

# The Fitness Journal

a newsletter for personal trainers and aquatic instructors

## IAFC 2005 Coming to San Diego in May, Hydropower Moving to Vail, Colorado

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### Next time ...

Highlights from IAFC 2005 ...  
more aquatic choreography ...  
tips on attracting new clients

I hope everyone is geared up for the summer. The summer is rapidly approaching and soon we will all be out in the sun. So, remember that sun protection for yourself and your participants. Sun protection is not just sun screen; it is also a t-shirt, visor (hat), sun glasses, etc. So, let's be safe and get out and have some fun working out outside this summer.

Also, remember that the **International Aquatic Fitness Conference** is in May in San Diego. If you have not had the opportunity to attend in the past, you do not want to miss out this year. The conference is always filled with the top leaders in aquatic fitness. This is by far the premiere aquatic fitness conference in the world. The knowledge of the presenters is second to



*AEA President, Julie See, and Greg Peterson at an AEA event in Gilbert, AZ*

none. In addition to the incredible educational possibilities at the conference, the social aspect is second to none. You will have the chance to hang out and party with participants and presenters. It is a must for aquatic professionals.

In more news, **Hydropower Water Workouts** is relocating to the Vail Valley in Colorado. We will be in Eagle, Colorado starting May 1. We will make sure the website is updated with the new contact information. This is an excit-

## RESISTANCE TRAINING: Effective Strength-Building for Specific Muscle Groups

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ing opportunity for us and we are looking forward to the move. Because of the move, we are recommending that any purchases in the Fitness store be done by credit card to insure payment is received.



We do not want to risk any checks floating out there trying to track us down.

*For Me* magazine recently contacted **Hydropower Water Workouts** to consult with on an article about aquatic training in the water. They requested one abdominal exercise their readers could do in the pool without equipment and in a vertical position. Much to their surprise, we were able to provide them with several exercises to choose from.

We were very excited to have this opportunity. Please look for the article in the July issue.

We have been busy adding events to our calendar. Our fall calendar is filling up quickly; please let us know if you are interested in hosting an event.



*From a painting by Helen Faccina*

of an unstoppable cyborg believable. Indeed, the quest for that look of power has driven teenage boys and adult men alike to the gym, not just for fitness, but for the perceived psychological advantage that they believe that it will provide them in both their business and social life.

The pecs are engaged in nearly every upper body activity that involves a pushing motion. Push an object in front of the body and you are engaging the pecs. Flex the arm at the shoulder and you engage the pecs.

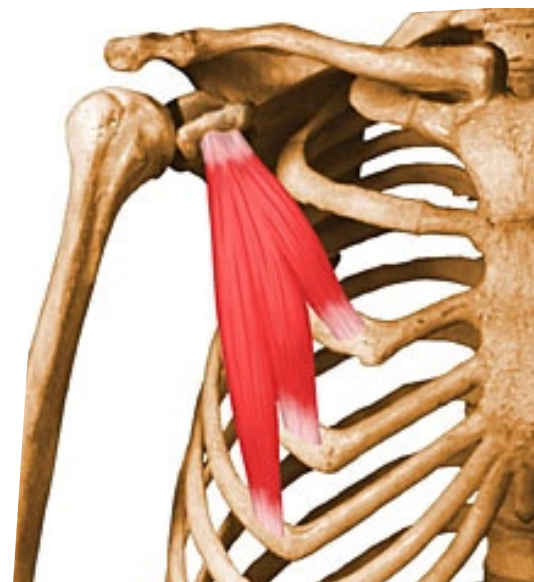
So, as educators of well-rounded fitness programs, we need to make sure that we are training the pecs for all their different functions and have exercises designed to emphasize each of the muscles in the muscle group.

### The Chest

By Greg Peterson

If you scan a magazine rack at your local news stand, you'll notice that the cover of the men's fitness magazines are nothing if not consistent. Month after month they feature a bare-chested model with huge pecs and washboard abs to put Superman to shame.

When the film *Terminator* turned Arnold Schwarzenegger into a household name, it wasn't his acting skills that ignited his career so much as his chest — the huge musculature of his upper body made his portrayal



*Pectoralis Minor*

While there are an unlimited number of ways that we can choose to train the pecs, not all exercises are appropriate for every group and some exercises are more effective than others, depending on our goal. Some of the things I look at when picking exercises are safety, appropriateness (for the class or client) and whether the exercise serves a practical purpose (e.g., help my client accomplish their daily tasks or improve in their particular sport).

### Anatomy of the Chest

The pecs are composed primarily of two muscles located in the chest. The Pectoralis Major is the superficial muscle that we all see and the Pectoralis Minor is the deep muscle. The Pectoralis Major has two groups of muscle fibers, the clavicular and the Sternal. The Clavicular fibers are responsible for flexion and horizontal adduction of the arm at the shoulder. The Sternal fibers are responsible for extension, adduction, and horizontal adduction.

The Pectoralis Minor is less complex than the Pectoralis Major. It does not assist with any movement at the shoulder, but is responsible depression and downward rotation of the scapula.

It is worth mentioning that there is another muscle that assist the pec muscles, the coracobrachialis. The coracobrachialis is one of the rotator cuff muscles and assists the Pectoralis Major with flexion, adduction and transverse adduction. Although it is a short and relatively weak muscle, the coracobrachialis plays a critical role in stabilizing the shoulder.

For this article, we are going to focus primarily on the Pectoralis Major.

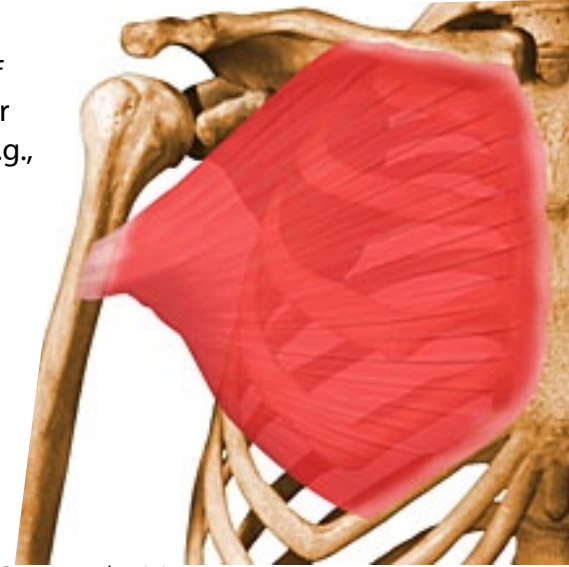
### Strengthening the Chest

In order to strengthen the Pectoralis Major, we must actively engage the muscle against a resistance. Now, this resistance can be any number of things, but since we are working in the water, we will focus on using the water with various types of buoyancy, drag and rubberized (stretch) equipment.

The nice thing about rubberized equipment is that the training exercises don't change from land to water. They are performed the same way in the gym and in the pool. With other types of equipment, though, the part of movement that is working against a resistance

will change, not in relation to gravity as it does on land, but according to position of the equipment in the water. This will force us to alter the body and limb position to ensure that the Pectoralis Major is continually engaged.

One thing to keep in mind as you are strengthening the Pectoralis Major is the importance of being able to control and stabilize



*Pectoralis Major*



the body during the movements. This means you need to have a strong core and stabilizers in the shoulders (Pectoralis Minor and Coracobrachialis) and hips.

### Safety Considerations

As with any strength and conditioning program, safety is a top priority. With this in mind, we need to remember that every exercise is not appropriate and safe for every population. We need to look at the different exercises we have for the Pectoralis Major and pick one that is compatible with the class/client for safety and objective.

Once we have chosen the exercises, we need to focus on body alignment and ROM. When we look at body alignment, we are looking at the body's ability to stabilize itself during the movement. Another safety factor to monitor is the speed of the movement. We want to make sure we control the movement throughout the entire ROM. Remember that we do not want to take the ROM past our shoulders when we are doing abduction in the transverse plane. We do not want momentum taking over the movement, so that we lose control of the exercise.

### Effective exercises in the pool

When we are in the water, keep in mind that gravity plays a very small role in the exercises. For the most part, the only time we are concerned with gravity is when we are working with water weights. Remember that depending on the type of equipment (or even when using no equipment)

the person will need to alter their body position for the Pectoralis Major to be able to work against a resistance. The other factor to think about is the type of muscle contraction that is occurring. This will also change based on the type of equipment used.

### Exercises Without Water Exercise Equipment

When we are working the chest in the water with no equipment, we are working against water's ability to create drag in all three dimensions. This creates a concentric isotonic contraction on the biceps every time we engage in flexion of the arm at the elbow and flexion of the arm at the shoulder. Here are some sample exercises.

1. Any movement allowing horizontal adduction in a vertical body position working in the transverse plane: standing flies; rocking horse with arm adduction in the transverse plane; level 2 jumping jack with arm adduction in the transverse plane

2. Any movement allowing horizontal adduction in a vertical body position working in the transverse plane: chest press Pushing the water forward; punches in water (hook, jab, upper cut); bounces pushing the water forward.

3. Any movement allowing flexion at the shoulder in a vertical body position working in the sagittal plane: cross-country ski with alternating straight arm swings; straight front leg kicks with alternating straight arm swings.

Remember: You can alter intensity by traveling, increasing the surface area of the lever, or escalating the force applied to the

movement, while maintaining a constant cadence.

### Exercises Using Drag Water Exercise Equipment

Drag equipment is one of the easiest types of equipment to use because once your students learn the movements without equipment; the identical movements can be done with the equipment. With drag equipment the intensity of the exercise increases, but the nature of the exercise remains the same: every contraction is concentric and isotonic.

### Exercises Using Buoyant Water Exercise Equipment

There are a variety of different types of buoyant equipment for the pool. Two of the most common are the foam hand bars and noodles. One thing I always like to caution instructors and trainers about is to be sure that you are using equipment that is designed for aquatic fitness. If your facility is on a tight budget, it may be tempting to jerry-rig your own buoyant equipment, but by doing so you will be putting your students at an increased risk of injury and make yourself liable for civil action as a result.

When using buoyant equipment to strengthen the chest, you work against the buoyant properties of the equipment, and in some ways, the exercises appear to be upside down versions of similar exercises in the gym. While



## Long-Term Vitamin E Supplementation May Increase Risk of Heart Failure

Previous short term studies on Vitamin E supplementation have not confirmed any benefit in preventing cancer or cardiovascular events. The purpose of this study was to evaluate whether long-term supplementation with vitamin E decreases the risk of cancer or major cardiovascular events.

Approximately 4,000 patients 55 or older with cardiovascular disease and diabetes served as subjects for the study which was an extension of the initial Heart Outcomes Prevention Evaluation [HOPE] trial. Subjects took either a daily dose of natural source vitamin E (400 IU) or a placebo for an average of 7 years.

The results of the study showed no differences in cancer incidence or major cardiovascular events between those taking Vitamin E and those taking a placebo. The study found that higher rates of heart failure occurred in those taking Vitamin E compared to placebo.

Based on this study, it appears that for patients with vascular disease or diabetes mellitus, long-term vitamin E supplementation does not prevent cancer or major cardiovascular events and may increase the risk for heart failure. Fitness Professionals should encourage their clients to discuss vitamin supplementation with their health care professional. ¶



Eva Lonn, MD. "Effects of Long-term Vitamin E Supplementation on Cardiovascular Events and Cancer". JAMA. 2005;293 (11):1338-1347.

gravity pulls downward on land, resisting our efforts to lift weights, buoyant equipment pulls in the opposite direction towards the surface of the pool. Unlike with no equipment, the Pectoralis Major will have both concentric (toward the bottom of the pool) and eccentric (returning to the surface of the water) contractions. In common with the other types of equipment, though, all contractions are isotonic.

Here are some examples of exercises for the chest with buoyant equipment.

1. From a lunge stance and leaning forward from the hips, take the arms straight out to the side at the shoulders. You want the elbows in line with the arm pits and not the shoulders. Now

while stabilizing in this position, perform transverse shoulder adduction to a point where the arms are straight in front of the chest. Then return to the starting position. This will isolate the chest during the first half of the movement.

2. Stand in a vertical position with the arms straight out to the side; perform the same movement as before at about a 30° angle downward. The ROM stops when the arms meet in front.

### Exercises Using Rubberized Water Exercise Equipment

When using rubberized equipment, the movements in the water will be the same as when the equipment is used on land. We will be able to get both concentric and eccentric isotonic con-

tractions. Just keep in mind that movements must be away from the anchor point in order to increase resistance.

### Conclusion

Remember that we always want to strive for muscular balance during our workouts and also make certain that we work the muscles through a full ROM. Try to monitor the work that the Pectoralis Major does to prevent overuse injuries. They are often overworked and disproportionately stronger than their counter muscle, the triceps. ¶

## Choreography: The Cross-Country Ski

Over the years, I have noticed that the cross-country ski has become one of the most under used moves as far as variety. People always ask me, "How can I add variety to the cross-country ski?" So this is going to be the topic of this month. We will look at several different ways to do the "ski" and also other ways to vary the "ski" a little more.

Remember that the slightest variation can give your participants a totally different feel, and thus create the appearance of a new exercise.

We are going to start off with a level one "ski." Remember that level one has the participant standing tall in the water doing the move-



*Photo courtesy AquaJogger*

ment. From this position, the first changes we can make to the movement are with the arms and hands. We can do the "ski" with the arms pushing straight in front keeping the opposite arm and leg working together. We can adjust the hands to pushing the water with the fingers up or pulling the water back with the fingers down. We can also take the arms straight swinging them front to back by your side with the hands blading through the water, palms forward or palms backwards. Another variation we can do from this position is adding a bounce or bring the knees up as the legs move from front to back. We can also add a center bounce to the movement by adding a bounce in the middle with the legs together as they move front to back. You can

also add traveling to any of these movements by going forward, backward or side to side to add more variety.

Let's take a look at the "ski" in level 2 position with the shoulders under the water. Remember, we are down in the water now, but the feet are still touching the bottom of the pool. One of the most common "skis" from level two is working ROM by extending the arms and legs all the way forward and back. A slight change would be to have the participants do a toe touch in back and a heel touch in front as they stride all the through the "ski". You can also travel in all directions from both of these variations.

And finally, level three. In level three, you are completely suspended and not touching the bottom of the pool. In level three, you really want to make sure their form is good. It is much harder to maintain form in level three. In this position, you are working ROM again. There are some variations you can make with the arms. You can keep the arms working in the sagittal plane or take them to a sculling position out to your side and focus on the legs. Again, traveling is always an option. However, in level three, you would want to focus on traveling forward and backward. If you are adding traveling, you can change the arm movements to working in the transverse plane.

We are only limited to our imagination to what type of a "ski" we do. You have so many options and combinations of the different options. Think about hand positioning, lever length of the arms and legs, level one, two and three, traveling, direction changes (3 "skis" with a 180° turn), tempos (land, water, ½ water) and ROM (small movement like a shuffle or full ROM).

So, try not to ever get in a rut of doing the same ol' "ski" day after day. As you can see, there are many variations we can do. I have only touched the surface on the variations, so, good luck and let's be creative out there. 🏊

# PERSONAL TRAINING: SPECIFICS FOR EXERCISE TESTING

By: JUDITH POWERS, MS

The American College of Sports Medicine (ACSM) sees fitness assessment as a common and appropriate practice for a prudent personal trainer/fitness counselor.

The primary purpose of fitness testing is:

- to provide data for fitness program development
- to collect data to establish baseline and follow up evaluations on the progress of client
- to educate and motivate client for establishing reasonable goals

ACSM recommends fitness assessments in the three key areas for the general population. They are cardiovascular, body composition and flexibility. There are also available fitness assessments for muscular strength and endurance, power, agility, and balance to name a few. The latter would be appropriate for athletic type clients.

Most trainers make the mistake of using a predetermined, pre-established battery of fitness assessments. The trainer should pre-screen and set goals after actively listening to their clients' fitness objectives. First impressions are lasting, and if the first meeting with the client the trainer probes, prods, pinches and pokes them, the client may not return. The successful trainer gets to know the client using a health history, medical history and client inventory form.

The trainer should set pri-

orities with the clients' goals in mind, establishing the fitness assessment selection based on the clients' abilities and health. "The closer the test comes to your clients exercise program, the greater the tests, validity and sensitivity" states John Griffin in his book Client Centered Exercise Prescriptions. Griffin recommends matching the skill level, activity level and mode of training of the client with the assessment the trainer administers.

There are many types of fitness assessments available to the personal trainer/fitness counselor. Developing the skill to administer and interpret these assessments should take place under the guidance of a trained fitness specialist. The Aquatic Fitness Professional Manual offers a general explanation of the more widely used fitness assessment. The ACSM Guidelines for Exercise Testing and Prescription (Fifth Edition) offer extensive explanation and normative data charts to use for interpretation.

Three organizations prepare individuals to administer various fitness assessments. They are:

1. American College of Sports Medicine; Health/Fitness InstructorSM (Health/Fitness Track)
  2. Aerobics and Fitness Association of American; Personal Trainer/Fitness Counselor
  3. Aquatic Exercise Association; Aquatic Personal Trainer Certification (starting Sept. 1999)
- Each organization has specific

program objectives for the specific certification. To take the ACSM certification it is recommended one has a four year undergraduate degree in health and fitness curriculum, attends the one week workshop held at a university setting in the US and Europe about five times per month.

The AFAA program is offered in the larger cities in the US and Internationally in a week-end format 20 times a month. No previous training is required. The AEA certification is offered this fall at specific sites country. A current Aquatic Exercise Certification is required along with a minimum of two years of aquatic teaching or personal training experience.

Field based tests can be relatively straight forward to administer and interpret for most clients needs. Field based tests are often times less expensive than lab test and can be used by personal trainers easily. Tests may also be modified to meet your clients fitness needs. The Client-Centered Exercise Prescription book written by John C. Griffin offers numerous assessment explanation, pro's and con's to assessments and who are best suited for which test.

Once the batteries of tests are completed, the explanation of the results are

tantamount to the clients retention in the program. The following is an example of the explanation used in a fitness program with the results' letter after fitness assessments was complete.

### Cardiovascular Fitness

Cardiovascular Endurance is defined by the American College of Sports Medicine as the ability to perform large muscle, dynamic, moderate-to-high intensity exercise for prolonged periods of time. Performance of such exercise depends on the functional state of the respiratory, cardiovascular, and skeletal muscle systems. This measure of your aerobic capacity is often considered the most important aspect of your overall fitness. Your aerobic capacity is a measure of the amount of oxygen you can transport from your heart and lungs to your entire body.

During the fitness assessment, the client's heart rate is monitored while they exercise. Considering this information, the trainer can predict the client's fitness level and then design a safe starting level for cardiovascular exercise and determine the rate of progression. The tool used to estimate the client's ability to use their aerobic capacity should be a test

that one can perform easily. The client should need little training and be one that is transferable to the clients exercise regime.

Samples of sub-maximal tests are:

3 Minute Step test

12 Minute Walking test

500 yard shallow run test

1.5 Mile Run/Walk test

The premise used is one where the increase in workload reflects the increase in oxygen need, which usually results in an increase in heart rate respectively. By using the client's heart rate at sub-max level's one can then predict maximum work load. A qualitative rating of fitness can be determined by using published normative tables. In 3-6 months the personal trainer can re-test the client and measure their progress then adjust the exercise program.

### Body Composition

Measuring your clients' body composition accurately provides an important basis for setting up an appropriate exercise program of total health and fitness. The frequently used standard - the "height weight tables" is of little use in evaluating your body's physique. It is well established that certain individuals are quite muscular and in excess of some average

weight for their height and gender, but otherwise lean in terms of body composition. For such people, a weight loss program is unnecessary and may even be harmful.

Not always is the "average" body weight for one the most healthy weight. They could yet possess an undesirable excess of body fat but be the appropriate weight for their height. In this situation, a reduction in body fat would be desirable for health reasons.

What is more im-



portant is the need for effective weight control among adults who suffer the consequences of physical inactivity and unbalanced diet. For these people, body fat eventually exceeds even the most liberal limits for normality and should be reduced. Therefore, a reduction in total calories to create the caloric imbalance plus an exercise program (cardiovascular and muscle building) can play an important role on the road to better health.

Hydrostatic weighing (underwater weighing) is the "gold standard" to which all other indirect methods are usually validated. This weighing technique is based on Archimedes' principle; which states that when a body is immersed in water, it will be buoyed upwards by a counter-force equal to the weight of the water displaced. When proper laboratory facilities are unavailable to conduct the hydrostatic weighing, alternative but simple procedures to predict body fatness can be used. One of these ways is measurement of subcutaneous fat folds.

In the fitness setting the fat fold measurement using a skinfold caliper is the most practical and affordable means to get an estimated measurement of percent body fat values. It is predictable and correlates well ( $r$  is equal to or greater than 0.80).

The principle behind this technique is based on the amount of subcutaneous body fat is proportional to the total amount of body fat (about 50%). Many regression equations have been developed over the years. However, the regression equations used should be specific to the populations from which they were derived.

There are two ways to use fat fold measurements. The first is to sum up the scores of the measurements and put them in a formula to determine a percentage fat value. The second is to record each site



individually and use those values as the guideline, just as the percentage value, to evaluate both before and after progress. This measurement will help the trainer to determine the type of fitness program to suggest for the client.

### Flexibility

Flexibility refers to the ability to move your joints through a full range of motion. If your joints are inflexible, there is a strong risk for pain, tightness and injury along with poor function. Muscles, tendons, and connective tissues lose their elastic qualities with the aging process and lack of activity.

We all have a specific range of motion based on our age, gender, physical activity level and genetics. The fitness assessment will help to judge the clients current range of motion in the areas where most people are at greatest risk for injury, your low back area.

There is a high incidence of lower back pain and disability among people of all ages. In most cases, it is related to reduced flexibility of the hip, back and thigh area. This area is most affected by our lifestyles and activity level. Trunk flexibility has been measured for the past 40 years as a indication of susceptibility for low back pain. †

## Increased Activity Improves Metabolic Risk Factors Even Without Dieting

There is an increased tendency for women to gain weight and become more sedentary following menopause. This weight gain is characterized by an increase in visceral fat which increases the risk for metabolic disease. A recent study assessed the relationship of daily energy expenditure on metabolic risk profile.

Subjects were 118 women not taking hormone replacement;; their daily energy expenditure was measured based on a 3 day activity diary. Intensity was determined on a scale of 1-9 scale with 1 being very low energy expenditure (sleeping) and 9 being very high energy expenditure (running).

The researchers found that high energy expenditure (6-9) was positively associated with a lower BMI, less accumulated visceral fat and a favorable metabolic profile. The study documented the benefit of using increased physical activity to make favorable improvements in fat storage and health. ¶

Major, Genevieve, C. 2005. *Energy expenditure from physical activity and the metabolic risk profile at menopause.* *Medicine & Science in Sports and Exercise.* 37(2), 204-212.

## Coming Events



San Diego

June 11-12, 2005  
Franklin, WI

September 10-11, 2005  
E. Jefferson General Hospital  
& Wellness Center  
Mettarie, LA

October 1-2, 2005  
The Claremont Club  
(outdoor pool)  
Claremont, CA

## Sponsors and Suppliers



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