARD

7 = HARD

8 = VERY HARD

9 = VERY, VERY HARD

10 = MAXIMUM EFFORT

REMEMBER, THE PARTICIPANTS HAVE THE FINAL SAY ABOUT THEIR EXERTION LEVEL. IF THEY DON'T WANT TO EXERT THEMSELVES AS MUCH AS YOU THINK THEY CAN, RESPECT THEIR DECISION. AN IMPORTANT ASPECT OF BEING AN EFFECTIVE INSTRUCTOR IS RESPECTING A PARTICIPANTS RIGHT TO MAKE THEIR OWN DECISION BASED ON THEIR NEEDS, INTEREST AND ABILITY LEVELS.

# HOW TO BECOME AN EFFECTIVE WATER EXERCISE INSTRUCTOR.

## HOW TO BECOME AN EFFECTIVE WATER EXERCISE INSTRUCTOR

As a water exercise instructor your main goal is to facilitate learning. According to learning theorist, Edward Thorndike, learning is dependent on three principals entitled the laws of effect, readiness and frequency. They are defined as follows:

* Law of effect - a learner tends to repeat those things that are pleasing and not repeat those that are displeasing.

* Law of readiness - individuals perform a task when they are ready (physical and psychologically).

* Law of frequency - learning requires repetition for a skill to be mastered.

### CHARACTERISTICS OF AN EFFECTIVE INSTRUCTOR

An effective instructor has many characteristics which manifest themselves in a variety of different ways. The instructor's personality and familiarity with the material (choreography, safety, teaching experience) to be covered are only part of the model for effective teaching. The characteristics include:

* Good communication skills. The ability to enhance the learning process through motivation, association, repetition, and the use of the senses. When working in a water environment communication is key because you are working against adverse factors (i.e. poor acoustics, whirlpools, other swimmers, conversations etc.).
* Subject knowledge. Know your "stuff" including being familiar with your pool, choreography, objectives of class, properties of water and how to increase or decrease exercise intensity.
* Have a positive attitude. Help motivate your students by being friendly and enthusiastic. Show genuine concern (because without your students you will have no class to teach!) and listen to their ideas and suggestions.
* Be a role model. Wear appropriate attire and have a professional appearance.
* Practice patience and flexibility. People will learn at different rates, try to respond to your students learning needs and incorporate modifications and challenges when ever possible.
* Always maintain professional behavior. Place importance on your conduct and effectiveness in managing your class. Be on time and prepared for class!

THE PROCESS OF TRANSFERRING A MESSAGE FROM ONE PERSON TO ANOTHER IS WHAT WE REFER TO AS COMMUNICATION. THE SENDER (PERSON WHO CONVEYS THE MESSAGE), THE MESSAGE (IDEA, INFORMATION, CUE), AND THE RECEIVER (THE PERSON WHO PROCESSES AND THEN RESPONDS TO THE MESSAGE) ARE THE THREE ELEMENTS THAT ARE CRUCIAL TO COMMUNICATION. WHEN THE RECEIVER INTERPRETS THE SENDER'S MESSAGE EXACTLY AS INTENDED THEN EFFECTIVE COMMUNICATION IS ACHIEVED.

COMMUNICATION CAN OCCUR VERBALLY OR NONVERBALLY. VERBAL COMMUNICATION OCCURS THROUGH THE PROCESS OF SPEAKING, WRITING OR SINGING. WHEN WORKING ON YOUR VERBAL COMMUNICATION OR "CUES" CONSIDER THE FOLLOWING ASPECTS:

* VOLUME (DO NOT SCREAM - VOICE INJURY IS PREVALENT IN THE FITNESS FIELD).
* DO NOT TALK TOO QUICKLY OR TOO SLOWLY. MAKE SURE YOUR CUES DO NOT RUN TOGETHER OR ARE SPACED TOO FAR APART.
* PRONUNCIATION. PRACTICE CUEING WITH A TAPE RECORDER OR WITH A FRIEND.
* USE CLEAR AND SIMPLE LANGUAGE. AVOID "TRASH" WORDS SUCH AS "UMM", "OK", "AND NOW", "UUH", "AND NEXT WE ARE GOING TO...".
* ENTHUSIASM. ENJOY YOUR CLASS AND YOUR STUDENTS WILL TOO!

Nonverbal communication also plays an important part in your water exercise program. Examples of nonverbal communication includes facial expressions, posture, body movements, physical appearance and eye contact. Positive nonverbal communication we should utilize in our program include:

* Smiling.
* Use hand signals for counting and directions etc.
* Have eye contact with your students.
* Open physical stance (uncrossed arms).

Nonverbal (negative) messages we should try to avoid utilizing include:

* Frowning.
* Yawning.
* Rolling your eyes.
* Pointing directly at someone.
* Closed physical stance (Arms crossed at chest).
* Becoming fidgety.
* Clenching your fist.

# DESIGNING AQUATIC FITNESS CLASSES

## DESIGNING AQUATIC FITNESS CLASSES

In order to effectively design and lead your aquatic fitness class, you will need to know and understand the following components of the workout. First, you must be aware of the factors involved in fitness. These factors include cardiovascular endurance, muscular strength and endurance, flexibility, balance and coordination. Each of these factors can be developed through proper water exercise training.

When we work on improving cardiovascular endurance we are concerned with increasing the heart rate. This can occur during water classes but the actual target heart rate range will vary (see chapter on HEART RATES). Studies suggest that aerobic exercise in water can produce the same cardiovascular benefits as on land (without the stress of forceful impact due to the cushioning effect of water).

In order to improve muscular strength you will need to incorporate the use of equipment into your workout. A variety of manufactures have created specialized equipment in order to help increase the resistance of the water so one can gain muscle strength. Muscular strength is defined as the maximum tension a muscle can exert in a single contraction. But due to the resistance of the water the muscles are required to work in both directions (flexion and extension) thus increasing muscular endurance and developing muscle balance.

When we workout on land we must contend with gravity and its forces on our bodies. But the properties of water aids in reducing the gravitational pull on our body and the warm water helps us develop flexibility. You and your students will be surprised by the increased range of motion (ROM) while working in the water. Flexibility is defined as the ROM around a joint or a group of joints

The last factors to consider are balance and coordination. This is especially key for those who may be considered "senior's" or those recovering from an injury or extended "leave of absence" from engaging in physical activities or fitness. Balance and coordination are responsible for your capacity to maintain equilibrium. The properties of water includes a cushioning or buoyancy effect which assists in creating an awareness of one's balance and changes in the position of the body.

<u>Rules of Adaptation and Specificity</u>.

In order for the human body to improve its fitness level it must perform at a higher level. This is referred to as progressive and systemic overloading. When we are designing our aquatic fitness class we must consider the F.I.T. factors. They are:

* Frequency - how often we workout.

* Intensity - how "hard" do we workout (are we in our target heart rate range?).
* Time - how long do we workout (the duration of the activity).

The rule of adaptation states that the body responds or adapts to the type and amount of physical demands placed on it. The body will adapt specifically to the type and degree of exercise performed. Keep these principles in mind when you develop and design your aquatic program. We usually want to accomplish all the components of fitness but we might want to spend more time on different components at various times. For example; Mondays class may spend more time on cardiovascular conditioning, Wednesdays class may spend more time on muscular strength and endurance while Fridays class spends extra time on flexibility (if the water is warm enough!).

## Aquatic Fitness Class Design

The traditional aerobic and aquatic fitness class design consists of the following components:

* Warm-up
* Workout (cardiovascular & strength/endurance work)
* Cooldown (flexibility).

The length of class time will vary according to pool time available, level of class (beginner etc.), temperature of the water, participants request etc. to name a few factors.

The following components create the foundation of any exercise program. Remember to always practice your moves, choreography, cueing etc. before you actually teach a class. Always consider your clients/population and try to put yourself in "their shoes" whenever possible.

## The Warm-up

The purpose of the warm-up is to prepare the body for exercise. Preparation needs to be both mentally and physically. Your warm-up should be between 10 percent to 30 percent of your class time (cooler water will require a longer warm-up). The warm-up can begin on deck or in the pool. The movements involved in the warm-up phase include large movements - striding, walking, jacks etc. - that utilize all major muscle groups. These movements should slowly elevate the heart rate and increase core body temperature. The warm-up must be active in order to accomplish these goals.

You can help prepare your students mentally by verbalizing the effectiveness of water, giving positive feedback to your students, encourage them to have fun etc. or discussing and demonstrating new moves to be incorporated into your session.

## The Workout

This section of class should take approximately 50 to 80 percent of the class time. The workout includes both your aerobic activities and strength/endurance conditioning. Look for balance in your workout - work all muscle groups and their opposing muscle groups. Specifics concerning your workout will vary according to the following:

* length of class time
* class description and goals
* water temperature
* fitness level of students
* depth of water.

The body utilizes different energy systems to sustain or increase the effort involved in the activity. See chapter on MUSCLE PHYSIOLOGY in AAAI's Studies In Exercise Science. Familiarize yourself with the energy systems and how they influence your class format and goals.

## The Cooldown

The purpose of this portion of class is to slow the body down. The cooldown should take about 10 percent of your class time. The body cools down very quickly in the water and is directly influenced by both water and air temperature. The cooler the water and air the shorter length of time you will spend stretching and relaxing in the pool. Stretching can occur on deck as well. Remember to stretch all major muscle groups and add relaxation techniques if you feel comfortable.

# AQUATIC TEACHING TECHNIQUES

# TEACHING TECHNIQUES

TEACHING:

WHEN TEACHING AQUATIC CLASSES ONE MUST KEEP THE FOLLOWING PRACTICES AND PRINCIPLES IN MIND. REMEMBER YOU ARE THE ROLE MODEL SO TEACH AND DEMONSTRATE PROPER TECHNIQUES INCLUDING CORRECT BREATHING, GOOD POSTURE AND PROPER BODY ALIGNMENT AND BODY POSITIONS. THE PARTICIPANTS BALANCE AND FEEL IN THE WATER ARE CRUCIAL IN ALLOWING AN EFFECTIVE WORKOUT. ALWAYS STRESS THE IMPORTANCE OF BEGINNING WITH A STRONG AND STABLE STARTING POSITION FOR THE BODY.

TEACH PARTICIPANTS ABOUT THE PROPERTIES OF WATER AND HOW TO FEEL THE WATER. YOUR GOAL AS AN INSTRUCTOR IS TO GET THEM TO UNDERSTAND HOW THEY CAN VARY THE WORKOUT BY WORKING WITH AND AGAINST THE WATER. ONE EXAMPLE IS TO HAVE PARTICIPANTS WORK WITH THEIR HANDS IN THE WATER, MODIFYING THE SHAPE (I.E. OPEN VS. CLOSED FINGERS) AND FEELING THE DIFFERENCE.

TRY TO BUILD ON WHAT YOUR PARTICIPANTS ALREADY KNOW. ALWAYS START WITH A BASIC MOVEMENT THEN MODIFY OR INCREASE THE INTENSITY BY CHANGING THE BODY POSITION. MOVE FROM SIMPLE TO MORE COMPLEX MOVEMENTS BY CHANGING THINGS GRADUALLY AND IN A NON-THREATENING MANNER.

ALWAYS TRY TO BE POSITIVE. REINFORCE PARTICIPANTS PROGRESS AT EVERY LEVEL AND ALLOW FOR VARIATIONS IN AGE, LEARNING RATE AND PHYSICAL/EMOTIONAL ABILITY.

## Deck vs. Pool

There are both advantages and disadvantages for both teaching on the deck and in the pool. Ideally, if classes are large and there are enough funds to pay for it then you could have two instructors. One instructor can demonstrate on the deck whilst the other instructor works in the water with the participants. Some instructors find that working both in the water and on deck works best for their class. Still others may teach the first few classes on the deck and then get into the water when the participants are comfortable with the cues and the aqua environment. While others will teach entirely in the water or on the deck.

There is no right or wrong answer but you must weigh the pro's and con's of each technique. Consider your pool environment, (are there other programs or groups who could interfere with the participants ability to hear you?), as well as your participants (which method do they prefer?).

Other considerations include:

* deck surface (wear proper footwear and place a non-slip mat on the deck to absorb some of the impact).
* acoustics in the pool area.
* eyesight - if participants wear glasses but do not wear them in the pool.
* bathing/shower caps - worn over the ears will impair hearing ability.

## Advantages and Disadvantages

| Position | Advantages | Disadvantages |
|---|---|---|
| In the Pool | You can make contact with individual participants, thus creating a more relaxed and intimate environment.<br><br>Adjustment of movement speed & intensity can be made at the pace of execution.<br><br>Participants do not have to strain their necks by constantly focusing the eyes and head upwards. | It is more difficult to see all participants.<br><br>It is more difficult for all participants to see you. |
| On deck | Participants can see movements and proper techniques.<br><br>You can adjust or change music easily.<br><br>You can see and monitor participants better. | Physically being above participants can create a psychological inequity.<br><br>It may be difficult to demonstrate exercises at the speed at which participants will perform them in the water.<br><br>Deck could become slippery. |

# MOVEMENT PROGRESSIONS
# AND
# CHOREOGRAPHY

# MOVEMENT PROGRESSIONS & CHOREOGRAPHY

## Movement

Movement ideas are virtually endless if we utilize the basic rules for choreography. Using movement creatively involves add-ons, series of movements and/or variations in movement elements.

An example of add-on choreography could be as follows:

* start with marching for 8 counts,
* add 8 walks forward,
* repeat 8 marches & 8 walks,
* add 8 alternating knee lifts,
* repeat 8 marches, 8 walks forward, 8 alternating knee lifts,
* add 8 heel touches,
* repeat 8 marches, 8 walks forward, 8 alternating knee lifts and 8 heel touches.

You can also choreograph in a series. Using the movements from above you could begin with:

* 8 marches, eight walks, 8 knee lifts and 8 heel touches,
* then break the movements down to 4 of each movement, 2 of each then 1 of each.

## Elements of Movement

The following elements affect your choreography, intensity, creativity and sequencing of your movements. Consider these and when working on your choreography try to answer the questions proposed after each element.

**Space:** Have you effectively utilized the space available? Have you consider the individuals "personal space"?

**Direction:** Have you travelled in a variety of directions including diagonally, turned, snaked, across, back, up and down? Have you utilized specific areas within your pool facility?

**Speed:** Have you changed the tempo or speed of your workout/movements? Experiment with rhythm and varying tempo or BPM of your taped music.

**Form:** What forms has the class used and created during the movement? Have you experimented with changing the form of the body by adapting different shapes and forms?

**Levels:** Have you incorporated different levels into your choreography, such as low intensity low impact, high intensity low impact, low intensity high impact and high intensity high impact?

**QUALITY:** HAVE YOU CHANGED THE QUALITY OF YOUR PARTICIPANTS MOVEMENTS? HAVE THEY SWISHED, PUNCHED, FLOWED, FLOATED OR HUNG?

**EFFORT:** HAVE YOU EXPLAINED AND EXPERIMENTED WITH THE PROPERTIES OF WATER SO YOUR PARTICIPANTS KNOW THE DIFFERENCE BETWEEN A PUSH AND PUSH?

**RELATIONSHIP:** DOES YOUR CLASS OFFER OPPORTUNITIES FOR PARTICIPANTS TO DEVELOP RELATIONSHIPS BETWEEN EACH OTHER, BETWEEN PARTICIPANTS AND THE ENVIRONMENT, BETWEEN PARTICIPANTS AND YOU (THE INSTRUCTOR)? DO YOU WORK ON THE RELATIONSHIP AND AWARENESS OF THE PARTICIPANTS BODY PARTS, ESPECIALLY AWARENESS OF THE BODY PARTS TO EACH OTHER AND TO THE ENVIRONMENT?

UTILIZING THESE ELEMENTS WILL MAKE IT EASIER TO CREATE NEW IDEAS AND PROGRESSIONS. BE CREATIVE AND HAVE FUN!

# MUSIC FOR AQUATIC CLASSES

# MUSIC

Music can act as an energizer and can help motivate aqua participants. Most people enjoy moving to music so adding music to both aqua and land classes has become increasingly popular over the past several decades. But, special considerations need to be addressed when using music in your aquatic classes. Some instructors find it difficult to make themselves heard over the music due to the splashing sounds of the water and the poor acoustics of most pools. Your decision to use or not use music should be based on the following:

* participants preference,
* acoustics,
* environment (what other things are going on in the pool area - lesson, whirlpool, conversations etc.).
* type of class.

If you decide you would like to incorporate music into your class, you can do so in a variety of ways. Background, inspirational or choreographed movements are examples. Always listen to your music and play with it in the water before using it in an actual class.

Remember that exercises you can utilize on land to the beat of the music do not always work when you do them in the water. Movement in the water is slower due to the properties

OF WATER. MOVEMENTS SHOULD BE PRACTISED IN THE WATER AND WHEN YOU DEMONSTRATE ON THE DECK, TRY TO DEMONSTRATE AS IF YOU WERE MOVING THROUGH WATER.

OTHER FACTORS WILL AFFECT THE TIMING AND USE OF MUSIC. THESE FACTORS INCLUDE:

* BODY TYPE
* BODY DIMENSION
* WATER DEPTH
* PARTICIPANTS FITNESS LEVEL
* EFFORT EXERTED BY PARTICIPANT.

ALSO REMEMBER THAT CHANGING YOUR DIRECTION OF MOTION QUICKLY IS DIFFICULT IN ANY DEPTH OF WATER.

THE FOLLOWING CHART WILL ASSIST YOU IN DEFINING BEATS PER MINUTE (BPM) THAT ARE APPROPRIATE FOR A VARIETY OF AQUATIC CLASSES.

| CLASS | BEATS PER MINUTES (BPM'S) |
|---|---|
| WATER WALKING | 110 TO 130 BPM |
| -SHALLOW WATER | 130 TO 160 BPM |
| -WAIST DEEP WATER | 120 TO 130 BPM |
| WATER JOGGING | 120 TO 130 BPM |
| -SHALLOW WATER | 130 TO 160 BPM |
| -WAIST DEEP WATER | 120 TO 130 BPM |

| | |
|---|---|
| Water Aerobics | 120 to 160 BPM |
| -shallow water | 140 to 160 BPM |
| -waist deep water | 140 to 150 BPM |
| Toning | 120 to 130 BPM |
| Stretching | less than 110 BPM |

Always note that music preference is personal and that you will not be able to please everyone in your class but try to incorporate music that your participants identify with. Don't hesitate to ask your participants what they would like to hear. There are several music companies that create tapes especially for aquatic fitness classes and are geared to people of all ages. Most importantly, make sure you know and enjoy your music.

# EQUIPMENT

# EQUIPMENT

THERE IS A VARIETY OF EQUIPMENT CREATE ESPECIALLY FOR AQUATIC FITNESS CLASSES BUT YOU CAN ALSO UTILIZE OBJECTS THAT MAY BE FOUND AROUND THE POOL OR IN YOUR "KID FIT"/CHILDREN'S PROGRAM CLOSET. THE EQUIPMENT INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

## COMPETITIVE SWIM EQUIPMENT

* FLUTTER BOARDS - USE FOR PUSHING, PULLING OR KICKING
* PULL BUOYS - USE AS A BUOYANCY AID OR FOR ARM WORK
* HAND PADDLES - USE FOR PUSHING, PULLING, UPPER BODY WORK
* WEBBED GLOVES - USE TO IMPROVE THE PUSH AND PULL MOTION, UPPER BODY WORK

## TOYS

* HULA HOOPS - USE FOR STRETCHING, AEROBICS, HAND WORK AND GAMES
* BALLS - USE FOR COORDINATION WORK, BALANCE, AND FUN

## AQUATIC EQUIPMENT

* BELTS - USE FOR DEEP WATER WORK
* ARM CUFFS - USE FOR DEEP WATER AND ABDOMINAL WORK, CAN ALSO BE PLACED ON LEGS FOR LEG WORK
* VESTS - USE FOR DEEP WATER WORK
* WATER DUMBBELLS - USE FOR UPPER BODY AND WAIST WORK

* STEPS - USE FOR AEROBIC WORK, TONING AND BALANCE
* LOGS/AQUA GYMS - USE FOR DEEP WATER, ABDOMINAL, UPPER BODY, AND STRETCH WORK
* TUBING OR BANDS - CAN BE USED FOR UPPER BODY AND STRETCHING WORK

OTHER

* SPONGES - USE FOR STRENGTH AND HAND WORK
* PLASTIC CHAIRS - USE FOR AEROBIC, TONING AND BALANCE WORK.

BE CREATIVE AND HAVE FUN USING VARIOUS PIECES OF EQUIPMENT DURING YOUR CLASS. BUT REMEMBER TO PRACTICE FIRST AND TO UTILIZE THE FOLLOWING SET OF SAFETY GUIDELINES.

## GUIDELINES FOR USING EQUIPMENT

USING EQUIPMENT IN YOUR AQUATIC CLASS CAN INCREASE THE INTENSITY OF A MOVEMENT AS WELL AS CREATE A FUN ATMOSPHERE BUT YOU MUST EDUCATE YOUR PARTICIPANTS ABOUT THE EQUIPMENT FIRST. UNEXPECTED THINGS CAN HAPPEN WHEN PARTICIPANTS ARE MOVING QUICKLY OR USING EQUIPMENT. THEY CAN FIND THEMSELVES IN DEEP WATER OR IN POSITIONS THEY CAN NOT RECOVER FROM. EXPLAIN HOW TO USE ALL EQUIPMENT AND TEACH PARTICIPANTS HOW TO RECOVER TO AN UPRIGHT POSITION BEFORE USING FLOATATION OR BUOYANCY AIDS.

REMEMBER THE FOLLOWING WHEN USING EQUIPMENT IN YOUR CLASS:

* AN INCREASE IN THE RATE OF MOVEMENT WILL CAUSE AN INCREASE IN INTENSITY.
* PAY ATTENTION TO BODY POSITION, EVEN SPECIALIZED EQUIPMENT CAN AFFECT BODY ALIGNMENT AND POSITION.
* PAY ATTENTION TO THE BUOYANCY OF THE EQUIPMENT, MORE BUOYANT EQUIPMENT CAN CAUSE SHOULDER-IMPINGEMENT INJURIES.
* ALWAYS HOLD EQUIPMENT WITH A RELAXED GRIP.
* DO NOT EXCEED NORMAL RANGE OF MOTION (ROM).
* AVOID FULL EXTENSION.
* ALWAYS CHECK AND MAKE SURE THE EQUIPMENT FITS PROPERLY AND MAKE ADJUSTMENTS IF NECESSARY.
* WHEN WORKING WITH BUOYANCY EQUIPMENT, TAKE YOUR TIME, ALLOW ENOUGH TIME FOR PARTICIPANTS TO REGAIN BODY POSITION BEFORE DOING A REPETITION OR MAKING A TRANSITION TO A NEW EXERCISE.
* CONSIDER POOL TEMPERATURE. MAKE SURE PARTICIPANTS STAY WARM WHILE GETTING EQUIPMENT ON AND OFF. IF POSSIBLE, HAVE EQUIPMENT READY AND PLACED CONVENIENTLY AROUND THE POOL.

# POOL SAFETY

# SAFETY CONCERNS OF THE POOL ENVIRONMENT

Pool safety is covered by many organization including the American Red Cross. We usually equate pool safety with the role of a lifeguard but we must be aware of our roles as an aquatic fitness instructor. The American Red Cross and the YMCA's provide training for those interested in lifeguarding or teaching specific swim skills. But what is your role as an aquatic fitness instructor?

To answer the above question lets look at the liability factors. In order to be a lifeguard you must hold a current recognized certification - if you do not have a certification then do not act as a guard. But you do have a responsibility to your students so be aware of the use and procedures of reaching assists as well as knowlegdge of what safety equipment is available in the pool area.

As an aquatic fitness instructor you must also familiarize yourself with local and state regulations. They vary immensely so ask your pool/club manager or contact your local Red Cross office or local governmental agency.

You are also responsible for familiarizing yourself with your pool environment. The following questions will serve as a guide to preparing you for your water exercise class.

* Can you use plug-in electrical equipment or battery operated equipment?
* If plug in equipment is permitted, where is the outlet?
* Is the outlet grounded?
* If battery operated, where are spare batteries?
* Is the music equipment waterproof/resistant?
* Where should you place the music equipment in order to achieve the highest quality acoustically?
* What is the condition of the deck, are there any chipped or damaged tiles? Uneven surfaces? Rough areas? Slippery areas?
* What is the condition of the pool bottom? Any loose or broken tiles?
* If there are lines on the pool bottom, could participants slip on these lines?
* Does the pool bottom slope?
* What is the condition of the ladder and/or steps?
* If you see facility concerns/dangers, who do you report them to (what is the proper protocol)?
* What is the average pool temperature? Is it appropriate for your class design?
* How humid is your area? Is it appropriate for your class design?
* If you are teaching outdoors, will weather be a factor?
* What direction is the sun facing, is it in the participants eyes?

KNOW YOUR POOL AND THE DECK AREA.

DECIDE WHERE IS THE BEST POSITION FOR YOU ON THE DECK SO PARTICIPANTS CAN BOTH HEAR AND SEE YOU. ALSO, KNOW THE POOL AND ITS SLOPE - MAKE SURE THE DEEP END (OVER 5 OR 6 FEET) IS PROPERLY MARKED (YOU WANT TO MAKE SURE YOUR PARTICIPANTS DO NOT DRIFT INTO WATER OVER THEIR HEADS, ESPECIALLY NON-SWIMMERS OR THOSE UNCOMFORTABLE IN DEEP WATER).

OTHER POOL CONSIDERATIONS ARE:

* HOW MANY STUDENTS CAN YOU SAFETY ACCOMMODATE IN THE SHALLOW OR DEEP ENDS?
* IS IT POSSIBLE TO UTILIZE THE POOLS EDGE FOR CLASS?
* IF YOU CAN USE THE EDGE OF THE POOL, IS THERE ENOUGH ROOM FOR ALL PARTICIPANTS WITHOUT FORCING SOME INTO THE DEEP END?

FAMILIARIZE YOUR STUDENTS WITH THE AQUATIC ENVIRONMENT.

IT IS IMPORTANT THAT YOU FAMILIARIZE YOUR STUDENT WITH THE POOL AREA. VERBALLY POINT OUT THE FOLLOWING CONSIDERATIONS:

* SHALLOW AND DEEP ENDS.
* IF THERE IS A DROP OFF, OR WHERE SLOPE INCREASES, SPECIFY THE LOCATION (MARK WITH ROPE, KICK BOARDS ETC.).
* IF YOU ARE SHARING THE POOL WITH OTHER ACTIVITIES (SWIM LESSON, LAP SWIMMERS, RECREATION SWIMMERS ETC.) LET THE PARTICIPANTS KNOW WHAT SPACE YOU WILL UTILIZE.
* CHECK POOL TEMPERATURE AND ADJUST CLASS ACCORDINGLY.

* Demonstrate proper entry and exits from pool (ladder, steps, etc.).
* Discuss any safety hazards in the pool or pool area.
* Point out location of water fountain.
* Describe pool emergency signals and procedures.

It is very important that both you and your students are very familiar with the pool, deck and surrounding areas. It is your responsibility to inform and educate your students so you can conduct a safe and effective aquatic class!

Emergency Situations.

It is important for you to have an established emergency plan. As stated earlier, you may or may not have a lifeguard on duty (regulations vary state to state). In either case, make sure that you are familiar with your responsibilities and emergency procedures. Refer to AAAI's Studies In Exercise Science chapter on the "Buddy System" for more detail. Think through some of the things necessary in an emergency and prepare yourself for a variety of situations. The following questions with assist you in developing your own Emergency Action Plan.

* Do you (or someone else on the pool deck) hold a current CPR and First Aid Certification?
* Where is the first aid box located?
* Where are the ice packs (or ice) located?
* Where is the nearest telephone?

* Where are emergency numbers listed? Is 911 available where you are teaching (don't assume it is)?
* What are the emergency signals (ex. 2 short blasts of a whistle)?
* Where do participants go in the event of an emergency?
* Where do I report accidents that occur in my class (document all cases regardless of how insignificant)?
* Where is the reaching assist equipment located (know and practice how to use it)?

Remember, you are responsible for your class. Be prepared and also prepare and educate your participants to be responsible for their own safety.

# REFERENCES AND RECOMMENDED READINGS

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# AQUATIC NOTES!!!!

USE THIS SPACE TO WRITE NOTES, QUESTIONS AND SAMPLE CHOREOGRAPHY!!!

***FOR MORE INFORMATION CONCERNING THE AMERICAN AEROBICS ASSOCIATION, INTERNATIONAL***

***CONTACT:***

***AAAI/ISMA***
***P.O. BOX 663***
***NEW HOPE, PA 18938***
***(609) 397-2139***